CHIPPEWAS OF GEORGINA ISLAND FIRST NATION

PROJECT NUMBER: 19M-01347-03

# GEORGINA ISLAND FIXED LINK

## A PROJECT FOR SEVEN GENERATIONS

Detailed Project Description of a Designated Project
Plain Language Summary

December 11, 2025

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## List of Abbreviations

| Abbreviation | Definition |
|---|---|
| 2SLGBTQQIA+ | Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex, Asexual, and Additional Sexual Orientations and Gender Identities |
| BHR | Built Heritage Resources |
| CHER | Cultural Heritage Evaluation Report |
| CHL | Cultural Heritage Landscape |
| CIPS | Cambium Indigenous Professional Services |
| CIRNAC | Crown-Indigenous Relations and Northern Affairs Canada |
| CP | Certificate of Possession |
| DEM | Digital Elevation Model |
| DFO | Fisheries and Oceans Canada |
| DPD | Detailed Project Description |
| EA | Environmental Assessment |
| ECCC | Environment and Climate Change Canada |
| ELC | Ecological Land Classification |
| END | Endangered |
| ESA | *Ontario Endangered Species Act, 2007* |
| ESC | Erosion and Sediment Control |
| GHG | Greenhouse Gas |
| GIFL | Georgina Island Fixed Link |
| GIFN | [Chippewas of] Georgina Island First Nation |
| IAA | *Impact Assessment Act* |

| Abbreviation | Definition |
|---|---|
| IAAC | Impact Assessment Agency of Canada |
| IGF | Information Gathering Form |
| IPD | Initial Project Description |
| ISC | Indigenous Services Canada |
| LSPP | Lake Simcoe Protection Plan |
| LSRCA | Lake Simcoe Region Conservation Authority |
| MCM | Ministry of Citizenship and Multiculturalism |
| MECP | Ministry of Environment, Conservation and Parks |
| MNO | Métis Nation of Ontario |
| MNR | Ministry of Natural Resources |
| MP | Member of Parliament |
| MPP | Member of Provincial Parliament |
| MTO | Ministry of Transportation Ontario |
| NAR | Not at Risk |
| NHIC | Natural Heritage Information Centre |
| OP | Official Plan |
| PSW | Provincially Significant Wetland |
| PTTW | Permit to Take Water |
| RfR | Request for Review |
| RLSC | Rescue Lake Simcoe Coalition |
| SACC | Strategic Assessment of Climate Change |
| SAR | Species at Risk |

| Abbreviation | Definition |
|---|---|
| SARA | *Species at Risk Act* |
| SC | Special Concern |
| SUV | Sport-Utility Vehicles |
| SWH | Significant Wildlife Habitat |
| SWM | Storm Water Management |
| THR | Threatened |
| TIS | Transportation Impact Study |
| WSP | WSP Canada Inc. |
| WTFN | Williams Treaty First Nations |

## Units of Measure

| Abbreviation | Description |
|---|---|
| % | percent |
| °C | degree Celsius |
| cm | centimetre |
| CO2eq | carbon dioxide equivalent |
| dBA | A-weighted decibel |
| DBH | diameter at breast height |
| ha | hectare |
| km | kilometre |
| $km^2$ | square kilometre |
| km/h | kilometres per hour |
| L | litre |
| m | metre |
| $m^3$ | cubic metre |
| m/s | metres per second |
| MPa | megapascal |
| psi | pounds per square inch |

# PART A: GENERAL INFORMATION

The Chippewas of Georgina Island First Nation (GIFN) is proposing the Georgina Island Fixed Link (GIFL), consisting a bridge-causeway-low-level bridge fixed link structure with an overall length of 2.6 kilometres (km) (the Project). The Project is proposed to provide a safe and permanent connection between the community on Georgina Island, which is in Lake Simcoe, and the mainland road system of the Town of Georgina, Ontario (the Project). The proposed Project will provide two-way access from the southwest shore of Georgina Island to the mainland, and is designed to minimize environmental impact while remaining cost-effective.

From north (Georgina Island) to south (mainland), the Fixed Link includes approximately 110 metres (m) of causeway, 740 m of low-level bridge, 500 m of causeway, and 1,250 m of high-level bridge. To ensure that the Fixed Link is a part of the transportation network on the mainland, approximately 800 m of new roadway will be needed to connect the Fixed Link to Black River Road on the mainland side.

Because the Project includes more than 400 m of causeway, the Fixed Link is a “designated project” per the Schedule to the Physical Activities Regulations under the federal *Impact Assessment Act* (the IAA); thus, the proponent commenced the initial stage of the impact assessment (IA) planning process with the Impact Assessment Agency of Canada (IAAC).

### *Key Milestones in the Federal Impact Assessment Process*

- IAAC accepted the Initial Project Description (IPD): April 26, 2022
- IAAC held a 34-day public comment period on the IPD: April 26, 2022 to May 29, 2022
- IAAC issued the Summary of Issues document: June 8, 2022
- IAAC suspended the 180-day time limit for the Planning phase at the proponent’s request to allow more time to address the comments received: June 29, 2022

Since that time, GIFN has actively engaged with IAAC and other stakeholders, the results of which have been considered to develop this Detailed Project Description (DPD).

### *Updated Information Compared to IPD*

As a result of the comments on the IPD, as well as the feedback from engagement activities during the development of this DPD, several new environmental studies were completed between 2022 and 2025, the findings of which have informed this DPD. A number of additional ongoing studies will inform the Detailed Design stage and eventual permit application processes required for the Project.

In comparison to the IPD, this DPD has been updated to include information about the following:

- The studies undertaken following the public comment period on the IPD, as well as their findings and how they may influence the project;
- The consultation and engagement undertaken following the public comment period on the IPD, as well as how it has been taken into consideration;
- Additional alternatives considered as a result of the feedback received, and an updated design for the Fixed Link, with the selection of a bridge-causeway-low-level bridge structure as the preferred option (rather than a causeway-bridge-causeway structure as proposed in the IPD);
- The Responses to the Summary of Issues; and

- The requirements for a DPD in Schedule 2 of the Information and Management of Time Limits Regulations (Government of Canada, 2019).

## 1. Project Name

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

## 2. Proponent Information

| | |
|---|---|
| **Mail/e-mail:** | All correspondence to be sent to the **Proponent Contact**<br>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 | Primary Representative Contact |
|---|---|
| **Farzin Shahid-Noorai**<br>Project Director<br>WSP Canada Inc. (WSP)<br>150 Commerce Valley Drive West<br>Thornhill, Ontario<br>L3T 7Z3 Canada<br>Phone : (416) 433-8393<br>E-mail: farzin.shahid-noorai@wsp.com | **Michael S. Jacobs**<br>Project Manager<br>Fixed Link Secretariat<br>c/o Cambium Indigenous Professional Services (CIPS)<br>1109 Mississauga Street<br>Curve Lake First Nation, ON, K0L 1P0<br>Phone: (705) 872-7244<br>E-mail: m.jacobs@indigenousaware.com |

# PART B: PLANNING PHASE RESULTS

## 3. Summary of Engagement

### Public Engagement

GIFN hosted one public engagement session during the development of the IPD for the Project, and three engagement sessions during the development of the DPD. See Appendix F of the DPD for meeting notes with members of the public.

A summary of the event details, as well as the topics presented, can be found in **Table 1** below.

***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 through a First Nation lens, covering its timeline from conception to the submission of the Draft IPD to the IAAC. |
| Regional Citizens – Open Meeting | June 23, 2023 | 30 in-person participants | The session provided an overview of the federal IA process, pre-feasibility planning, and technical work completed to date on the Project. Key updates included project progress, collaboration with the IAAC, and technical insights on funding, environmental impacts, light/noise pollution, and design considerations. Future public engagement opportunities were also outlined. |
| Regional Citizens – Public Information & Engagement Session | January 24, 2024 | 85 participants | This in-person session provided detailed technical presentations on project design, environmental impacts, sediment and runoff management, mitigation measures, and alternatives. It also offered a comprehensive overview of completed technical reports on existing conditions and potential impacts, while giving community members an opportunity to ask questions and share feedback. |

| Event | Date | Attendance | Topics Presented |
|---|---|---|---|
| GIFL Virtual Community Engagement Session | December 11, 2024 | 85 participants | This session provided Project updates, findings from the coastal engineering report, updates regarding a ferry alternatives evaluation, updated project timeline, details on the IA process, and a question and answer (Q&A) period for community questions and concerns. |

## Community Interest Groups Engagement

A summary of the meetings with community interest groups to date, including the topics presented, can be found in **Table 2** below.

***Table 2: Summary of Community Interest Group Consultation Events***

| Event | Date | Attendance | Topics Presented |
|---|---|---|---|
| Rescue Lake Simcoe Coalition | April 22, 2021 | 1 representative | Introduction to the Project, aspects of interest, processes for formal engagement and next steps. |
| Non-for-profit Organizations:<br>▪ Rescue lake Simcoe Coalition<br>▪ Carden Field Naturalists<br>▪ South Lake Simcoe Naturalists<br>▪ North Gwillimbury Forest Alliance<br>▪ Lake Simcoe Association<br>▪ Windfall Ecology Centre<br>▪ Lake Simcoe Watch<br>▪ Ontario Rivers Alliance<br>▪ Sail Georgina | July 22, 2021 | 10 representatives | Introduction to the Project, including background and understanding prior to the official impact assessment process being initiated. |

| Event | Date | Attendance | Topics Presented |
|---|---|---|---|
| ▪ Ontario Water Centre | | | |
| Georgina Island Fixed Link Project Lake Simcoe Stakeholders Engagement Session | June 23, 2023 | ▪ AWARE Simcoe<br>▪ Barrie Métis Council<br>▪ Lake Simcoe Region Conservation Authority<br>▪ Nature Barrie<br>▪ Ontario Water Centre<br>▪ Regional Municipality of York<br>▪ South Lake Simcoe Naturalists (Ontario Nature)<br>▪ Town of Georgina | Update on the initial pre-feasibility planning for the Fixed Link initiative and establish connections and dialogue with Lake Simcoe Stakeholder Organizations. |
| Lake Simcoe South Shore Residents Association (LSSSRA) | November 29, 2023 | ▪ 1 LSSSRA representative | Overview of an LSSSRA Discussion Paper abut the Project, status updates for the Project studies and timeline for uploading documents to the Project website, the status of the design work being undertaken and a clear interest from the LSSSRA to see the results, and the Hydrogeological Assessment (water wells survey) notifications, for which the LSSSRA indicated it would be willing to assist in getting notification letters to addresses. |

## Regulatory Agencies Engagement

Engagement with regulatory and government agencies was initiated in the fall of 2020 and was conducted with a number of federal, provincial, and municipal agencies that have jurisdiction in the region of the Project location.

The Project Team has met or corresponded with IAAC several times from 2021 through 2025 to provide updates on the status of the Project, clarify process requirements, and seek input on the proposed approach to the Project planning.

A summary of engagement events with other regulatory agencies can be found in **Table 3** below.

***Table 3: Summary of Regulatory Agency Engagement***

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| **Federal** | | |
| Canada Infrastructure Bank and IAAC | October 5, 2020 | Introductory Project meeting with CIB and IAAC.<br>The outcome of this meeting was the identification that the Project falls under the designated project list under the IAA. See Section 8 for further information. |
| IAAC and Ministry of the Environment, Conservation and Parks (MECP) | May 12, 2021 | Meeting to discuss the need for coordinating federal-provincial environmental assessment (EA) requirements for the Project. |
| Fisheries and Oceans Canada (DFO) | May 24, 2022 | A request for information was submitted to DFO. No response has been received. |
| | July 12, 2024 | A Request for Review (RfR) for the geotechnical investigation was submitted to DFO. |
| | August 2024 | DFO reviewed the RfR and confirmed that the geotechnical investigation did not require an authorization by the agency. |
| Transport Canada | June 28, 2024 | WSP, on behalf of GIFN, submitted the Application for Approval to the Navigation Protection Program (NPP) for geotechnical testing in Lake Simcoe. |
| | August 14, 2024 | NPP reached out to WSP to further inquire about details of the application. |
| | August 27, 2024 | NPP reached out to provide directions for publishing a public notice pursuant to *the Canadian Navigable Waters Act* (CNWA). |
| | September 9, 2024 | WSP informed NPP about the scheduled public notice in the Georgina Post newspaper. |
| | September 20, 2024 | WSP sent the NPP an email to answer the inquiries from August 14, 2024. |
| | October 11, 2024 | NPP provided its approval under the CNWA for the proposed geotechnical testing program. |

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| Environment and Climate Change Canada (ECCC) – Canadian Wildlife Service (CWS) | May 25, 2022 | A Request for Information was submitted to ECCC CWS |
| | May 26, 2022 | A response to the data request was received from CWS (see Appendices T1, T2, and T3 of the DPD).<br>ECCC confirmed that, in terms of data, it is concerned about population-level information and less often has information about specific sites. The district offices of the Ontario Ministry of Natural Resources (MNR) are usually a better contact for site-specific information. |
| | June 12, 2023 | A meeting with Sean Mitchell, Special Assistant (Minister's Office) took place with the following subject/purpose: Aboriginal Affairs, Environment, and Infrastructure. |
| | July 23, 2024 | A meeting with Joshua Swift, Policy Advisor (Minister's Office) took place with the following subject/purpose: Aboriginal Affairs, Environment, and Infrastructure. |
| Indigenous Services Canada | June 28, 2023 | A meeting with Clinton Couchie, Deputy Regional Director, and Kaitlyn Peters, Regional Advisor (Ontario) took place with the following subject/purpose: Aboriginal Affairs and Infrastructure. |
| | July 29, 2023 | A meeting with Alex Filbey, Policy & Regional Advisor (Ontario) took place with the following subject/purpose: Aboriginal Affairs and Infrastructure. |
| | November 2024 | A meeting with Director General-level officials took place to discuss updates regarding the Project. |
| | January 2025 | A meeting with Director General-level officials took place to discuss updates regarding the Project. |
| Infrastructure Canada | June 5, 2023 | Sussex, on behalf of GIFN, met with Chris Knipe, Regional Advisor (Ontario) of Infrastructure Canada, to discuss the Project. The meeting focused on matters related to Aboriginal Affairs and Infrastructure. |
| Canada Infrastructure Bank | November 24, 2025 | Meeting to discuss continued financial support for the Project. |
| **Provincial** | | |

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| MECP | March 9, 2021 | Meeting to determine what is required for the provincial EA process, if an EA is required. |
| | May 24, 2022 | A Request for Information was submitted to MECP – Species at Risk Branch for existing environmental data. |
| | May 26, 2022 | An email response from the MECP was received, providing existing environmental data regarding SAR, as well as further recommendations to be included in the study. |
| | September 29, 2022 | The MECP provided information about the following topics:<br>▪ Information on what the MECP considers to be habitat for Least Bittern and what to consider when assessing for harm or harassment; and<br>▪ Recommendation on the completion of an Information Gathering Form when further information about the proposed works is known. |
| | October 27, 2022 | The MECP provided information on the following:<br>▪ Details on Least Bittern habitat avoidance requirements and timing windows; and,<br>▪ Potential exemption from provincial requirements of the Endangered Species Act, 2007 (ESA) for projects on First Nation Reserve.<br>▪ MECP recommended the submission of Information Gathering Form as detail design progresses and determination of applicable laws for the Project through legal advice. |
| Ministry of Natural Resources (MNR) | May 26, 2021 | Discuss EA processes and jurisdictions, including potential works on shorelands and lake bottom under MNR jurisdiction. |
| | May 24, 2022 | A request for information was sent to the Aurora District office. |
| | June 16, 2022 | As a result of the request, MNR Aurora District provided the following information:<br>▪ Noted that the Virginia Beach wetland is currently shown in the Land Information Ontario database as non-provincially significant; however, 2011 field work found |

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| | | a number of significant species that would make them provincially significant and they should be treated as such.<br>▪ Proposed to combine the Virginia Beach and Sibbald Point wetlands into one Provincially Significant Wetland (PSW).<br>▪ Referred the Project Team to the Regional Aquatic Scientist for further information on Lake Simcoe fish resources.<br>▪ Clarified previous comments about Muskellunge and Northern Pike Spawning habitat.<br>▪ Noted that Aurora District has fish dot mapping for the tributaries. |
| | June 16, 2022 | A request for information was sent to Lisa Graham (Regional Aquatic Science Specialist) regarding mapped fish spawning habitat and historical studies. |
| | August 18, 2022 | ▪ MNR provided fall egg collection results from Lake Trout surveys completed at Sibbald Point (raw data). Acknowledged that additional survey work, specific to spawning, is not completed by their unit.<br>▪ Forwarded request to Brent Shirley with MNR to acquire Fish Activity Data layer. |
| | October 18, 2022 | ▪ Acknowledged that limited information is available regarding how the Fish Activity Areas are generated.<br>▪ Provided additional information regarding the Muskellunge stocking in Lake Simcoe and proximal to the Georgina Island.<br>▪ Agreed to set up a call to discuss further. |
| | October 19, 2022 | ▪ A virtual meeting was held to discuss the various data that the Project Team is waiting for, and a summary of this virtual meeting was provided by Cambium Inc. to MNR Staff.<br>▪ Action items resulting from the meeting included for the MNR to request relevant information from the Muskellunge Restoration project team, including context of Fish Activity and input on scoping |

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| | | assessments at Sibbald Point (documented Lake Trout spawning). |
| | October 19, 2022 | ▪ MNR provided the Muskellunge Restoration Feasibility Study, and the Muskellunge Restoration Program Summary.<br>▪ MNR confirmed that limited information is available within MNR as to how the Fish Activity Areas are generated and developed. |
| | July 2024 | WSP submitted an MNR Work Permit Application for the onshore and offshore geotechnical investigation for the Project |
| | August 2024 | WSP provided MNR with DFO's authorization to support the Work Permit application. |
| | October 2024 | MNR issued the work permit on October 4, 2024. |
| MNR - Natural Heritage Information Centre (NHIC) | May 25, 2022 | A request for information was submitted to MNR - NHIC |
| | May 27, 2022 | MNR's NHIC branch:<br>▪ Provided information for one restricted species within the study area.<br>▪ Attached reports for the Georgina Island Wetland Complex.<br>▪ Confirmed it did not have information on the Georgina Snake and Fox Islands or the Virginia Beach Wetland Complex and referred to the MNR district office for more information.<br>▪ Provided information about Colonial Waterbird Nesting Areas (4 records for 4 different species dating from 2004-2008). |
| Ministry of Citizenship and Multiculturalism (MCM) - Citizenship, Inclusion and Heritage Division | January 17, 2024 | MCM acknowledged receipt of the Cultural Heritage Report and provided its comments in an accompanying letter and table. |
| | July 31, 2024 | WSP provided an update about the Project, as well as a comment-response matrix for the comments received on January 17, 2024. In addition, WSP submitted the Cultural Heritage Evaluation Report (CHER), and noted that the CHER has been completed and accepted by GIFN, and posted on the Project website. |

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| | August 15, 2024 | MCM acknowledged receipt of the CHER and the accompanying comment-response table, indicating it would provide feedback by mid-September. |
| | November 22, 2024 | MCM provided its comments on the CHER and Cultural Heritage Report. |
| | January 28, 2025 | WSP confirmed receipt of the comments provided by MCM on November 2024, noting that a Cultural Heritage Report Addendum was being prepared to address MCM's January 17, 2024 comments, along with revisions to the CHER based on the November 22 feedback. |
| | April 4, 2025 | MCM requested a meeting to discuss the comment responses. |
| | September 29, 2025 | WSP emailed MCM to inform them that their comments have been incorporated in the final CHER and Cultural Heritage Report – Addendum. |
| MCM - Archaeology Program Unit, Heritage Operations Branch | March 2, 2025 | MCM issued a letter of compliance for the Stage 1 Terrestrial Archaeological Assessment Report dated September 6, 2023 and filed with MCM on September 14, 2023 (see Appendix R of the DPD). |
| | March 10, 2025 | MCM issued a letter of compliance for the Marine Desktop Archaeological Assessment dated September 6, 2023 and filed with MCM on the same date (see Appendix Q of the DPD). |
| | August 28, 2025 | WSP submitted a Marine Archaeological Impact Assessment Report conducted under permit #2024-46 (Appendix Q2 of the DPD). MCM confirmed receipt on the same day. |
| **Municipal / Other Jurisdictions** | | |
| Lake Simcoe Region Conservation Authority (LSRCA) | August 11, 2021 | Introduction to the project and overview on the current project status. |
| | May 24, 2022 | A request for information was submitted to the LSRCA. |
| | June 2, 2022 | LSRCA provided the link to the Open Data Portal. |
| | August 22, 2023 | Meeting to present and discuss findings from Terrestrial and Aquatic Existing Conditions study prepared by Cambium Inc. |

| Agency | Date of Engagement | Summary of Engagement |
|---|---|---|
| | October 30, 2023 | Meeting to present and discuss the findings of the draft Coastal Engineering study prepared by WSP. |
| | January 15, 2024 | Meeting to discuss the submitted technical reports and summaries relating to coastal engineering, ecology, geology and civil engineering. |
| | January 31, 2024 | LSRCA emailed CIPS to inquire if there are any concerns about the public release of their technical comments.<br>The LSRCA confirmed that approvals will not be required under *Ontario Regulation 179/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* under the *Conservation Authorities Act.* The LSRCA is not able to or required to issue a permit for the Project as the Project subject to is a federal (nation to nation) matter and not subject to provincial legislation. |
| | November 1, 2024 | Meeting to present updates on technical reports, and discuss responses to LSRCA's comments on submitted technical reports |
| | November 18, 2025 | Meeting to present an update on the Project. This information session had a brief question and answer where formal questions could be documented through IAAC or directly to CIPS. None have been received to date. |
| LSRCA Board of Directors | September 24, 2021 | Meeting 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. |
| MTO, Town of Georgina, York Region, York Region Transit, and Student Transportation Services of York Region. | September 2022 | Consultation on the proposed Transportation Impact Study (TIS) Terms of Reference and study requirements. |

## Elected Officials Engagement

A summary of the engagement activities with Member of Parliament (MP) Davidson, Town of Georgina Mayor and Council, and MPP (Member of Provincial Parliament) Mulroney can be found in **Table 4** below.

***Table 4: Summary of Engagement Activities with Elected Officials***

| Elected Official | Date of Engagement | Summary of Engagement |
|---|---|---|
| MP for York-Simcoe – Scott Davidson, | August 31, 2021 | Provided an introduction and overview of the Project to the MP for York-Simcoe, and presented how constituents can engage the Project. |
| Town of Georgina Mayor and Council | November 17, 2021 | Provided an introduction and overview of the Project to the Town of Georgina Mayor and Council. |
| | October 4, 2023 | Presented an update to the Town of Georgina Council on the progress made on the Project, including recent studies and engagement undertaken. |
| Member of Provincial Parliament for York-Simcoe – Caroline Mulroney | December 3, 2021 | Presented to the Member of Provincial Parliament for York-Simcoe on how constituents can engage in the Project. |

## Canadian Impact Assessment Agency Engagement

A summary of the engagement events initiated by IAAC per the IAA can be found in **Table 5** below.

***Table 5: Summary of Engagement Activities per the IAA***

| Date of Engagement | Summary of Engagement |
|---|---|
| April 26, 2022 - May 29, 2022 | The IAAC established a public comment period from April 26, 2022 to May 29, 2022, to collect input from the public, Indigenous groups, federal authorities, provincial ministries and municipalities on the IPD and any issues that the stakeholders considered relevant to the Project. The IAAC collected written comments through the Canadian Impact Assessment Registry during the comment period. These comments can be found on the Registry on the IAAC website at: https://iaac.gc.ca/050/evaluations/exploration?projDocs=83539.<br>A total of 83 comments were received by IAAC. The majority of the comments were requesting information about the alternatives to the Project, potential environmental impacts due to the Project, access to and safety of the community, and clarification about the proposed mitigation measures.<br>During this time, the GIFL Secretariat also used GIFL website (www.gifixedlink.com), to announce that comments could be provided directly to IAAC to ensure they were received and documented as part of the process. The website provided a link to the IAAC Registry where stakeholders could review the IPD, provide comments, and review the comments of others. |

| Date of Engagement | Summary of Engagement |
|---|---|
| May 10, 2022 and May 18, 2022 | To support public participation during the comment period, IAAC facilitated two English virtual information sharing and discussion sessions to provide information about the Project and the IA process. The first part of each session consisted of a description of the proposed Project, and the second regarding the IAA process. The English sessions were held at the following schedule:<br>▪ May 10, 2022, from 5:30 p.m. to 7:30 p.m. EST<br>▪ May 18, 2022, from 9:30 a.m. to 11:30 a.m. EST |
| May 13, 2022 and May 19, 2022 | Similarly, to support public participation during the comment period, IAAC facilitated two French virtual information sharing and discussion sessions to provide information about the Project and the IA process. The French sessions were held at the following schedule:<br>▪ May 13,2022, from 9:30 a.m. to 11:30 a.m. EST<br>▪ May 19,2022, from 5:30 p.m. to 7:30 p.m. EST |
| June 8, 2022 | A Summary of Issues document that reflected the comments relating to the IPD was submitted by IAAC to GIFN. The Summary of Issues is available on the Canadian Impact Assessment Registry page for the Project. (Reference # 83539 at https://iaac-aeic.gc.ca/050/evaluations/document/144102?culture=en-CA). |

## Future Engagement with Regulatory Agencies and the Public

The GIFN Chief and Council recognize that additional consultation with government agencies and other stakeholders will be required for the portions of the Project. As a result, the Fixed Link Engagement Plan (Appendix E of the DPD) was finalized and approved by Council in February 2022 for implementation. Engagement sessions will be provided as a part of the GIFN and greater Lake Simcoe community engagement plan. The frequency of these dates has been determined through initial discussions and presentations by the GIFL Secretariat Team, as outlined in **Table 6** below.

Furthermore, as outlined in Part E, other provincial permits and approvals are expected to be required from the various regulatory agencies prior to construction. Consultation with the regulatory agencies regarding the preparation of relevant applications will commence as part of the planning for the Construction phase, and in many cases will also require additional Indigenous and stakeholder engagement.

***Table 6: Public, Community Interest Groups and Regulatory Agency - Future Engagement***

| Engagement Stakeholders | Frequency | Anticipated completion | Notes |
|---|---|---|---|
| **Government Agencies** | ▪ Updates are to be offered on a quarterly basis, depending on Project progress and need.<br>▪ Presentations to government agencies will be conducted as desired (either when desired or according to a fixed schedule). | Meetings are set to be held throughout 2025 and as appropriate. | GIFL Secretariat has opened a line of communication through a Project website (www.gifixedlink.com), email contact and project meetings. |
| **Public, and targeted public community interest groups** | ▪ Public presentations will be conducted to solicit input regarding potential impacts during the IA process, as required.<br>▪ Community interest groups currently protecting Lake Simcoe (e.g., the Lake Simcoe South Shore Residents Association (LSSSRA) and the Virginia Beach/Sutton Community) may request presentations to their respective groups given the shared interest with the GIFN community of Georgina Island.<br>▪ A website has been developed to share information, reports, and updates on an ongoing, real-time basis. The general public can subscribe for updates.<br>▪ Facebook pages have been developed to support general public engagement. | ▪ The GIFL Secretariat remains committed to ongoing engagement and transparency. Project updates, including new studies, reports, and other developments, will continue to be shared through the Project website: www.gifixedlink.com<br>▪ The email mailing list: Subscribers will receive real-time updates.<br>▪ Social media platforms: Regular updates and engagement opportunities will be posted.<br>▪ Community members and stakeholders are encouraged to provide their feedback through the IAAC process. This ensures all voices and perspectives are heard as the project progresses. | GIFL Secretariat has opened a line of communication through the website, email contact and presentations. |

## 4. Summary of Indigenous Engagement

### GIFN Community Engagement

In addition to the engagement events described in **Section 3**, several community meetings and presentations have been held within the GIFN community to inform them of Project updates and progress. **Table 7** below provides a summary of the engagement events discussed above as well as community meetings held from 2021 to 2024.

***Table 7: Summary of GIFN Community Engagement Events***

| Event | Attendance | Date/time | Topics Presented |
|---|---|---|---|
| GIFN Community Holiday Bazaar | 60 participants | December 3, 2019 | Project constraints and opportunities as well as schedule and project study area map. |
| GIFN Community Visioning Workshop | 31 participants | January 13, 2020 | Potential positives, objections, enhancements, and remediation related to the project. |
| GIFN Community Presentation | 71 participants | March 5, 2021 | Notify community of the Project's intent to enter the IA process. Inform the community on upcoming engagement and vote requirements that may be required as a result of the Fixed Link Progress. |
| GIFN Semi-annual Community Meeting | Not recorded | July 27, 2021 | Semi-annual community meeting to inform of Project progress. |
| GIFN Youth Workshop | 11 participants | November 9, 2021 | General project overview and Q&A portion to respond to Georgina Island youth's questions/concerns about the project. |
| GIFN Fixed Link Project Community Update | 50 participants | May 31, 2022 | General update about the Project timeline, IA process refresher, technical studies taking place, and a Q&A portion to respond to the GIFN community's questions about the Project |
| GIFN Fixed Link Project Community Update | 60 participants | October 6, 2022 | General update on 2022 Project activities and a Q&A portion to respond to the |

| Event | Attendance | Date/time | Topics Presented |
|---|---|---|---|
| | | | GIFN community questions about the Project. |
| GIFN Land Use Committee Meeting | 7 participants | September 5, 2023 | Update on studies carried out to date within the framework of the project, concerns or questions regarding infrastructure and land use planning. |
| GIFN Annual General Meeting | 45 participants | October 11, 2023 | General update on 2023 project studies progress, preferred alignments, an IA process refresher, and a Q&A portion to respond to GIFN community questions about the Project. |
| GIFN Fixed Link Project Update | Not recorded | November 2, 2023 | Project status in line with IA process; technical studies progress planned engagement and dissemination opportunities. |
| GIFN Community Meeting | 40 participants | January 31, 2024 | Technical presentations on existing conditions studies that have been completed for the Project, potential impacts, as well as 5% design. Informed the community of the upcoming DPD submission. |
| GIFL Community Meeting Virtual | 15 participants | December 11, 2024 | Project updates on revised Fixed Link designs, environmental studies, and ferry alternatives. Addressed community concerns about infrastructure, environmental impacts, and governance. Reaffirmed transparency and community-led decision-making. |
| GIFN Annual General Meeting | Not recorded | May 12, 2025 | Updates on the Ferry Alternatives Report presented to GIFN community. |
| GIFN Community Meeting | Not recorded | June 2025 | Chief and Council formally asked the GIFN community to |

| Event | Attendance | Date/time | Topics Presented |
|---|---|---|---|
| | | | decide on the next steps for the Project. |
| GIFN Community Referendum Vote | 255 participants | October 22, 2025 | Members were asked to choose between two transportation options for the community's long-term connection: a Fixed Link or a Water-Based Option. Of those who voted, 64% supported pursuing a Fixed Link. |

## Engagement with Other Indigenous Communities and Organizations

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 (Appendix E of the DPD) to help ensure that the Project does not impact GIFN rights, or the rights of other Nations. The GIFN are signatories of a Williams Treaty and are constitutionally recognized as Aboriginal people in Canada. As such, the First Nation will respect the Nation-to-Nation relationship with the federal government of Canada and request the same in return. This relationship is documented by, "Characteristics of a Nation-to-Nation Relationship - Discussion Paper (February 2017)" - Submitted to the Institute on Governance (Marcia Nickerson).

A summary of feedback collected during the Indigenous consultation and engagement meetings to date, is included in **Table 8** below.

***Table 8: Summary of Non-GIFN Indigenous Engagement***

| Indigenous Group | Attendance | Date | Issues Raised |
|---|---|---|---|
| Williams Treaties First Nations:<br>▪ Curve Lake First Nation<br>▪ Hiawatha First Nation<br>▪ Alderville First Nation<br>▪ Beausoleil First Nation<br>▪ Chippewas of Georgina Island First Nation<br>▪ Chippewas of Rama First Nation<br>▪ Mississaugas of Scugog Island 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 that may occur as a result of the Project. |

| Indigenous Group | Attendance | Date | Issues Raised |
|---|---|---|---|
| Metis Nation of Ontario | 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. |
| Williams Treaties First Nations:<br>▪ Curve Lake First Nation<br>▪ Hiawatha First Nation<br>▪ Alderville First Nation<br>▪ Beausoleil First Nation<br>▪ Chippewas of Georgina Island First Nation<br>▪ Chippewas of Rama First Nation<br>▪ Mississaugas of Scugog Island First Nation | 8 representatives | August 26, 2021 | Following the July 15, 2021 meeting, Chief Big Canoe reintroduced the Project to request a Letter of Support from each community. Six Letters of Support were received. |
| Huron Wendat Nation | 2 representatives | November 30, 2021 | Primary concerns pertained to archaeology, with environmental and technical issues outside of archaeology entrusted to the GIFN and the Williams Treaty First Nations (WTFN) as part of the environmental impact evaluation process.<br>The First Nation also noted that it believes that GIFN and its Williams Treaties counterparts will take the required environmental care of the site and would trust that stewardship to the Proponent and its 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. As a result, the Fixed Link Engagement Plan (Appendix E of the DPD) 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 9** below.

***Table 9: Indigenous Communities - Future Engagement***

| Engagement Stakeholders | Frequency | Notes |
|---|---|---|
| GIFN Members | GIFN community update meetings on a quarterly basis.<br>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.<br>GIFN community will be given notice of opportunities for Project-based inputs as they arise through project development. |
| Williams Treaties First Nations Allies | Updates to Williams Treaties Chiefs will be provided at scheduled meetings of the Williams Treaties Communities.<br>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.<br>If required, GIFN will request special or ad hoc meetings with WTFN Chiefs. |
| Other Indigenous Leadership | Updates are to be offered on a quarterly basis, depending on Project progress and need.<br>Presentations will be conducted as desired (either when desired or according to a fixed schedule).<br>Duty to consult activities will be conducted by the GIFN community and IAAC for the Huron Wendat Nation and the Métis Nation of Ontario. | GIFL Secretariat has opened a line of communication through a Project website (www.gifixedlink.com), email contact and presentations. |

## 5. Relevant Plans or Studies

### Regional Assessments

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

### Provincial, Municipal and Local Studies, Plans and Guides

#### Lake Simcoe Protection Plan (LSPP)

The Lake Simcoe Protection Plan (LSPP) was prepared and approved under the *Lake Simcoe Protection Act, 2008* (MECP, 2020) and is a comprehensive plan to protect and restore the ecological health of Lake Simcoe and its watershed, comprising all the land that drains into Lake Simcoe directly or via rivers and streams. The Act requires that decisions under the *Planning Act* or the *Condominium Act, 1998,* or decisions related to a “prescribed instrument”, conform

with the applicable designated policies in the Plan and have regard to the other applicable policies(refer to Section 5.2.1 of the DPD).

The Project Team will consult further with provincial regulators such as the MNR regarding the applicability of the *Public Lands Act* and other permits or approvals that may trigger the application of the LSPP, and confirm the expectations in relation to conformance with the LSPP.

In the interim, the Project Team has reviewed the LSPP and its appended Schedule of Applicable Policies to determine which Designated Policies may apply. Several of the policies have specific requirements or mitigation measures, which have been cross-referenced against those in the DPD to either confirm that equivalent measures have been included or to add additional measures. For example, Policy 4.20 indicates several measures that shall be undertaken for any site alteration in the Lake Simcoe watershed. The measures under this policy are consistent with the proposed mitigation measures in the DPD. For examples, see Sections 19.1.2 and 20.1.2.

Regardless of the legislative and policy requirements, the GIFN was involved in the development of the LSPP and is committed to abiding by the spirit of the plan's requirements to protect Lake Simcoe's water quality (e.g., by protecting the shoreline, restoring or enhancing natural features, working with DFO for *Fisheries Act* authorization, maintaining the natural flow of water along the shoreline, and designing the bridge's stormwater management to meet modern design standards). As such, consideration of the protections of the LSPP have been incorporated into various sections of this DPD, and will continue to be recognized throughout the planning and permitting processes.

### Sibbald Point Provincial Park Management Plan

The Sibbald Point Provincial Park Management Plan provides the long-term direction for managing Sibbald Point Provincial Park, including the purpose, permitted uses, zoning and implementation priorities (MECP, 2021a). The Plan identifies a potential addition to the park's waterfront boundary, which is approximately 5-minute drive from the Project study area.

### Greenbelt Plan

The Greenbelt protects 1.8 million acres of environmentally sensitive and agricultural lands in the Greater Golden Horseshoe from urban development and sprawl (Government of Ontario, 2017). Components of the Project located along the shoreline of the Town of Georgina / Greenbelt Boundary fall within the Protected Countryside designation of the Greenbelt Plan (MMAH, 2023). Section 4.2.1 contains general infrastructure policies for lands falling within the Protected Countryside.

The Project is expected to meet the requirements of the Plan because it will be subject to environmental review under the IAA (which replaced the *Canadian Environmental Assessment Act* in 2019) and it provides infrastructure connections that will allow GIFN community members better access to recreation, tourism and economic activity on the mainland. It also provides an infrastructure connection between the community and the mainland, where no connection currently exists.

In addition, the location and construction of the Project in the Protected Countryside will comply with the criteria set out in 4.2.1.2 of the Greenbelt Plan. Specifically, the new infrastructure aims to avoid key natural heritage features, key hydrologic features and key hydrologic areas to the extent possible. As described in Sections 7 and 12 of the DPD, extensive work has gone into determining the need for the project and reviewing alternative options that meet the need, yet also consider environmental, social, technical and economic constraints. In the view of the community, there is no reasonable alternative; thus, complete avoidance has not been possible.

Where the Project does cross the Natural Heritage System, or intrude into or result in the loss of a key natural heritage feature (e.g., species at risk habitat, fish habitat and wetlands), key hydrologic feature or key hydrologic areas (e.g., streams, lakes and wetlands), mitigation measures have been, and will continue to be, identified to minimize negative impacts on and disturbance of the features or their related functions. Such measures are primarily outlined in Section 19.1 Fish and Aquatic Habitat, Section 20.2 Natural Environment, and Section 20.7 Coastal Environment, of this DPD, and it is anticipated that additional measures will be identified through permitting processes.

### York Region Official Plan

Land use within portions of the study area, excluding Georgina Island and the Sand Islands, is characterized in the York Region Official Plan (OP) (York Region, 2022c). The Plan identifies Significant Natural Features, Significant Forest Resources and the Regional Greenland System (particularly on the mainland and Duclos Point, which is on the mainland to the east of the study area) 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.

### Town of Georgina Official Plan

The Town of Georgina OP excludes Georgina Island, and the areas covered by the study area are generally designated as a mix of Environmental Protection Area, Rural Area, and Greenlands System land use within the mainland (Town of Georgina, 2017).

## Project-Specific Studies

### Preliminary Evaluation of Engineering and Environmental Alternatives, Neegan Burnside, 2008

In 2006, Neegan Burnside Ltd. was retained by GIFN to complete a Preliminary Evaluation of Engineering and Environmental Alternatives (Appendix A of the DPD) as a first step toward realizing improved transportation and access between the island community and the mainland. The report was completed in 2008 and focused on a preliminary evaluation of routes and alternative crossing methods to begin to explore options to answer the question of how to provide a more convenient and consistent mode of travel for the island residents and their visitors (Neegan Burnside Ltd., 2008).

### Climate Adaptation Plan, GIFN and Ontario Centre for Climate Impacts and Adaptation Resources , 2015

From 2012 to 2015, the GIFN as Project Lead and the Ontario Centre for Climate Impacts and Adaptation Resources as Project Partner, collaborated on a Community Climate Change Adaptation Project that broadened the expertise within the community, and recommended adaptation measures to deal with current and future impacts of climate change. A Climate Change Adaptation Plan was completed in 2015 and recommended adaptation measures to address the climate risks identified as a result of changing climate on Georgina Island (Appendix J of the DPD).

### The Georgina, Fox and Snake Islands Subwatershed Plan, GIFN and LSRCA, 2017

This sub-watershed plan studied the three islands of Georgina Island, Fox Island and Snake Island and mainland area that make up the Georgina, Fox and Snake Islands sub-watershed, located in the southern portion of Lake Simcoe. The lands within the sub-watershed are owned by the GIFN (refer to **Section 13.3** of the DPD for further information regarding the legal land description) and fall within the Regional Municipality of York. The total sub-watershed area is 1.4 $km^2$, comprising 0.5% of the Lake Simcoe watershed.

This sub-watershed plan was prepared by the GIFN and the LSRCA to identify impacts on the islands' natural features, ensure that the cultural values of the First Nation as keepers of Mother Earth are captured and integrated into the efforts put forth to restore and protect such features for future generations, and to be consistent with the efforts that are on-going within the Lake Simcoe watershed.

The LSPP and the LSRCA's Integrated Watershed Management Plan (IWMP) also influenced the development of this sub-watershed plan. Although it was not required under the LSPP, the plan reflects the goals, objectives, and targets of the LSPP. The IWMP is considered to be a road map that outlines the future direction of the protection and rehabilitation of the entire Lake Simcoe watershed. Its broadscale recommendations provide the basis for a number of the recommended actions for the smaller scale Georgina, Fox and Snake Islands sub-watershed.

### Health Impact Assessment, Intrinsik, 2021

In mid 2021, Intrinsik Corp. was retained by the GIFN to conduct a Health Impact Assessment for available transportation options to and from Georgina Island (Appendix G of the DPD). The study was completed in November 2021 and provided the foundation for the development of recommendations to maintain, protect and improve the community's health and well-being as it relates to transportation options available to GIFN.

### Georgina Island Fixed Link Project Plan, WSP, 2022

In 2020, the GIFN retained WSP to complete a Project Plan that considered the regulatory and legal parameters in place in Canada for major infrastructure projects that have the potential to impact the environment (Appendix L of the DPD). The Project Plan was completed in 2022; it identified the planning process, engagement process, EA requirements, and the guiding principles of the GIFN and community that were expected to be applicable in order to construct a fixed link.

### Fixed Link Engagement Plan, GIFN, 2022

In February 2022, a Fixed Link Engagement Plan was developed to serve as an initial guide to inform the engagement activities through the various stages of Project development, construction, and operation (Appendix E of the DPD). The Plan is considered a working document that will evolve over all stages of the Project and defines a technically and culturally appropriate approach to engagements.

### Fixed Link Socio-Economic Study, CIPS, 2022

In March 2022, a Fixed Link Socio-Economic Study was completed. It examined the socio-economic considerations of the proposed Project for the GIFN community. This study was one component piece required by the community in the Fixed Link Project Plan process. (Appendix B of the DPD).

## Completed and Future Studies

In addition to the aforementioned studies, WSP and Cambium have completed a number of detailed existing environmental conditions studies between 2022 and 2025, undertaken to incorporate the valuable feedback the Project received during the public comment on the IPD and in response to the Summary of Issues. Results available from these studies have been included in the DPD, where applicable.

The list of completed studies and investigations are as follows:

- Air Quality Impact Assessment (2023);
- Noise Impact Assessment Report (2023);
- Aquatic Existing Conditions Report (2023), and Aquatic Existing Conditions Report for the Preferred Alignment (2023);
- Terrestrial Existing Conditions Report (2023);
- Preliminary Hydrogeological Study (2024)
- Cultural Heritage Report: Existing Conditions and Preliminary Impact Study (2022) and Addendum (2025)
- Cultural Heritage Evaluation Report (2025)
- Ferry Alternatives Report (2025)
- Seven Generations Financial Report (2025)
- Stage 1 Terrestrial Archaeological Assessment (2023)
- Marine Archaeological Desktop Assessment (2023)
- Marine Archaeological Impact Assessment (2025)
- Transportation Impact Study (2023)
- Coastal Engineering Study (2024)
- Geotechnical Investigation Program (2024)
- Geophysical Investigation Program (2025)
- Phase 1 Environmental Site Assessment Reports (2020)

Refer to Section 5.3 and 5.4 of the DPD for a detailed description of each of the studies.

The list of future studies and investigations are as follows:

- Surface Water Quality Impact Study
  - Erosion and Sediment Control (ESC) Plan
  - Stormwater Management Strategy

- Spills Management and Response Plan
- Visual Impact Study
- Lighting Plan
- Air Quality Management Plan
- Construction Noise and Vibration Assessment Report
- Additional Archaeological Investigations
- Underwater Acoustics Assessment Report

### Nearby Assessments

Relevant nearby projects were identified to help determine potential interactions with the Project. These projects will be considered in future cumulative effects assessment of the Project, where required.

For preliminary identification of other designated projects under the IAA that could contribute to potential cumulative effects, a spatial boundary of a 200 km radius from the Project site was used based on the “nearby assessments within 200 km” feature on IAAC’s Canadian Impact Assessment Registry page for the Project.

For preliminary identification of nearby provincial assessments, a spatial boundary of 50 km radius from the Project site was used for provincial EA projects. These projects include those that might have residual effects that could interact with the residual effects from this Project. This spatial boundary and list of reasonably foreseeable projects would be further refined for the impact assessment.

York Region and the Town of Georgina’s official websites were reviewed to determine relevant municipal and regional projects that may have the potential to interact cumulatively with the Project’s effects. Further information about these projects and assessments are provided in **Section 5.5** of the DPD.

## 6. Section 95 Strategic Assessments

The only relevant strategic assessment for the Project is the Strategic Assessment of Climate Change (SACC) (ECCC, 2020). Under the SACC, any project undergoing a federal IA will be required to provide an estimate of the Project’s greenhouse gas (GHG) emissions.

The Aazhaawe Ferry is the single largest energy user within the GIFN. From 2014 to 2017, the ferry consumed approximately 244,600 litres (L) of diesel annually. It is responsible for the production of an estimated 676 tonnes of carbon dioxide equivalent ($CO_2$eq) annually, which is about 17% of the total GHG emissions produced by GIFN per year. By building a fixed link, and eliminating the need for the ferry, there is a potential for annual GHG production through fossil fuel combustion to be reduced.

Potential GHG emissions from the construction and operation of the Fixed Link have been calculated and are discussed in **Section 23 of the DPD**. In general, the proposed Fixed Link GHG emissions have been estimated to result in a decrease of 3 to 5% less than the expected GHG emissions from the current ferry operations; thus, supporting the goals of Canada’s Climate Action Plan.

No other strategic EAs have been completed in relation to the Project or study area.

# PART C: PROJECT INFORMATION

The GIFN are proposing a Fixed Link to connect Georgina Island to the mainland in the Town of Georgina (the Project). Georgina Island is home to 179 band members, or 28% of the band, that permanently reside on the island's land mass of approximately 15 $km^2$ with an area of 1,416 ha/3,499 acres (Appendix B of the DPD). 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 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 number of issues the GIFN currently face, which 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 and will continue to cause threats to Island travellers health and safety.

As currently proposed, pending finalization of the Detailed Design phase, the proposed Fixed Link consists of three main sections: a bridge, a causeway, and a low-level bridge, with an overall length of approximately 2.6 km. The proposed Fixed Link includes approximately 110 m of causeway for the approach to the bridge, 731 m of low-level bridge, 494 m of causeway, and 1,250 m of high-level bridge. To ensure that the Fixed Link is a part of the transportation network on the mainland, approximately 800 m of new roadway will be needed to connect the Fixed Link to Black River Road. See **Figure 1** for the Project location and a depiction of the proposed route.

The low-level bridge will be constructed on low profile allowing approximately 3.0 m vertical clearance to the water to accommodate kayaks, canoes and small boats for navigation. This structure is proposed to have 14 piers and be of slab on precast girders type with spans of approximately 48.75 m. At the south of the low-level bridge structure, there will be a causeway that will be constructed by placing fill on the lakebed with natural side slopes. The high-level bridge structure will consist of the main structure and approach structures. The main structure is proposed to be a single box with long spans, varying from approximately 60 m to 150 m, on high profile with the tallest span allowing approximately 10.0 m vertical clearance to the water to accommodate sailboats. The approach structures to the main span will be on low profile and made of slab on precast girders. The number of piers of the high-level bridge structure is 14.

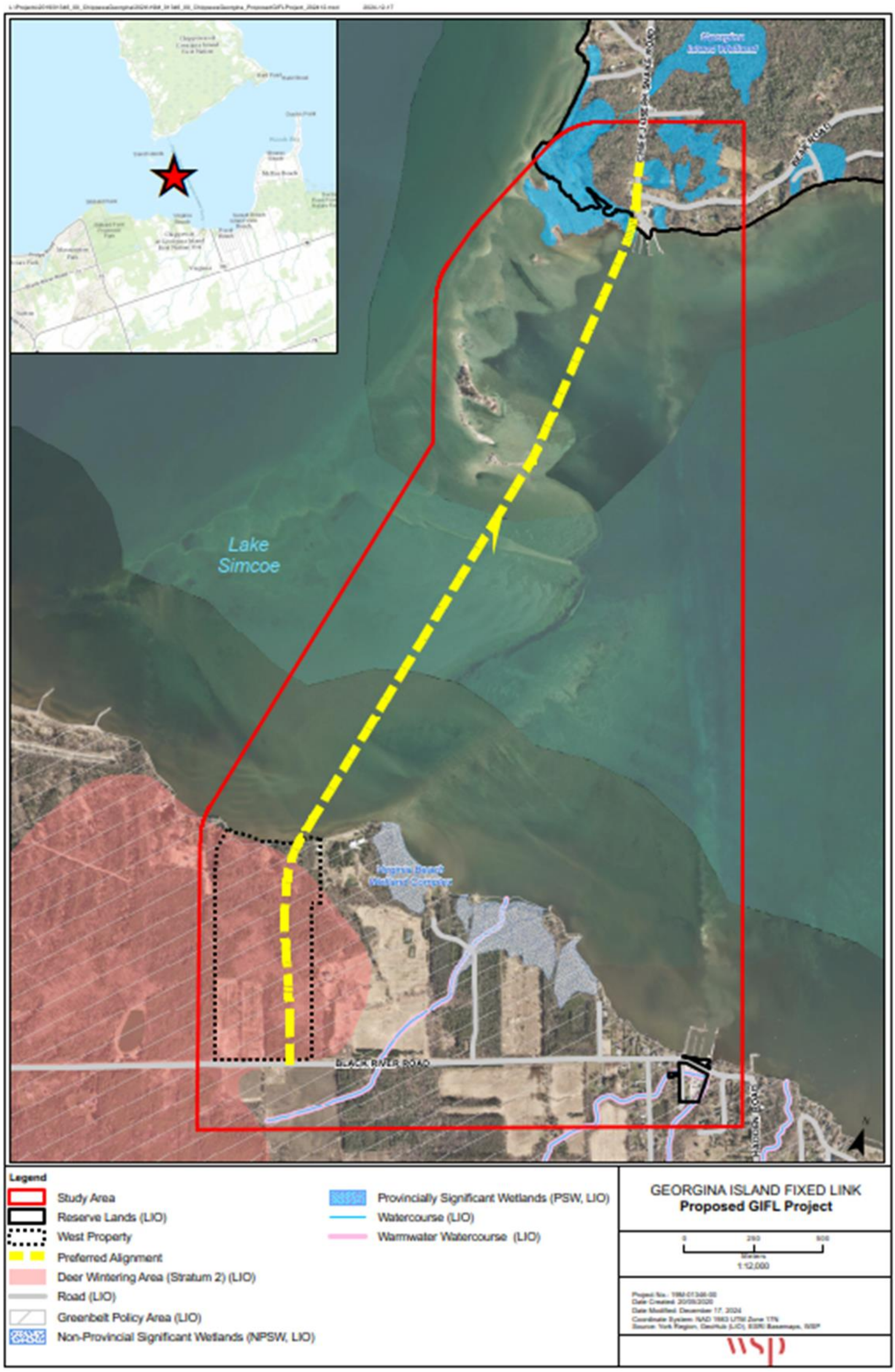


*Figure 1: Proposed GIFL Project*

## 7. Purpose and Need for the Project

Currently, Georgina Island has no permanent connection to the mainland. The purpose of the Project is to provide a safe and permanent connection between the community on Georgina Island, which is in Lake Simcoe, and the mainland road system of the Town of Georgina, Ontario (the Project). The Project is proposed to provide a permanent land-based access route from the mainland to the shoreline of Georgina Island to reduce reliance on seasonal, unreliable and at times unsafe passage via ferry, airboat and ice travel, particularly during difficult seasonal conditions. 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.

The need for the Project primarily stems from an urgent need to address issues of health and safety, as well as reliability of access, particularly during winter crossings, but also in relation to access to medical and other emergency services (e.g., medical, fire and police services). In the spring, summer and autumn months, the island is accessible by water, primarily via the Aazhaawe Ferry or personal vessels. In the winter, the island is accessible by ferry, but only when the water crossing is possible. Otherwise, an airboat (i.e., “the Scoot”), which is a 12-passenger air-propelled vehicle, is used to transport people and goods over the ice (see **Section 7** of the DPD). If the ice is thick enough across Lake Simcoe, driving vehicles, personal vehicles, ATVs or snowmobiles are also possible, though with unpredictable ice thickness becoming more frequent, safety risks associated with driving are a growing concern.

These health and safety issues present a need for investment in a safer, more reliable, and cost-effective transportation alternative to allow continuous two-way access between Georgina Island and the mainland. The current methods to access Georgina Island are neither reliable, nor safe, and have caused threats to the health and safety of GIFN community members and other island inhabitants (i.e., non-GIFN cottagers). In more than one case, the lack of safe crossing method has resulted in loss of life.

The intent of the Project is not to increase future development or tourism on Georgina Island; however, in addition to the health and safety considerations for the Project, the proposed Project would also have inherent social and economic benefits to the GIFN community, such as improved access to jobs and education on the mainland. These are discussed more in **Section 22 of the DPD**.

## 8. Project Designation Per the Physical Activities Regulation

The Schedule to the Physical Activities Regulations under the IAA provides a description of the physical activities that are deemed to be designated projects, including activities relating to transportation. Section 50 of the Regulations specifically includes the “*construction, operation, decommissioning and abandonment of a new permanent causeway with a continuous length of 400 m or more through navigable water*.”

Because the Fixed Link is proposed to traverse Lake Simcoe (a navigable body of water as defined by the *Canadian Navigable Waters Act*) and will involve approach causeways and a permanent central causeway of greater than 400 m, the Fixed Link is a designated project by definition. As well, Project is not a component of a larger Project that is not listed in the Project List.

## 9. Project Components and Activities

While the detailed design is in the planning stages and will be informed by ongoing studies and consultation with regulators and stakeholders, the following provides an overview of the proposed Project at this time. From north (Georgina Island) to south (mainland), the Fixed Link includes approximately 110 m of causeway for the approach to the bridge, 731 m of low-level bridge, 494 m of causeway, and 1,250 m of high-level bridge. To ensure that the Fixed Link is a part of the transportation network on the mainland, approximately 800 m of new roadway will be needed to connect the Fixed Link to Black River Road.

The low-level bridge, with an approximate length of 731 m, will be constructed on low profile allowing approximately 3.0 m vertical clearance to the water to accommodate kayaks, canoes and small boats for navigation. This structure is proposed to have approximately 14 piers and be of slab on precast girders type with spans of approximately 48.75 m. At the south of the low-level bridge structure, there will be a causeway approximately 494 m long. This causeway will be constructed by placing fill on the lakebed with natural side slopes. The high-level bridge structure, with an approximate length of 1,250 m, will consist of the main structure and approach structures. The main structure is proposed to be a single box with long spans, varying from approximately 60 m to 150 m, on high profile with the tallest span allowing approximately 10.0 m vertical clearance to the water to accommodate sailboats. The approach structures to the main span will be on low profile and made of slab on precast girders. The number of piers of the high-level bridge structure is 14.

The Fixed Link is proposed to feature two lanes for vehicle traffic and a multi-use path that will have a pedestrian walkway and bike lane, both well-lit and separated from vehicular traffic by concrete barriers. The proposed cross-section of the bridges (from east to west) (**Figure** 2) will consist of:

- concrete barrier
- 1.5 m paved shoulder
- 2 x 3.75 m traffic lanes
- 1.5 m paved shoulder
- concrete barrier
- 3.6 m Multi-Use Path
- pedestrian open barrier

The roadway cross-section on the approaches and causeway sections will be similar.

The piers and foundations of the bridges will be designed to resist water current, ice load, and scour. The piers adjacent to the navigable channel will be designed for collision loading, or crash protection will be provided to protect piers from collision.

For more detailed information about the pre-construction design considerations, construction activities, operation and maintenance activities, and decommissioning, refer to **Section 9 of the DPD**.

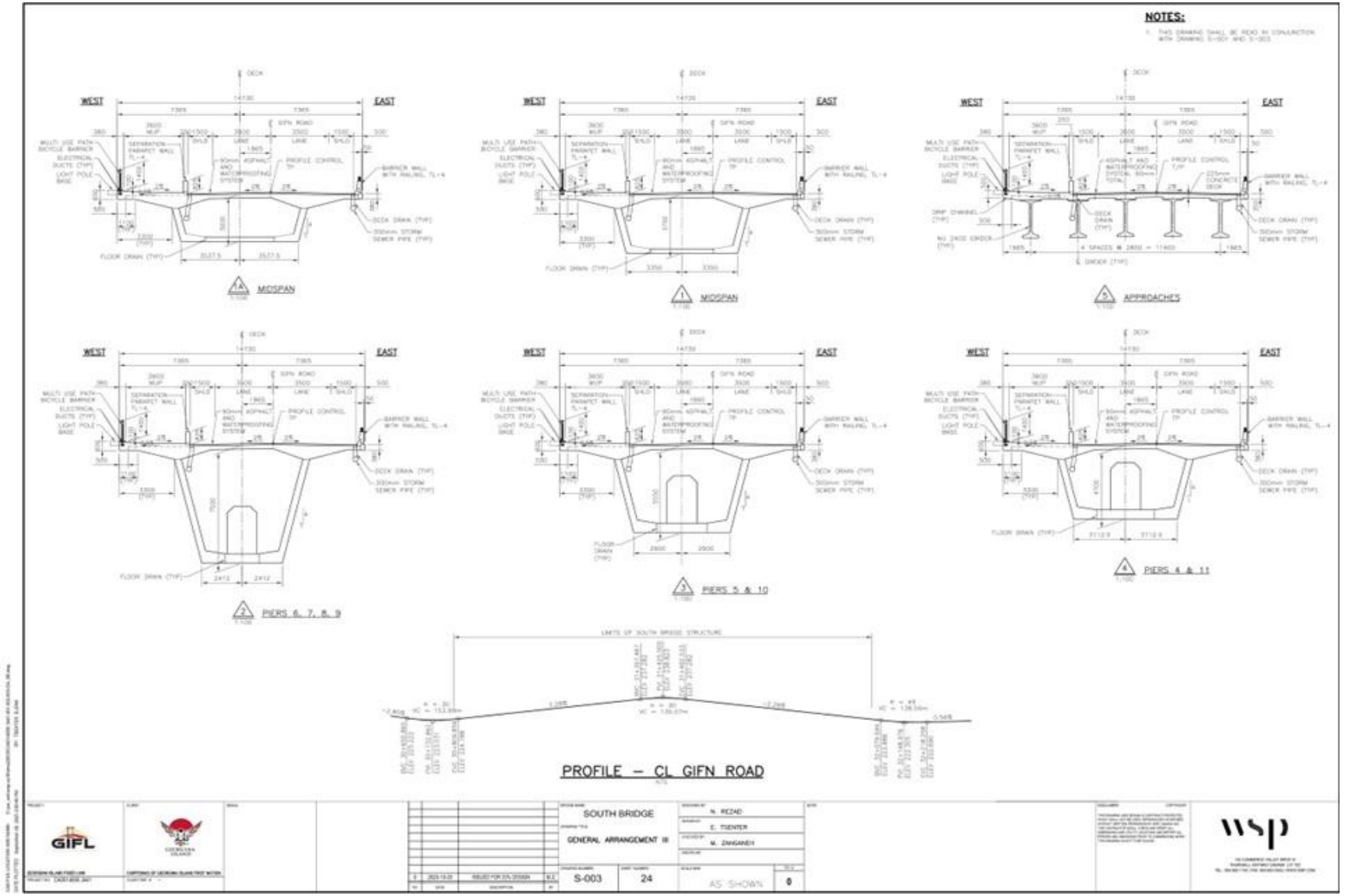


*Figure 2: **Segmental Bridge Conceptual Design Arrangement Options***

## 10. Maximum Production Capacity

IAAC's guidance for a DPD 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 Project will provide a permanent link connecting local roads on Georgina Island to and from the mainland. Given its connections, a lane capacity of a maximum of 400 vehicles per hour on the Fixed Link is projected, similar to the typical lane capacity for a local road.

## 11. Anticipated Schedule

For the anticipated Project schedule of the sequential phases of the Project development, please refer to Appendix D and Section 11 of the DPD. The precise timeline as to when the sequential phases outlined in **Table 10** below can commence are contingent upon receiving the appropriate approvals from IAAC and other regulators.

Depending on the timing of such approvals, it is plausible that the Detailed Design phase could start in late 2025 and construction could start in early 2026 and be completed in 2029, as per the timeline indicated in Appendix D of the DPD.

The construction activities will be subject to seasonality and weather conditions, and specifically, work occurring in water will accommodate required seasonal timing windows set out by DFO and other relevant environmental restrictions and requirements.

The proposed construction schedule will assume that construction activities could be carried during the winter months (December to March) in compliance with jurisdictional requirements. Although delays could be anticipated during extreme weather events, such as snowstorms, heavy snow fall, etc.

***Table 10: Fixed Link Project Schedule Summary***

| Key Project Development Phase | Timeline for Phase |
|---|---|
| Detailed Design Phase | 9 months |
| Tendering & Award | 5 months |
| Construction | 38 months |
| Operation | Anticipated to be 75 to 100 years of continuous operation |
| Decommissioning and Abandonment | Post-operation |

## 12. Project Alternatives

### Alternative Means

**Preliminary Alternative Route Options (2008-2020):** The first stage of the alternative means assessment involved the GIFN Leadership and community examining various technically and

economically feasible means of addressing the access concerns between Georgina Island and the mainland. This included the identification of alternative **routes** aimed to determine the general crossing corridor of the Project, considering the entire southern shoreline of Georgina Island and the mainland shoreline from Doyle Beach/Virginia to Duclos Point. This stage served as a preliminary evaluation of alternative means and concluded with the selection of a preferred route. See section 12.1.1 of the DPD for further details.

**Alternative Alignments for Preferred Route (2021-2023):** The second stage of the alternative means assessment involved the identification and evaluation of alternative **alignments** for the preferred route. After selecting a preferred route in the previous stage, two initial alignments were introduced based on-site investigations, existing environmental conditions, comments received on the IPD, and feedback from regulatory agencies. These alignments were later refined and modified to minimize impacts on Sand Islands and the Georgina Island Wetland Complex, and to determine the final placement of the Fixed Link on Lake Simcoe. This stage concluded with the selection of a preferred alignment. See section 12.1.2 of the DPD for further details.

**Alternative Design Options for the Preferred Alignment (2024):** The third and final stage of the alternative means assessment focused on further design modifications due to feedback received through continued engagement on the Project. Since the public comment period on the IPD, additional engagement has been conducted with interested members of the public, GIFN community members, non-project organizations, other Indigenous communities and the LSRCA. As a result of those discussions, additional design options were explored to address comments received. These options, which were not available at the time of the IPD preparation, are presented in Section 12.1.3 of the DPD, along with an explanation of the selection of the preferred new **design**. Option 3B represents the preferred conceptual design of the Project and its placement between Georgina Island and the mainland.

**Table 11** below provides a summary of the evolution of the various alternative means considered. For context, “routes” were the broad corridors within which several “alignments” for a fixed link could be proposed, and the “designs” were the considerations of potential Project components that would form the Fixed Link, such various types and combinations of causeways and bridge structures.

***Table 11: Summary of the Various Alternative Means Assessments for the Project***

| Year | Alternative Means Assessment | Change to Design of Project |
|---|---|---|
| 2008 | Preliminary Alternative Route Options | Three alternative route options for the Project were proposed in the Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside Ltd., 2008). Refer to **Section 12.1** and Appendix A of the DPD. |
| 2020 | Preliminary Alternative | A GIFN Community Visioning Workshop was held on January 13, 2020, to review the Preliminary Alternative Route Options. |

| Year | Alternative Means Assessment | Change to Design of Project |
|---|---|---|
| | Route Options | Outcome of workshop – decision made to select Alternative Route Option #3 as the **preferred route (Figure 3)** |
| 2021 | Alternative Alignments for Preferred Route | Two initial alternative alignments for the preferred route were proposed. |
| 2022 | Alternative Alignments for Preferred Route | The two initial alternative alignments from 2021 were eliminated from further consideration. Three refined alternative alignments were prepared. |
| 2023 | Alternative Alignments for the Preferred Route | Decision made to select Refined Alternative Alignment #2 as the **preferred alignment (Figure 4)** |
| 2024 | Alternative Design Options for the Preferred Alignment | Six alternative design options were proposed due to LRSCA and public concerns, including the originally proposed design (causeway-bridge-causeway), which is Option #1 in this assessment.<br>Decision made to select Alternative Option #3B as the new **preferred design** for the Project, which incorporates three main sections: a bridge, a causeway, and a low-level bridge (**Figure 5)** |

Refer to **Section 12.1** of the DPD for further details regarding the evaluation processes of the various alternative means considered.

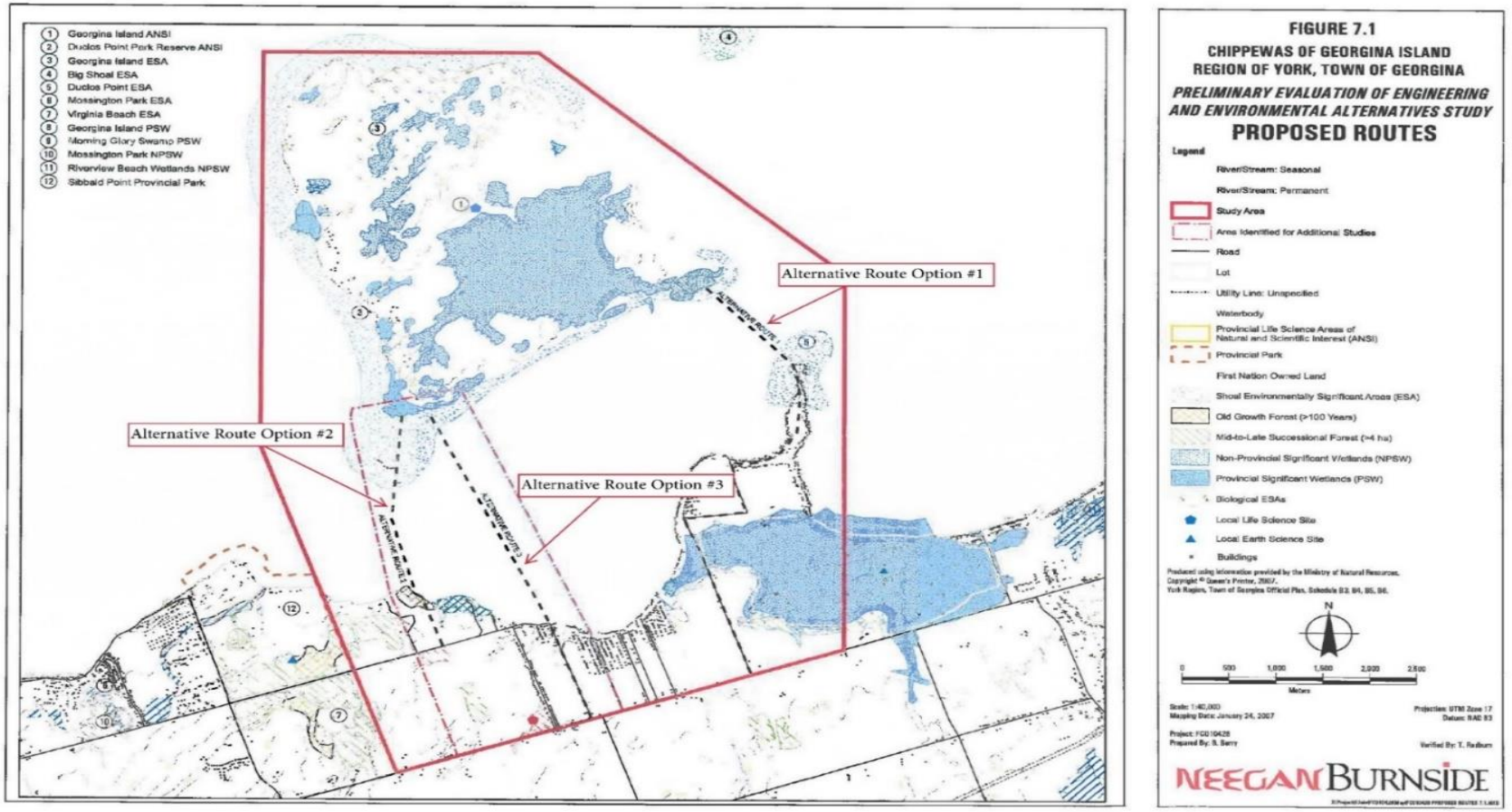


*Figure 3: Alternative Route Options for a Fixed Link (Neegan Burnside Ltd., 2008)*

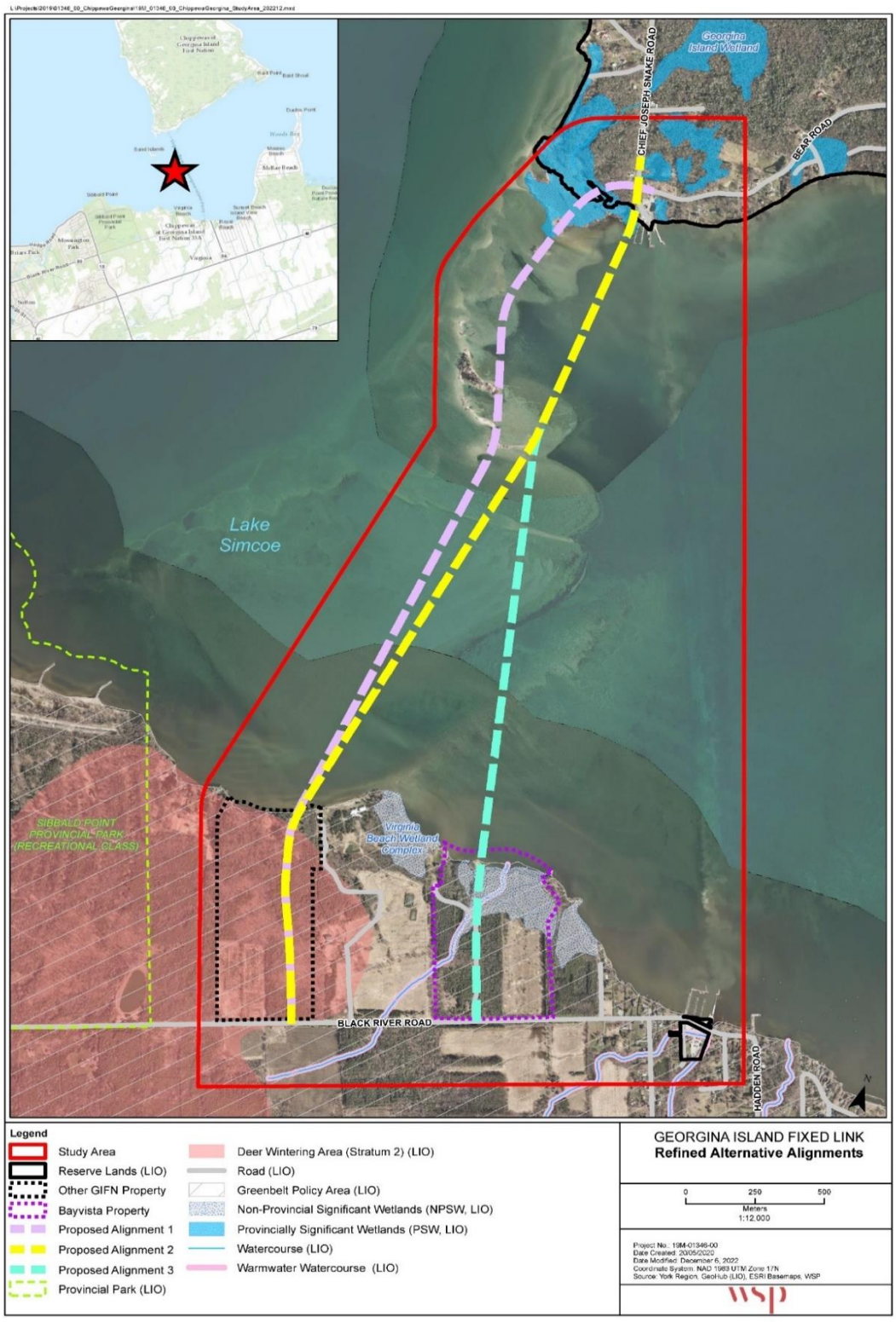


*Figure 4: Alternative Route Alignments Evaluation*

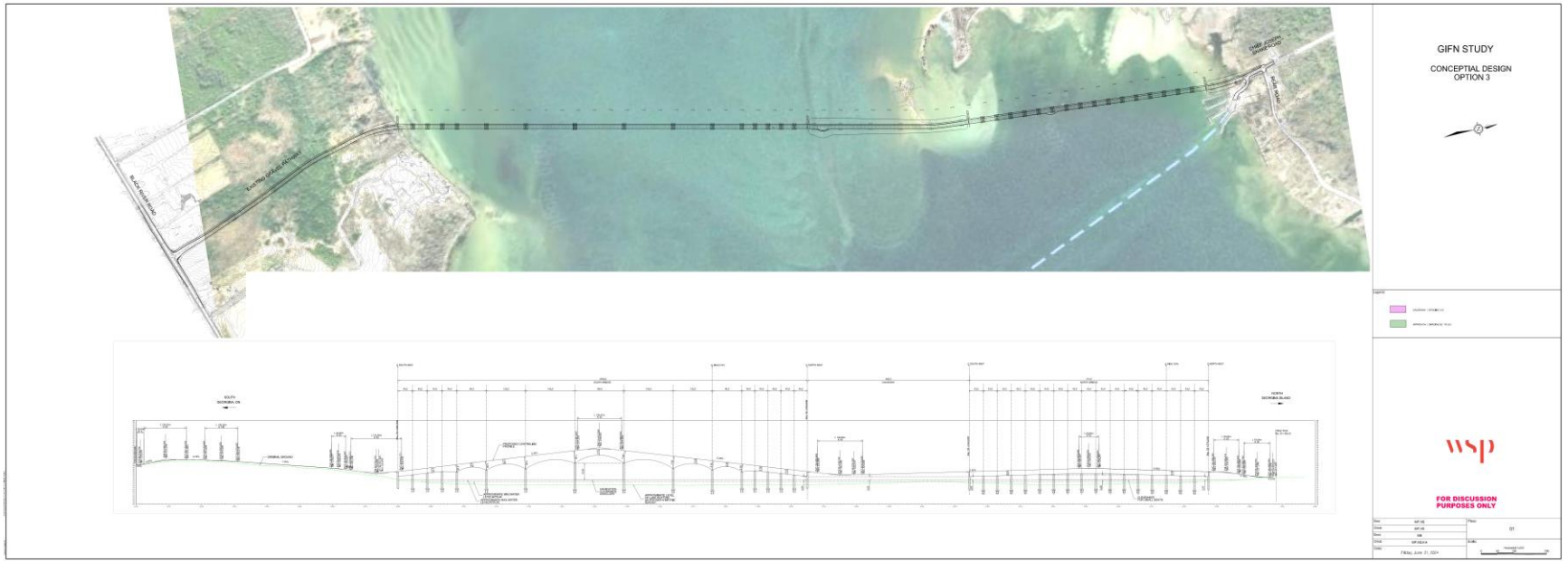


*Figure 5: Conceptual Design for Option 3B (2024)*

## Alternatives to the Project

Various alternatives to the Project were explored through studies and preliminary analyses with GIFN and presented in the Proposed Fixed Link Study – Preliminary Evaluation of Engineering and Environmental Alternatives (Neegan Burnside Ltd., 2008) (Appendix A of the DPD).

The potential alternatives included:

1. **Do nothing** – maintain the status quo
2. **Improve existing ferry and ice road operations** – including but not limited to 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), creating a priority wait line for members of GIFN, electric ferry, increasing the ferry frequency, having multiple ferries in operation, etc.
3. **Existing ferry and/or hovercraft** – maintain existing ferry service and/or use hovercraft as alternative transport mode
4. **Existing ferry and/or helicopter** – maintain existing ferry service and/or use helicopter as alternative transport mode
5. **Existing ferry and cable car** – maintain existing ferry service and use a passenger cable car system as an alternative transportation mode
6. **Road link tunnel** – fixed link via a tunnel under Lake Simcoe
7. **Road link bridge and/or causeway combination** – fixed link via a pontoon or piered bridge structure and/or causeway combination.

Following the 30-day public review of the IPD, additional alternatives were proposed and evaluated, which included:

8. **A bridge** – e.g., one with a greater emphasis on active transportation, a covered bridge to reduce need for maintenance such as de-icing and snow clearing
9. Methods to maintain an open passage year–round for the existing ferry – e.g., ice breakers, underwater bubblers
10. **A bridge and tunnel combination** – fixed link via a pontoon or piered bridge structure and/or tunnel combination.

As a result, the above-listed ten potential alternatives to the Project were all further evaluated, and the outcome of this analysis is presented in **Section 12.2 of the DPD**.

Based on the analysis, the seventh alternative (Road link bridge and/or causeway combination) was selected as the preferred alternative. 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 than using a bridge alone.

## Ferry Alternative Report

To supplement the assessment of ‘Alternatives to’ the Project, CIPS has retained a firm to undertake a dedicated ferry alternatives assessment to provide a third-party analysis of water-based transportation solutions that could meet the community’s desired needs. To meet the current needs of the community, a three-vessel solution was recommended.

Upon review of the draft report, the community determined that a Fixed Link alternative remained the best option for the community for the following reasons:

- Given the seven generations financial comparison evaluation, there was minimal difference in cost between the two projects. It was noted that the timing of the costs is quite different, the community certainty with Fixed Link costs being up front was more beneficial for the community.
- The required number of certified operators for a three-vessel system was considered too high given the current human resourcing issues facing the transportation system today.
- The general health and safety concerns are improved but not eliminated with the three-vessel system.
- The long-term stability and presence of an all weather, 24/7 transportation alternative was overwhelmingly preferred by the community

See **Section 12.3 of the DPD** for further information.

The complete Ferry Alternative Report (2025) will be available during the Detail Design phase.

### Community Referendum Vote (2025)

In October 2025, the GIFN community members took part in a vote to guide the next steps for the project. Members were asked to choose between two transportation options for the community's long-term connection:

1. a Fixed Link (bridge or causeway) providing a permanent connection to the mainland, or
2. a Water-Based Option maintaining marine transportation as the primary mode of travel with opportunities for future service and infrastructure improvements.

Of those who voted, 64% supported pursuing a Fixed Link future. This outcome provides Chief and Council with a clear mandate to move forward with the next phase of technical design, financial planning, and engagement.

# PART D: LOCATION INFORMATION AND CONTEXT

## 13. Project Location

### Proposed Geographic Coordinates

The following lists the spatial boundary coordinates of the project limits:

- 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 (**Figure 1**).

## Legal Land Description

The GIFN has three reserves, with the main one being the GIFN Indian Reserve (Georgina Island No.33), which consists of a small parcel of land (1.3 ha) near Virginia Beach (Georgina Island No. 33A), and three islands on the southern shores of Lake Simcoe: Georgina Island, Snake Island, and Fox Island. Figure D-2 of the DPD indicates current ownership of land on Georgina Island used for the Project, which are broken down to either Band Lands or Certificate of Possession Lands. Band Lands, in the context of the GIFN terminology, are lands set aside in the *Indian Act* and subject to the *Land Management Act* and are controlled by the First Nation. The parcels of land on Georgina Island are owned by the GIFN and are part of the GIFN's reserve land, and whose title is vested in His Majesty the King in right of Canada.

On Georgina Island, 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. For instance, the two properties considered during the alignment evaluation process (i.e., the West and Bayvista Properties) are owned by GIFN and are currently in the Additions to Reserve process with Indigenous Services Canada. These are located separately from Georgina Island No. 33A (ATRIS, n.d.; CIRNAC, 2024; CIRNAC, n.d.; Georgina Island Fixed Link Secretariat, 2021). Based on the results of the alternatives assessments, the West Property was selected as the mainland location for the Project.

The MNR has confirmed that a search of MNR records provided no ownership results (i.e., no land survey or patent) of the lakebed. Based on preliminary investigations, the lake bottom between the shore and the mainland may belong to the upland owner, in this case the GIFN. Proximity to Residences and Affected Communities

On the island, 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 are located on the west side of the island, along Chief Joseph Snake Road. Cottages occupy lots along the northwest, south and eastern portions of the island; some of these are leased by non-GIFN cottagers. Specifically, the cottages closest to the Project are located along the southern shore of Georgina Island along Larry's Lane.

GIFN community buildings are concentrated in the area of Root Road. The GIFN community centre, administration office, school, medical clinic, and water treatment plant are located along Chief Joseph Snake Road. The Aazhaawe Simcoe Ferry Landing, located in the southwest corner of the island, is the main access point for residents, cottagers, and visitors. Two community buildings are within the island portion of the study area: the ferry terminal and the Public Works.

Snake, Fox and Sand Islands are "surrendered lands" and are currently leased to non-GIFN cottagers. According to the GIFN website, there are about 227 cottage leases on Snake Island and approximately 64 lots on Fox Island. Seasonal residences are leased to members of the public under agreement with GIFN on the islands.

On the mainland, the northern shore of the Town of Georgina is within the Protected Countryside Area of the Greenbelt Plan (Government of Ontario, 2017). The Hamlet of Virginia

is in the southeast portion of the study area and is predominantly residential. Several residential areas have been identified near the study area. The closest residential zones are located along Black River Road and Virginia Boulevard, just under 200 m southeast of the Bayvista Property (Refer to Section 15.3 of the DPD for the social context of the study area and Section 14.11 of the DPD for land use).

### Proximity to Indigenous Lands and Federal Lands

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 (i.e., the Bayvista Property and the West property). Therefore, the majority of the project is located on land subject to First Nations' *Land Management Act*. 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 currently leased to cottagers.

The closest mapped reserve lands to the Project belong to the Chippewas of Rama First Nation, a member Nation of the WTFN. The Chippewas of Rama First Nation's reserve lands are located approximately 30 km north of GIFN (CIRNAC, 2024), downstream of the proposed Project on Lake Couchiching and Lake St. John, which are both in a different quaternary watershed than Lake Simcoe (MNRF, 2024).

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.

## 14. Physical and Biological Environment

The description of the physical and biological environment for the Project is based on information that is available to the public, as well as additional data collected through studies to support the planning and design of the Project (see Section 5.4 of the DPD for the completed, ongoing, and future studies). The description of the physical and biological environment is organized into the following sections:

- Bedrock and soils
- Natural environment
- Hydrogeology
- Drainage
- Atmospheric environment
- Acoustic environment
- Coastal environment

### Bedrock and Soils

*Bedrock*

The bedrock beneath the Georgina area is mainly composed of Paleozoic limestone of the Middle Ordovician Simcoe Group in the north, and shale of the Upper Ordovician Blue Mountain in the south (LSRCA, 2010). Over the past 135,000 years, this bedrock has been covered by sediments deposited by glacial, fluvial, and lacustrine processes. The Simcoe Group, which makes up the Middle Ordovician deposits, includes five formations, but only the Lindsay

Formation is present within the Black River sub watershed, where the study area is located. This formation, which is 67 m thick and rich in fossils, suggests a depositional environment ranging from shallow to deep marine. The younger Upper Ordovician deposits in the sub watershed belong to the Georgian Bay-Blue Mountain Formation. This formation, which lies above the Lindsay Formation, consists of blue-grey, poorly fossiliferous, non-calcareous shale up to 60 m thick (LSRCA, 2010).

A desktop study of the geotechnical conditions in the study area has been completed based on information from the following sources:

- Publicly available geological maps and datasets;
- Previous geotechnical studies completed within the region; and
- Multichannel Analysis of Surface Waves surveys completed at selected locations along the proposed alignments, as shown in Figure D-4 of the DPD.

Previous geotechnical studies available at the time of the DPD preparation were more than 1.5 km away from the proposed alignments. As such, they were mainly used to calibrate data collected from other sources, primarily through assessment of the most probable soil type. This was coordinated with available information on surficial soils from the geological maps.

The Multichannel Analysis of Surface Waves survey results were considered the main source of information on the subsurface conditions along the alignments in this preliminary phase. The Multichannel Analysis of Surface Waves survey results can be found in Appendix X of the DPD.

The available sources indicated that the preliminary ground stratigraphy along different stretches of the refined alternative alignments consisted of the following main soil/bed rock layers in descending order (Figure D-5 of the DPD):

- Compact to Dense Sand (average thickness of about 7 m), Hard Till/Very Dense Sand (average thickness of about 4 m), and Limestone Bedrock for the South (Mainland) Causeway – Refined Alternative Alignment #2;
- Compact Sand (average thickness of about 4 m), Hard Till/Very Dense Sand (average thickness of about 9 m), and Limestone Bedrock for the South (Mainland) Causeway – Refined Alternative Alignment #3;
- Stiff Clay/Compact Sand (average thickness of about 9 m), Dense Sand/Very Stiff to Hard Till (average thickness of about 4 m), and Limestone Bedrock for the Bridge – Refined Alternative Alignment #2;
- Firm Clay/Loose to Compact Sand (average thickness of about 4 m), Dense Sand/Very Stiff to Hard Till (average thickness of about 9 m), and Limestone Bedrock for the Bridge – Refined Alternative Alignment #3; and
- Compact Sand (average thickness of about 8 m), Dense Sand/Very Stiff to Hard Till (average thickness of about 7 m), and Limestone Bedrock for the North (Georgina Island) Causeway.

As noted above, these ground profiles are based on limited information and will be subject to verification/refinement as part of the Project specific geotechnical investigation program.

*Soils*

Five Phase I Environmental Site Assessments were undertaken in 2020 to identify environmental concerns associated with the current and historical activities at the mainland properties where the proposed alignments were proposed to terminate on the mainland side

(see Appendix M of the DPD). For all 5 parcels of land assessed, the Phase I Environmental Site Assessments identified no evidence of a potential or actual environmental concern associated with the Site; therefore, it was concluded that a Phase II Environmental Site Assessment is not required.

In addition to the information above, the Soil Survey of York County Map (Hoffman & Richards, 1995) indicated that the soils in the general area covered by the five Phase I Environmental Site Assessments on the mainland are categorized as Tecumseth Soil Series (code: Tsl), Granby Soil Series (code: Gsl), and Monaghan Soil Series (code: Moc). The soils are described as follows:

- Tecumseth Soil Series: sandy loam soil type with imperfect drainage. This soil series is used chiefly for general farming; however, due to the sandy materials, fertilizers may be required.
- Granby Soil Series: sandy loam soil type, with poor drainage. This soil series is used for permanent pastures, trees, or short-season crops.
- Monoghan Soil Series: Clay loam soil type with imperfect drainage. This soil series is mainly used for general farming and dairy production.

The soils in the island portion of the Study area are classified as Ottonabee Soil Series, which has a sandy loam soil type and good drainage. This soil series is used for limited agricultural and dairy production activities due to lower level of natural fertility.

## Natural Environment

The Project Team has undertaken a detailed ecological field work program to document the natural environment existing conditions within the study area. This field program was intended to address questions raised by review agencies, inform the selection of a preferred route alignment option and input to this DPD. Both the aquatic and terrestrial field programs were undertaken by Cambium Inc. (Cambium), in partnership with Cambium Indigenous Professional Services (CIPS). The study area and two alignment alternatives defined in the IPD were used to guide the 2022 field program development. Additional aquatic field studies that focused on the preferred alignment were completed in 2023 and the findings have been incorporated in the DPD. Additional terrestrial field studies were also completed in 2023, to address gaps from the 2022 field investigations.

The descriptions of the aquatic and terrestrial surveys included herein are based on the following GIFL Aquatic and Terrestrial Existing Conditions Reports:

- Georgina Island Fixed Link Project – Aquatic Existing Conditions Report (Cambium February 17, 2023), see Appendix T1 of the DPD.
- Georgina Island Fixed Link Project – Aquatic Existing Conditions Report for the Preferred Alignment (Cambium October 27, 2023), see Appendix T2 of the DPD.
- Georgina Island Fixed Link Project – Terrestrial Existing Conditions Report (Cambium November 3, 2023), see Appendix T3 of the DPD.

*Fish and Aquatic Habitat*

A comprehensive background desktop assessment was completed by Cambium to inform the understanding of the local conditions and guide the 2022 - 2023 aquatic field program. A list of resources reviewed can be found in **Section 14.2.2 of the DPD**. In addition to the information gathered from these resources, several aquatic field investigations, involving waterbody

assessments, watercourse assessments, and spawning surveys, were conducted in 2022 and 2023 . The 2022 field assessments within the study area was based on the original two proposed initial alternative alignments (Initial Alternative Alignment #1 connected Georgina Island with the Bayvista Property and Proposed Alignment #2 connects Georgina Island with the West Property).

The location of the 2023 field assessments within the study area was based on the new preferred alignment for the Project (Refined Alternative Alignment #2 between Georgina Island and the West property), which was selected following further evaluations. Further information regarding the methodology, timing, and protocols followed by these assessments is provided in **Section 14.2.2.1.2 of the DPD**.

Based on the background information and the 2022 field investigations, several areas along the two initial alignments and the preferred alignment were identified as having potential spawning habitat for Northern Pike (*Esox Lucius*), Muskellunge (*Esox masquinongy*) and Walleye (*Sander vitreus*). For Northern Pike and Muskellunge, these areas include the nearshore and internal habitat associated with the Provincially Significant Georgina Island Wetland Complex (including Watercourse #1) and the aquatic habitat located on the Bayvista Property (Watercourse #2). Potential Walleye spawning habitat was identified at an underwater cobble point on the Bayvista Property (Cambium 2023a). Spawning surveys were completed in the early spring of 2023 in all three areas.

Lake Simcoe is the main aquatic feature within the study area, and it provides fish habitat for a range of coldwater, coolwater and warmwater fish species. Background information indicated a total of 58 species have been documented in the Lake Simcoe watershed by the MNRF Lake Simcoe Fisheries Assessment Unit (Negan Burnside Ltd., 2008). This report also notes that 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, while 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 (Neegan Burnside Ltd., 2008). Also, the south shoreline of Georgina Island is known to contain Muskellunge spawning and nursery habitat as well as Northern Pike spawning habitat (Neegan Burnside Ltd., 2008). The area of the Sand Islands and the south shore of Georgina Island has also been identified as Northern Pike spawning habitat on MNRF fish activity mapping (Government of Ontario, 2022). 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. The MNR, through comments received on the draft IPD, has noted that while the lake has been shifting from coldwater species to warm water species, several coldwater species continue to thrive in Lake Simcoe, including:

- Lake Trout, which 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, which appear to be maintaining their populations. About 80% of total catch are wild and unclipped fish. Further, MNR continues to stock 140,000 Whitefish annually.
- Cisco, which have made a notable rebound without any stocking efforts. MNRF reopened the Cisco fishing season in 2015.

The MNR also identified spawning areas for Lake Trout west of the ferry launch site on the mainland and noted that these areas are important for the re-establishment of the Lake Simcoe coldwater fishery. Although this habitat was planned for further evaluation in 2022, through further communication between Cambium and MNR (email dated October 19, 2022, see Appendix T1 of the DPD**)**, it was established that investigations of this area for this Project are not considered necessary. “Given the distance from the study area (i.e., >1km), exposure, and fetch (i.e., northwest toward prevailing winds), MNR agreed that potential impacts to the Lake Trout spawning site documented at Sibbald Point is unlikely, and investigations should focus on warm water species and their habitat utilizing the basin south of Georgina Island” (Shirley, 2022).

**Table 12** below summarizes the descriptions of the aquatic habitat and fishery within the surveyed areas of the Study Area

***Table 12: Summary of Aquatic Habitat and Fishery within the Study Area***

| Location | Summary of the Description of the Area |
|---|---|
| Sand Islands Area (along the two original alignments) | Fish species captured by Cambium within these areas include Banded Killifish (*Fundulus diaphanous*), Emerald Shiner (*Notropis atherinoides*), Largemouth Bass (*Micropterus salmoides*), Rock Bass (*Ambloplites rupestris*), Pumkinseed (*Lepomis Gibbosus*), Round Goby (*Neogobius melanstoma*) and Yellow Perch (*Perca flavescens*).<br>Shallow water habitat is found throughout the Sand Islands, with the dense areas of aquatic vegetation that provides higher quality fish habitat for a variety of cool and warm-water fish species.<br>Evidence of *Centrachidae* spp. spawning (i.e., fresh excavations with polished substrates) was also observed on the eastern side of the middle Sand Island, although adult fish were not present. Other areas within the Sand Island Assessment Sites contain potential Centrachidae spp. spawning habitat; however, very few older nests were active during the 2022 season, even though the field surveys were timed to align with the active spawning season (Cambium 2023a).<br>The area of the Sand Islands along the south shore of Georgina Island has been identified as Northern Pike spawning habitat on MNR fish activity mapping (Government of Ontario, 2022), which includes the Provincially Significant Georgina Island Wetland Complex. Through the field surveys in 2022, potential preferred / high candidate Northern Pike spawning (and Muskellunge spawning) habitat was found to exist, more along the edges of this wetland and potentially within the smaller open water areas, channels and adjacent areas found within the wetland (including Watercourse #1 which may also act as a migratory corridor), as shown on Figure 17 contained within Appendix T1 of the DPD (Cambium 2023a). The interior of the wetland itself is likely not preferred by Northern Pike or Muskellunge as they “do not prefer and |

| Location | Summary of the Description of the Area |
|---|---|
| | often avoid, homogenous stands of emergent cattail for spawning" (Casselman & Lewis, 1996). |
| Bayvista Property Nearshore Area (along the original alignment #1) | The nearshore zone of the Bayvista Property in the vicinity of the original proposed alignment option #1 is shallow, with water depths generally under 1 m at the time of the surveys. This area could be potential spawning habitat for broadcast spawning species, such as Walleye and, in general, the area provided good quality fish habitat (Cambium 2023a). Fish species captured within these areas include Banded Killifish, Emerald Shiner, Rock Bass, Pumpkinseed and Yellow Perch (Cambium 2023a). |
| West Property Nearshore Area (along the original alignment #1) | The nearshore zone of the West Property in the vicinity of the original proposed alignment #2 is shallow and low gradient, with water depths under 1 m at the time of the surveys. The fish habitat was described generally as homogenous, low gradient habitat and likely not productive for fish (Cambium 2023a).<br>Fish species captured within these areas include Emerald Shiner, Round Goby and Yellow Perch (Cambium 2023a). |
| West Property Nearshore Area | The nearshore zone of the West Property in the vicinity of the original proposed alignment #2 is shallow and low gradient, with water depths under 1 m at the time of the surveys. The fish habitat was described generally as homogenous, low gradient habitat and likely not productive for fish (Cambium 2023a).<br>Fish species captured within these areas include Emerald Shiner, Round Goby and Yellow Perch (Cambium 2023a). |
| Open Water Areas (along the two original proposed alignments between the Sand Islands and the Mainland) | Mainly homogenous aquatic communities that provide limited aquatic vegetation and cover opportunities for fish. Water depths range from 1 to 2 m and substrates are sand dominant except for a gravel bar (with some cobble and boulders) found between Assessment Sites 8 and 10 (Cambium 2023a). |
| Watercourse #1 (within the Georgina Island Wetland Complex) | During the spring visit, the creek appeared flooded (with very low flow velocity) and provided good cover and refuge opportunities for fish. During the summer visit, much lower depth and poor water quality (e.g., very low dissolved oxygen levels) was observed, suggesting that for periods of time during the summer months, this area of the watercourse may not be usable by fish (Cambium 2023a).<br>The watercourse could provide spawning habitat for Northern Pike and Muskellunge, or provide a migratory corridor to more suitable spawning habitat within the wetland. The watercourse is a permanent (in the wetland area), warmwater system that likely provides seasonal fish use due to water quality issues noted above. Two fish species were captured in 2022 and include Creek Chub (*Semotilus atromaculatus*) and Banded Killifish (Cambium 2023a). |

| Location | Summary of the Description of the Area |
|---|---|
| Watercourse #2 (within the Bayvista Property | During the spring 2022 visit, the whole wetland area was flooded (standing water) and schools of Emerald Shiner were observed within the wetland and five other species of fish (Brook Stickleback [*Culaea inconstans*], Brown Bullhead [*Ameiurus nebulosus*], Central Mudminnow [Umbra limi], Round Goby and Yellow Bullhead [Ameiurus natalis]) were captured at the Bayvista Lane crossing.<br>During the summer 2022 visit, the entire wetland and watercourse was dry at the time of the surveys. It was noted that during the spring flooding, the dense emergent vegetation could provide spawning habitat for Northern Pike, since the depth, accessibility and flow retention provided suitable opportunity at the time of that survey.<br>The watercourse is an intermittent, warmwater system that provides seasonal fish use (Cambium 2023a). |
| Area East of Sand Islands (along the preferred alignment) | The Sand Islands area in the vicinity of the preferred alignment is relatively shallow, with water depths generally under 1 m at the time of the surveys. Fish species captured within these areas included Banded Killifish, Central Mudminnow, Emerald Shiner, Largemouth Bass, Round Goby and Yellow Perch (Cambium 2023b).<br>Shallow water habitat is found throughout the Sand Islands, with the dense areas of aquatic vegetation that provides good quality fish habitat (e.g., cover, rearing and foraging habitat) for a variety of cool and warm-water fish species (Cambium 2023b).<br>Older (previous years) evidence of *Centrachidae* spp. spawning along the north shore of Georgina Island, and some new evidence (i.e., fresh excavations) of low-level use on the eastern shore of the island was found (no adult fish present) (Cambium 2023b). |

Results of the Spawning surveys completed on six dates in the early spring of 2023 for Northern Pike and Muskellunge in the Study Area (see Appendix T2 – Appendix D of the DPD for further details) are as follows.

**Areas of the Georgina Island Wetland Complex and Watercourse #1**: No evidence of spawning activity was observed in the Georgina Island Wetland Complex. Additional surveys would be needed to confirm absence of spawning, since usage may vary from year to year depending on conditions. Incidental observations of spawning Yellow Perch were documented during the surveys on April 19, 2023, at the Georgina Island marina (Cambium 2023b).

**Within and around Watercourse #2 on the Bayvista Property**: Flow conditions in the watercourse at the time of the 2023 surveys were low and provided limited connectivity from Lake Simcoe to the wetland. No spawning activity was observed in Watercourse #2. However, surveys on April 12 and April 14, 2023, did document three adult fish on both days exhibiting pre-spawning behavior at the outlet area of the watercourse to Lake Simcoe. This suggests an affinity for the area and potential for Watercourse #2 to provide spawning habitat during times of higher flow and connectivity to the lake (Cambium 2023b).

Spawning surveys were completed on fives dates in the early spring of 2023 for Walleye in the area of the cobble / angular substrate found along the shoreline of the Bayvista Property. No evidence of spawning activity by Walleye was observed in this area (Cambium 2023b).

Cambium (2023b) classified the areas of sensitivity within the study area using the terms Low Sensitivity, Moderate Sensitivity, High Sensitivity and Rare. The definitions and criteria were derived from sensitivity descriptions outlined in the Guide to the Risk Management Framework for DFO Habitat Management Staff Version 1.0 (DFO, 2006) and the Environmental Guide for Fish and Fish Habitat (MTO, 2009) (MTO, 2020). No High Sensitivity or Rare Sensitivity areas were identified along the preferred alignment; thus, **Table 13** below provides a summary of the definition and findings for the Low Sensitivity and Moderate Sensitivity areas within the study area. See Appendix T2 (Figures 12 to 14 and Section 6.0) of the DPD for more details.

***Table 13: Summary of Aquatic Habitat Sensitivity Definitions and Findings along the Preferred Alignment***

| Sensitivity | Definition of Term | Findings along the Preferred Alignment |
|---|---|---|
| Low | Habitat occupied by low sensitivity fish communities (e.g., most cyprinids and Centrarchidae spp.). Generally, this habitat has the potential to support single use or non-reproductive life-cycle functions. It is habitat that is prevalent within a watercourse or waterbody that is stable and resilient to change and perturbation. In most cases, these habitat types have the opportunity to be enhanced or restored. | Low Sensitivity areas identified along the preferred alignment are primarily associated with the deeper open water areas between the mainland nearshore connection and the Sand Islands , as well as portions of the shallower areas near Sands Islands and the mainland nearshore (see Appendix T2 - Figure 14). |
| Moderate | Generally warm and coolwater habitat that supports species such as Northern Pike, Walleye, and some Cyprinids spp., that are moderately resilient to change. This habitat has the potential to support multiple life cycle functions (e.g., spawning, feeding, rearing, migration, and over-wintering). This also includes spawning habitat for Northern Pike, Muskellunge and Walleye, which although require specific habitat characteristics, is typically not limited on the landscape, and can be effectively replicated through enhancement and restoration measures. This habitat is somewhat resilient to change and perturbation. Habitat that has been disrupted by | Moderate Sensitivity areas identified along the preferred alignment include:<br>▪ Potential Northern Pike and Muskellunge spawning habitat – Georgina Island Wetland Complex (Cattail Mineral Shallow Marsh – MAS2-1), found in Assessment Site A (Cambium 2023b).<br>▪ Multi-use fish habitat for spawning, rearing of young-of-the-year, refugia, and foraging including abundant and relatively diverse aquatic vegetation communities (e.g., milfoil (SAS1-4), wild celery (SAS1-5) and pondweeds (SAS1-1), in the area found east of Sand Islands (Assessment Sites A, B and C) and in small portions of Sites D |

| Sensitivity | Definition of Term | Findings along the Preferred Alignment |
|---|---|---|
| | past human activity may also fall into this category. | and G. Evidence of Yellow Perch and Centrarchidae spp. (e.g., Largemouth and Smallmouth Bass, Pumpkinseed) spawning was observed in Sites A and D respectively, and an area of coarse substrates (potential Smallmouth Bass spawning habitat) was observed in Site H (Cambium 2023b). |

With regard to aquatic Species at Risk (SAR), Black Redhorse (*Moxostoma duquesnei*, considered Threatened under the *Species at Risk Act* [SARA]) has been documented in Lake Simcoe, as noted on DFO SAR mapping (DFO, 2024). However, the habitat for this species "moderate to fast-flowing areas in large warmwater streams" (Committee on the Status of Endangered Wildlife in Canada, 2015), is not found within the study area. This species is not anticipated within the Georgina Island sub-basin, or within the watercourses found in the study area (Cambium 2023b).

Furthermore, DFO stated as part of its review of the draft IPD that "there are currently no aquatic species listed federally under the SARA mapped for the proposed Project locations" This will be confirmed again with DFO during future study phases.

*Terrestrial Environment*

Cambium completed a comprehensive background desktop assessment to inform the understanding of the local conditions and guide the field program. The list of resources reviewed and agencies contacted for background information request for this assessment can be found in **Section 14.2.3.1.1** of the DPD. Terrestrial field investigations were focused in the Study Area, which was divided into three areas: 1) Georgina Island and the Sand Islands, 2) Bayvista Property, and 3) West Property. The terrestrial field investigations completed by Cambium in 2022 and 2023 included general characterization of habitats, avian surveys, herpetofauna surveys, mammal surveys, insect surveys, terrestrial crayfish surveys, and seeps and springs survey. Further details regarding these investigations can be found in Section 14.2.3.2.1 and Appendix T3 of the DPD.

**Georgina Island and the Sand Islands**: The large marsh off the southwest corner of the island has generally developed in the past 60 years (Cambium Inc., 2023).

**Bayvista Property**: Characterized by natural forests / swamps, plantation, and open, historically cleared areas. Except for the wetlands, most of the Bayvista Property was cleared in 1959, and a small homestead was present along Black River Road, as well as a dwelling along the Lake Simcoe shoreline (Cambium Inc., 2023).

**West Property**: Primarily forested, with a mix of deciduous, coniferous, and mixed forest / mixed swamp communities. There are also small open areas that are associated with historical building footprints, as well as a young plantation near Black River Road. Small areas near Black

River Road are also used for material storage and deposition of dredged material from the ferry terminal harbour. Historical imagery indicates that parts of the deciduous and mixed forest / mixed swamp communities were present in 1959, but the majority of the lands within 200 m of the shoreline were cleared at that time (Cambium Inc., 2023).

**Table 14** below provides a summary of the terrestrial environment investigations within the Study Area. Further details are provided in Section 14.2.3.2 of the DPD.

***Table 14: Summary of Terrestrial Natural Features Characterization within the Study Area***

| Terrestrial Natural Features / Function | Summary of Findings |
|---|---|
| Designated Natural Areas | There are several provincially designated or provincially mapped natural features within the study area including:<br>▪ Georgina Island Provincially Significant Wetland (PSW)<br>▪ Virginia Beach Wetland Complex (non-PSW)<br>▪ Stratum 2 Deer Wintering Area (i.e., Significant Wildlife Habitat [SWH])<br>▪ Sibbald Point Provincial Park (Recreation Class)<br>▪ Greenbelt Policy Area (2017) (protected countryside – mainland only)<br>▪ Growth Plan for the Greater Golden Horseshoe (2019) (mainland only)<br>Except for the Greenbelt Policy Area and Growth Plan, these features are mapped on Figure D-8 in the DPD.<br>There are no other designated natural features within the study area. Specifically, there are no Areas of Natural and Scientific Interest, no Environmentally Significant Areas , and the study area is not located within the Oak Ridges Moraine Conservation Plan Area.<br>All of the study area, as well as Lake Simcoe, is within the LSPP Area. |
| Avifauna | Cambium documented some level of breeding evidence (i.e., possible, probable, or confirmed) for a total of 75 avian species within the study area (Cambium Inc., 2023). Of these 75 species, 31 exhibited probable or confirmed breeding evidence. Area sensitive birds were also documented on all three properties. Additional summary information is provided in Table D-4 of the DPD, with further detail provided in the GIFL Terrestrial Existing Conditions Report (Cambium Inc., 2023). |
| Herpetofauna | A total of 10 amphibian species were recorded by Cambium within the study area, both during targeting amphibian calling surveys and incidentally during other field investigations (Cambium Inc., 2023). A summary of the findings for each property is presented in Table D-5 of the DPD with further detail provided in the GIFL Terrestrial Existing Conditions Report (Cambium Inc., 2023). |
| Bats | The acoustic monitoring results identified the presence of eight bat species in the study area, including all four SAR bat species: Eastern Small-footed Myotis (Fed: Not listed; Prov: END), Little Brown Myotis (Fed: END; Prov: END), Northern Myotis (Fed: END, Prov: END) and Tri-coloured Bat (Fed: END; Prov: END). Two of the common bat species |

| Terrestrial Natural Features / Function | Summary of Findings |
|---|---|
| | documented are the two bat species that inform SWH determination for Bat Maternity Colonies: Silver-haired Bat and Big Brown Bat. A summary of the bat acoustic monitoring results is presented in Table D-6 of the DPD, with additional details provided in the GIFL Terrestrial Existing Conditions Report (Cambium Inc., 2023). |
| Winter Wildlife | Winter wildlife surveys were completed by Cambium staff on four dates: December 13 and 21, 2022, January 24 and March 8, 2023. Many tracks, trails, scat and signs of browse were observed.<br>On the Island property, evidence of seven wildlife species was documented: White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), River Otter (*Lontra canadensis*), Red Squirrel (*Tamiasciurus hudsonicus*), Raccoon (*Procyon lotor*), Eastern Cottontail (*Sylvilagus floridanus*) and a mouse species.<br>There were also seven wildlife species observed on the Bayvista Property during the winter site visits: White-tailed Deer, Coyote, Red Squirrel, Eastern Cottontail, Raccoon, Wild Turkey (*Meleagris gallopavo*) and a mouse species. Coyote tracks were the most prevalent tracks observed on the Bayvista Property.<br>A total of six wildlife species were documented on the West Property: White-tailed Deer, Coyote, Eastern Cottontail, Red Squirrel, Ruffed Grouse (*Bonasa umbellus*) and a mouse species (Cambium Inc., 2023). |
| Insect | Insect surveys were completed on six dates between May 24 and September 14, 2022. The inspect species documented included 10 bee genera, four fly genera, three beetle genera, three wasp genera, two true bug general, one grasshopper genus, five spider genera, 16 lepidoptera genera and six odonata genera. An additional 21 insects could not be identified to genus level but were identified to the lowest taxonomic level possible (e.g., order or family). Of the insect species observed, two species are considered special concern species, both federally and provincially: Monarch (*Danaus plexippus*) and Yellow-banded Bumblebee (*Bombus terricola*). Monarch was observed on all three properties while Yellow-banded Bumblebee was observed only on the West Property (Cambium Inc., 2023) |
| Terrestrial Crayfish | Habitat-based surveys for terrestrial crayfish evidence (i.e., chimneys and/or burrows) were completed concurrently with other terrestrial surveys, through the duration of the field program. Crayfish burrows were documented in several locations, on the Island and Bayvista Properties (Cambium Inc., 2023). |
| General Wildlife and Wildlife Habitat | Incidental observations of wildlife were documented during all surveys, with locations of notable observations documented by Global Positioning System. Where wildlife observations were made by others (e.g., CIPS staff), these were also integrated into the wildlife species lists presented in |

| Terrestrial Natural Features / Function | Summary of Findings |
|---|---|
| | the appendices of the GIFL Terrestrial Existing Conditions Report (Cambium Inc., 2023). |

Significant Wildlife Habitats (SWH) are natural heritage features that are afforded protection from development and site alteration under the Provincial Policy Statement (Ministry of Municipal Affairs and Housing, 2020), which is issued under the *Planning Act*. The MNRF produced guidance documents in 2015, to assist in the identification of SWH in Ecoregions of Ontario. The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E is the relevant guidance document for the study area. Cambium completed a SWH screening using this guidance document and the results of the 2022 / 2023 field investigations to identify candidate and/or confirm SWH features within the study area.

A summary table of confirmed/candidate relevant SWH for the study area is provided in **Table 15** below. Further details of the SWH assessment provided in the GIFL Terrestrial Existing Conditions Report (Cambium Inc., 2023) can be found in Table D-7 of the DPD.

***Table 15: Significant Wildlife Habitat Summary***

| Location | Significant Wildlife Habitat Type | Confirmed/Candidate |
|---|---|---|
| Georgina and Sand Island Properties | Amphibian Breeding Habitat (Woodland) | Confirmed |
| | Amphibian Breeding Habitat (Wetland) | Confirmed |
| | Colonially-Nesting Bird Breeding Habitat (Ground) | Confirmed |
| | Colonially-Nesting Bird Breeding Habitat (Tree/Shrub) | Candidate |
| | Marsh Bird Breeding Habitat | Candidate |
| | Special Concern and Rare Wildlife Species | Confirmed (Great Egret, Eastern Wood-pewee, Black Tern, Snapping Turtle and Monarch) |
| | Terrestrial Crayfish | Confirmed |
| | Turtle Nesting Area | Candidate |
| | Turtle Wintering Area | Confirmed |
| | Bat Maternity Colonies | Candidate |
| | Waterfowl Stopover and Staging Areas (Aquatic) | Confirmed |
| | Snake Hibernaculum | Candidate |
| | Raptor Wintering Area | Candidate |
| Bayvista Property | Amphibian Breeding Habitat (Woodland) | Confirmed |
| | Special Concern and Rare Wildlife | Confirmed |

| Location | Significant Wildlife Habitat Type | Confirmed/Candidate |
|---|---|---|
| | | (Eastern Wood-pewee, Wood Thrush, Snapping Turtle and Monarch) |
| | Terrestrial Crayfish | Confirmed |
| | Turtle Wintering Area | Confirmed |
| | Bat Maternity Colonies | Candidate |
| | Waterfowl Stopover and Staging Areas (Aquatic) | Confirmed |
| | Snake Hibernaculum | Candidate |
| | Raptor Wintering Area | Candidate |
| West Property | Deer Wintering Habitat (Stratum II) | Confirmed - Provincial (Land Information Ontario) |
| | Special Concern and Rare Wildlife Species | Confirmed (Eastern Wood-pewee, Monarch, Yellow-banded Bumble Bee) |
| | Woodland Area Sensitive Bird Breeding Habitat | Candidate |
| | Waterfowl Stopover and Staging Areas (Aquatic) | Confirmed |
| | Bat Maternity Colonies | Candidate |
| | Snake Hibernaculum | Candidate |
| | Raptor Wintering Area | Candidate |

A summary table of Species at Risk and Species of Conservation Concern within the study area is provided in **Table 16** below. Further details of the SWH assessment provided in the GIFL Terrestrial Existing Conditions Report (Cambium Inc., 2023) can be found in Table D-8 of the DPD.

***Table 16: Summary of SAR and SAR Habitat Confirmed in the Study Area***

| Areas Observed | Species | Federal Status | Provincial Status | Protected Habitat |
|---|---|---|---|---|
| Georgina Island and Sand Island Properties Bayvista Property West Property | Black Ash | THR | END | As of January 2024, healthy Black Ash trees greater than 8 cm DBH, located in areas of the province where the species has experienced significant mortality due to the invasive Emerald Ash Borer (EAB) insect, are protected under the ESA Protection includes the tree and its habitat (including a 30 m buffer / root zone). Although designated THR by Committee on the Status of Endangered Wildlife in Canada, |

| Areas Observed | Species | Federal Status | Provincial Status | Protected Habitat |
|---|---|---|---|---|
| | | | | Black Ash is not currently listed on Schedule 1 of SARA. |
| Georgina Island and Sand Island Properties West Property | Butternut | END | END | Protected under Sections 9 and 10 of the ESA<br>25 m radius around the tree is protected.<br>50 m radius around the tree is considered recovery habitat. |
| Georgina Island and Sand Island Properties | Least Bittern | THR | THR | Protected under Sections 9 and 10 of the ESA. MECP advised that the wetland where the species was documented plus an additional 100 m buffer is considered protected habitat for Least Bittern.<br>The Federal Recovery Strategy defines critical habitat as suitable habitat within 500 m of the documented breeding activity. |
| Georgina Island and Sand Island Properties Bayvista Property | Western Chorus Frog | THR | NAR | A critical habitat description has not been published for Western Chorus Frog; however, SARA protects the species and its habitat, including its egg-laying and hibernation sites. The Ecological Land Classification community in which this species was documented with breeding evidence (i.e., Community I2) is mapped as habitat for Western Chorus Frog. |
| Georgina Island and Sand Island Properties Bayvista Property West Property | Blanding's Turtle | END | THR | Record (within Ecological Land Classification Community I4) results in application of the habitat provisions in SARA and the ESA. |
| Georgina Island and Sand Island Properties Bayvista Property West Property | Eastern Small-footed Myotis | NAR | END | All forested communities west of Chief Joseph Snake Road are currently mapped by Cambium as high-quality SAR bat habitat. Forested communities east of Chief Joseph Snake Road are mapped as potential SAR bat habitat as roost surveys and acoustic monitoring were not completed in these communities. May require further |
| Georgina Island and Sand Island Properties Bayvista Property | Little Brown Myotis | END | END | |

| Areas Observed | Species | Federal Status | Provincial Status | Protected Habitat |
|---|---|---|---|---|
| Georgina Island and Sand Island Properties<br>Bayvista Property<br>West Property | Northern Myotis | END | END | assessment at future study phases should impacts to this habitat be proposed.<br>Ecological Land Classification communities B1 and B3 on the Bayvista Property are currently mapped by Cambium as high-quality SAR bat habitat. May require further assessment at future study phases should impacts to this habitat be proposed. |
| Georgina Island and Sand Island Properties<br>Bayvista Property<br>West Property | Tri-colored Bat | END | END | |
| Bayvista Property | Eastern Whip-poor-will | THR | SC | The Provincial General Habitat Description (MNR, 2013) includes the following Categories:<br>▪ Category 1: nests and the area immediately around the nest (i.e., 20 m)<br>▪ Category 2: area between 20 m and 170 m of the nest or centre of approximated defended territory<br>▪ Category 3: area of suitable habitat between 170 m and 500 m of the nest site or the centre of the approximated defended territory |

To visually represent the various terrestrial sensitivities and protected habitats within the study area, areas of concern with categories of High, Moderate and Low were developed by Cambium, as outlined below (Cambium Inc., 2023) (**Table 17**). An overview of the areas of concern for the full study area is presented on **Figure 6. Figure 6** illustrates that the Island properties have the greatest number of overlapping areas of concern, followed closely by the Bayvista Property. The West Property has relatively fewer areas of concern; however, the alignments all pass through at least one area mapped as High Concern.

***Table 17: Summary of Areas of Concern within the Study Area***

| High Concern Areas | Moderate Concern Areas | Low Concern Areas |
|---|---|---|
| SAR Protected Habitat – habitats with low or no tolerance to disturbance, as noted in the guidance documents. Specifically, this includes:<br>▪ Category 2 Blanding's Turtle Habitat<br>▪ Least Bittern SARA-protected Habitat<br>▪ Butternut – live trees + 25m setback<br>▪ Eastern Whip-poor Will observations + 170 m buffer | SAR Protected Habitat – habitats with a high or moderate tolerance to disturbance, as noted in guidance documents. Specifically, this includes:<br>▪ Category 3 Blanding's Turtle Habitat<br>▪ Least Bittern –ESA *general* habitat and buffer<br>▪ Western Chorus Frog SARA-protected Habitat<br>▪ Black Ash Swamp (Community W6)<br>▪ High Quality SAR Bat Habitat<br>▪ SWH (Confirmed or Candidate)<br>▪ Provincially Significant Wetlands | ▪ Woodlands<br>▪ Other wetlands |

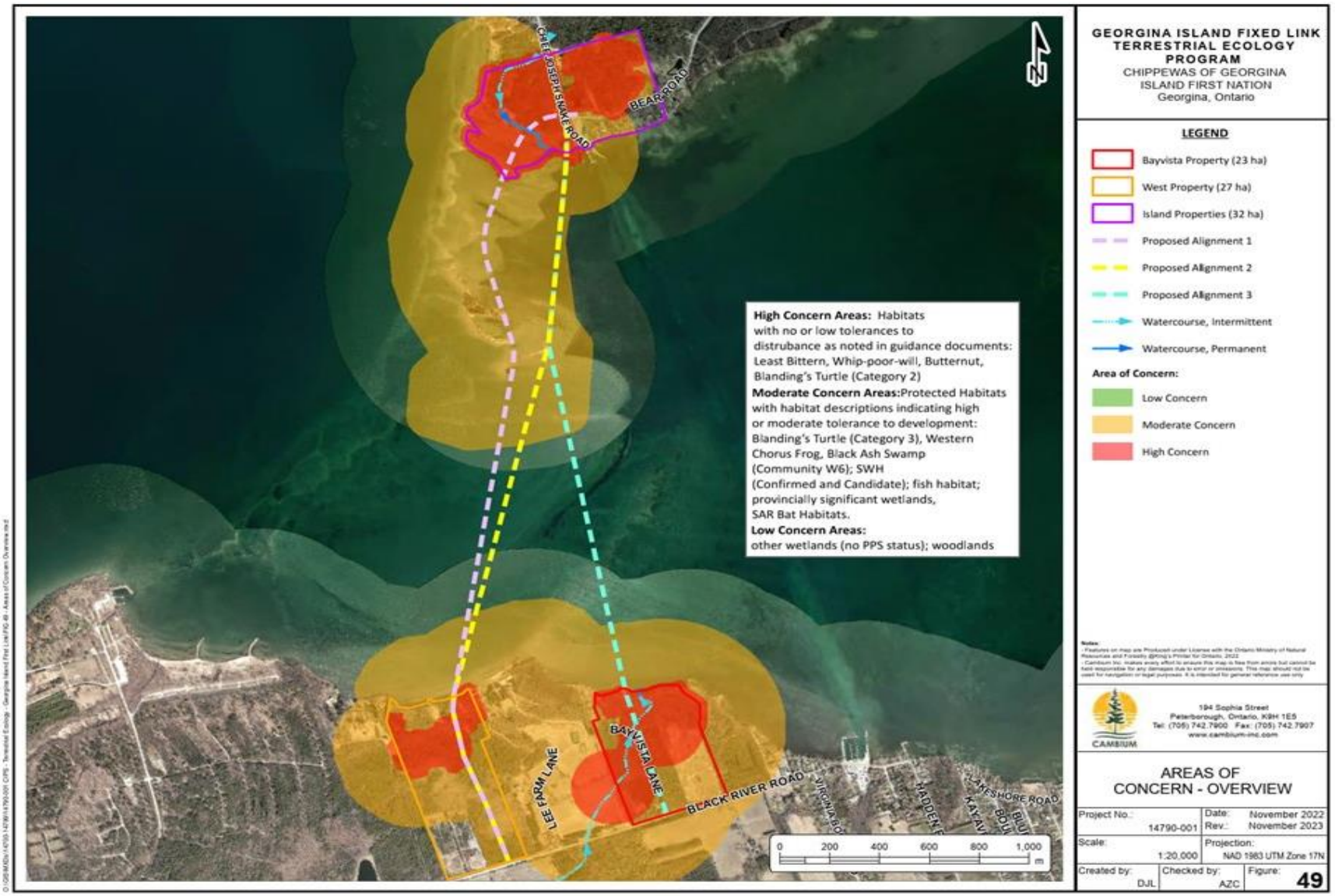


*Figure 6: Areas of Concern – Overview (Cambium, 2023)*

*Culturally Significant Species*

A list of culturally significant species was developed for the project by CIPS, through direct engagement with the GIFN Community, including verbal and written conversations with Community members, staff, leadership, and summer students. It was also informed by existing First Nation studies and documentation. The list includes species that have been confirmed as significant to the Anishinaabeg. These species provide food, medicine, building materials and/or are held in a high spiritual regard. Many of the species on the list have been confirmed to be present within the study area during the 2022 and 2023 surveys completed by Cambium. The list of culturally significant species is provided in the Terrestrial Existing Conditions Report (Appendix T3 of the DPD) and a summary of the observations within the study area is provided below (Cambium Inc., 2023).

The following is a summary of the culturally significant species observations within the study area. This summary was prepared by CIPS, but is not a comprehensive account of culturally significant species present in the study area. It is not in the best interest of the Community to disclose the locations and abundance of certain species.

- Large stands of Ginebigobag (Ostrich Ferns) on mainland properties
- Mkinaakwag (Turtles) present in Bayvista Property and GIFN study area
- Waabizii (Swans), Shaagiig (Egrets/Blue Herons/Bitterns), Maakiig (frogs) present within the GIFN Marsh
- Waawaaskeshiig (White-tailed Deer) Island, Bayvista and West Properties; known deer yard on West Property
- Migiziig (Bald Eagles) observed in study area, known to nest in east and north parts of Georgina Island
- Wiigwaasaatig (Birch Trees) Bayvista and West Properties
- Giizhik (Cedar Trees) Island, Bayvista and West Properties
- Funguses - Morels, Puffballs, Chicken-of-the-woods; not observed, but habitat exists on all properties
- Azaawe (Yellow Perch) and Ashigan (Bass) present within the study area of Lake Simcoe

## Hydrogeology

*Groundwater Conditions*

A preliminary hydrogeological study for the Project was completed by WSP in February 2024 (**Appendix W of the DPD**). The Project site is in areas with shallow groundwater levels controlled by unconfined overburden sandy unit. Deeper groundwater is expected within the weathered limestone aquifer.

The Project occurs within the Lakes Simcoe and Couchiching/Black River Source Protection Area. As such, the South Georgian Bay Lake Simcoe Source Protection Plan applies to activities related to the construction, operation, and maintenance of the project. The project site also overlaps with a Highly Vulnerable Aquifer (HVA), a Source Water Protection Area (SWPA), and an Intake Protection Zone (IPZ), as such, both the surface water and groundwater are vulnerable to contamination from human activities or natural processes. According to South Georgian Bay Lake Simcoe Source Protection Plan (LSRCA, 2025), portions of the study area lie within IPZ-3. IPZ-3 typically designates areas on the water and land surrounding a municipal

surface water intake. IPZ-3 is assigned to areas where activities further away from the intake could still have an impact on water quality.

The site is also within a large area of Significant Groundwater Recharge zone. Based on Black River watershed Plan (LSRCA, 2010), significant groundwater recharge within the Black River subwatershed occurs on the Oak Ridges Moraine at the southern end of the subwatershed, specifically the northern flank, provides the highest recharge rates. The main component of groundwater recharge within the study area is expected through conservation reserve or wooded area which migrate laterally and discharge as baseflow through streamflow northeastward to Lake Simcoe. A small component of the recharge will migrate to recharge deeper regional overburden and bedrock units. Given the predominance of coarse textured soils in the area, the quantity of local recharge and subsequent base flow contributions to Black River are inferred to be significant.

A detailed geotechnical investigation will also be completed and will confirm the existing conditions of the shallow groundwater areas on Georgina Island.

*Groundwater Wells*

Based on a review and plot of the MECP well records, groundwater well records were identified within the study area (including a 500 m buffer around the study area). The mainland area predominantly depends on groundwater for potable water supply, whereas drinking water within the study area in Georgina Island is provided through private wells and surface water takings from Lake Simcoe.

The review of the MECP water well records shows that 145 water wells were advanced within 500-m radius of the proposed design alternatives on the mainland between 1950 and 2022. The records show that groundwater is present at depths ranging between -0.3 and 4.6 meters below the ground surface (mbgs) in the overburden and bedrock, which indicates that management of groundwater will be needed during construction of the Fixed Link, depending on the chosen construction methodology.

*The Georgina, Fox and Snake Islands Subwatershed Plan* (2017) indicatess that drinking water within the area is provided through private wells and surface water from Lake Simcoe. A private Water Well Survey was completed by Cambium Indigenous Professional Services (CIPS) in December 2023 to confirm the reliance on and details of water wells available in the area (Appendix W of the DPD).

## Drainage

The existing drainage system within the study area and surrounding areas drains overland by sheet flow into nearby streams, ultimately discharging into Lake Simcoe. The study area is mainly composed of forested areas and soil type is primarily sandy loam with imperfect drainage (Class B soil). As part of the early design phase of the Project, high level analysis of each catchment area was developed, as well as estimate of the existing runoff coefficient.

## Atmospheric Environment

The assessment of existing air quality conditions in the Study Area focused on criteria air contaminants that are expected to be released from existing sources including ferry operations

and vehicle emissions. Selected indicator contaminants to assess include particulate matter, nitrogen oxides, and select volatile organic compounds and polycyclic aromatic hydrocarbons. Existing air quality conditions were compared to the applicable Canadian Ambient Air Quality Standards created by the Canadian Council of Ministers of the Environment and the Ontario MECP Ambient Air Quality Criteria; and based on the preliminary assessment, the existing air quality in the Study Area is characterized as good as the air quality criteria are met for the indicator contaminants. Refer to Appendix U of the DPD for Air Quality Impact Assessment Report.

For greenhouse gases (GHGs), refer to Section 23.

## Acoustic Environment

A Noise Impact Assessment Report was drafted in 2023 and updated in 2025 based on new monitoring data, as well as 33% design drawings (Appendix V). An ambient or background noise monitoring program was conducted on September 7 to 15, 2022, which included two monitoring locations (see Section 14.7 of the DPD), one on Georgina Island and one on the mainland. These two locations were selected to represent the existing noise sensitive land uses, i.e., , daycare, entertainment, hospitals, places of worship, schools, residential developments, parks, that are located within the Study Area. The objective of the monitoring program was to quantify the existing acoustical environment that these noise sensitive land uses currently experience daily, as well as to establish the baseline noise conditions.

Additionally, baseline noise measurements were undertaken on August 20, 2025, and August 27, 2025. These additional measurements confirmed that the baseline sound levels in 2022 assessment are conservative. The field verification determined that certain previously identified receptors are not noise sensitive.

Based on the results of the monitoring program, the study area can be described as ranging from a “Very Quiet” area to a “Quiet” area as the measured sound levels ranged from 30 dBA to below 60 dBA. For reference, a typical sound level of people having a normal conversation would be about 60 dBA, a whisper is about 30 dBA, and 50 dBA represents a quiet office.

## Coastal Environment

A coastal engineering study was completed by WSP in September 2024. The study consisted of field investigations, hydrodynamic, wave, and sediment modelling, shoreline evolution assessment, ice analysis, and navigation impact assessment to characterize baseline coastal environment conditions and assesses potential impacts of the preferred alignment. The following subsections describe the baseline coastal environment conditions of the study area.

*Lake Simcoe Water Levels*

Long-term Lake Simcoe daily water levels at Jackson Point (Figure D-29) were provided by Parks Canada for the period of 1960 to 2022. Lake Simcoe water levels typically vary by about 0.4 to 0.5 m during any given year. As the summer progresses, the levels begin to drop because of increased evaporation and reduced inflows. The lowest levels are reached in late fall and winter.

Drawdown begins in the summer because it takes time to gradually reduce the levels in the lake. This needs to take place to make room for the precipitation that happens in the fall, winter, and spring. To protect against flooding and optimize public safety throughout the interconnected system, the lake is lowered to make room for high inflows that are typical over the non-navigation seasons (October - May).

*Lake Bathymetry*

The Digital Elevation Model (DEM) of the portion of Lake Simcoe within the study area was developed using different bathymetric and topographic datasets. On September 16, 2022, WSP conducted a survey using the bathymetric data collected for the DEM. Outside the study area, bathymetric data was complemented using the Canadian Hydrographic Service Non-Navigational bathymetric data and navigational charts. Topographic data was collected through from the Canadian Digital Elevation Model of Natural Resources Canada. All datasets were converted to the same vertical datum, using Chart Datum, which elevation is at 218.69 m in CGVD28 for Lake Simcoe. **Figure 7** shows the DEM of the study area.

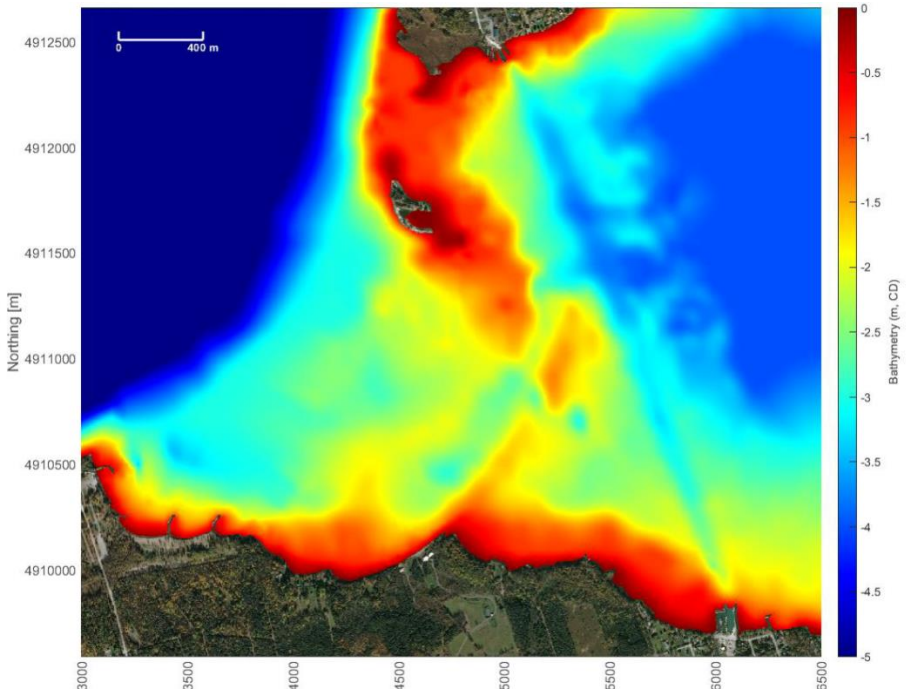


*Figure 7: Digital Elevation Model (DEM) of Lake Simcoe in the Study Area (Chart Datum)*

*Ice Regime*

The coastal engineering study included an overview of Lake Simcoe ice processes in the study area and potential ice-related constraints for the proposed Project. The following list summarizes the relevant findings:

- Freeze-up dates vary from early December to early February. Thaw dates vary from late March to early May.

- Historical data show that freeze-up happens later than before, and thaw happens sooner than before. Consequently, the ice-covered period for Lake Simcoe is shorter (-18 days over a century).
- Ice accretion stripes typically appear near the west shore and near the project area. Those stripes are probably the result of moving ice coming from the west due to sustained winds during freeze-up.
- In spring, large ice sheets can be driven by wind towards the west shore and the project area. Large ice buildups along the shoreline can result from these movements and cause damage to the structures.
- According to climate projections, precipitation and air temperature are likely to increase in future years. This situation could trigger more rainfall during winter and shorter freezing period, which could both result in thinner icer cover. A thinner ice cover in the future could lead to more frequent ice movement and buildups.

*Lake Sediments*

Lakebed and shoreline sediment samples with the study area were collected on October 6, 2022 and these samples were sent to the laboratory to conduct sediment particle size analysis.

The lakebed sediment can be categorized as either fine sand with silt or silt with fine sand except for one sediment sample.

See **Section 14.8.4 of the DPD** for sediment composition for the shoreline sediment samples.

*Wind Conditions*

Climate Forecast System Model Version 2 (CFSv2), based on a re-analysis program for all meteorological products generated by National Oceanic and Atmospheric Administration , as well as Environment Canada Barrie-ORO climate station (ID: 6117700) were used to characterize the project site wind conditions.

Prevailing winds and the highest wind speeds at the project site are from north, northwest and west. An extreme value analysis on the winds was performed on Barrie ORO wind data to determine extreme wind speeds from 16 compass directions. Barrie ORO wind data was selected for the extreme value analysis as it had the longest period of hourly wind data. The extreme wind speeds for the 5, 10, 25 ,50 and 100-year return periods are presented in **Section 14.7.5 of the DPD.** The highest winds come from the west and west northwest with a 100-year return period of approximately 19 m/s.

*Wave Climate*

A field work program was conducted to collect currents and wave conditions near the project site in support of the hydrodynamic and wave modeling. A bottom-mounted Acoustic Doppler Current Profiler , Sentinel WH 1200 Model, was deployed to collect current and wave conditions for two (2) months from October 5 to November 30, 2022.

The recorded Acoustic Doppler Current Profiler maximum velocities of 0.10 - 0.12 m/s corresponds with wind speeds of approximately 35 m/s coming from the 300 degrees (northwest). Additionally, the lower velocities ranging from 0.01 - 0.04 m/s suggest relatively calmer flow conditions. The velocity current profile based on the collected data (Figure D-46 of the DPD) indicates a well-mixed environment, with no significant changes in flow velocities throughout the water column. The absence of velocity variations suggests a homogeneous

water mass, lacking stratification or localized flow patterns. The direction indicates where the currents are coming from in respect to true north.

Figure D-47 in the DPD displays the recorded wave heights, wave period and direction along with wind speeds and direction from a CFSv2 atmospheric model. An intense northwest wind event occurred in the early hours of October 26 and November 7 resulting in wave heights reaching 0.8 to1.0 m.

Recorded wave conditions for the study area are available for short-term from October 5 to November 30, 2022; therefore, wave hindcasting was conducted to predict the wave conditions within the study area using the Delft3D-Wave model. Wave conditions were hindcasted at two locations in the vicinity of the study area (**Figure 8**). Based on the extreme significant wave heights and associated peak period for the two wave hindcast locations, the project site experiences the largest waves from the west-northwest and west, reaching approximately 1.0 m significant wave height. This is expected due to the highest wind speeds and largest fetches to the hindcast location 1. The largest wave conditions at the Location 1 are depth-limited as the water depth at this location is shallow.


*Figure 8: Wave Hindcast Locations*

## 15. Health, Social and Economic Context

### Health

#### 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 an airboat. 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.

### Safety and Security

Currently, GIFN does not have 24/7 timely police services on the Island presently. The Georgina Island Police have been serving the community since 1978 under the Ontario First Nation Policing program. The First Nation currently have three officers and one civilian employee that are not on duty 24 hours per day, 7 days per week. During times when there is no on duty officer serving, the community relies on police services to assist from other jurisdictions. The current transportation system doesn't allow for these services to arrive in a timely manner and pose a current weakness in the community's reaction to crimes.

GIFN members are not immune from criminal activity on the Island today. Some concerns were raised through engagements that crime on the Island may increase as more criminal elements have easier access to the Island. Although this may be true, the benefit of the Fixed Link to the community will be access to crime prevention and police services.

More important to the community than police response times is the access to key support services for those living in potentially dangerous circumstances. People living in potentially abusive households or caught in dangerous living circumstances beyond their control cannot access the protections that others in the country can. The current transportation system limits the ability of Children and Family Services to provide necessary, immediate responses to dangerous situations of family violence on the Island. According to the Native Women's Association of Canada's, Violence Against Aboriginal Women Factsheet, "*Aboriginal women 15 years and older are 3.5 times more likely to experience violence than non-Aboriginal women" and "rates of spousal assault against Aboriginal women are more than three times higher than those against non-Aboriginal women*." Many times during the year, family care workers will not travel to the Island leaving a very vulnerable part of the community exposed to dangers.

Finally, the community has many internally driven legal avenues to reduce crime on their own. The community has their own cannabis by-law that ensures that certain recreational drugs are managed and fully understood by the community. The community was also one of the initial signatories of the *First Nation Land Management Act* giving the community full jurisdiction to protect their lands. Added to this, the ability of the First Nation to control access to the Island in a much more formal way with the Fixed Link is considered a deterrent. From tolling access to the Island to documenting travellers to the Island, the community will examine actions that will protect the community much more than the current transportation system would. The community has the experience, the mechanisms and the will to protect themselves and make laws to support their needs as the transportation system evolves to the Fixed Link.

### Vulnerable Population Groups

Based on annual data from Statistics Canada, Indigenous women, girls and 2SLGBTQQIA+ (Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex, Asexual, and Additional Sexual Orientations and Gender Identities) people continue to experience higher rates of violence.

Despite only making up 4 per cent of the Canadian population, Indigenous women and girls represented 28 per cent of homicides perpetrated against women in 2019 and are 12 times more likely to be murdered or missing than non-Indigenous women in Canada. Indigenous women are also more likely to be affected by all types of violent victimization. Data from Statistics Canada's Homicide Survey show that the rate of homicide among Indigenous women in 2019 was more than 7 times higher than among non-Indigenous women, at 4.01 per 100,000 population compared with 0.55 per 100,000 population (Canadian Centre for Justice and Community Safety Statistics, 2021). Additionally, the Canadian Femicide Observatory for Justice and Accountability's annual report into femicide noted that in 2020, approximately one in five female victims killed by a male accused was an Indigenous woman or girl (Canadian Femicide Observatory for Justice and Accountability , 2020).

Gender-based violence is prevalent in the province and needs serious action, and where this issue is predominantly felt is in First Nations across Canada, with more than 3,000 missing and murdered Indigenous women and girls.

A study published in 2020 has also shown that women and 2SLGBTQQIA+ people were more likely to be sexually assaulted than men and non-2SLGBTQQIA+ people and found a higher prevalence of violent victimization among Indigenous 2SLGBTQQIA+ people than those who were not Indigenous.

### Pandemic

At the beginning of the Covid 19 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 magnified the health response issues of the current transportation system.

For example, the Island closure impacted the momentum of the Fixed Link Project as stakeholder meetings and community engagements regarding the Fixed Link were either 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 2SLGBTQQIA+peoples as a non-exhaustive list.

In response to the pandemic and Island closure, GIFN entered into a six-month commercial agreement with Drone Delivery Canada Corp. Dated July 30, 2020, the agreement was established with the assistance of Drone Delivery Canada Corp sales agent Air Canada, and the Pontiac Group. Drone Delivery Canada Corp'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, hygiene kits, test kits, test swabs, among other goods.

This Project was not successful and did not provide a plausible for solution for several reasons pertaining to the weather uncertainties of the Island community. Technology as health care support failed to provide an effective solution in this case.

### Country Foods

The country foods and medicinal sources for the GIFN include, but are not limited to, the list presented in **Table 18** below.

***Table 18: Country Food Sources on Georgina Island***

| Type | Species |
|---|---|
| Fish | Lake whitefish (*Coregonus clupeaformis*)<br>Lake herring (*Coregonus artedii*)<br>Burbot (*Lota lota*)<br>Northern pike (*Esox lucius*)<br>Yellow perch (*Perca flavescens*)<br>Smallmouth bass (*Micropterus dolomieu*)<br>White sucker (*Catostomus commersoni*)<br>Pumpkinseed (*Lepomis gibbosus*)<br>Brown bullhead (*Ictalurus nebulosus*)<br>Rock bass (*Ambloplites rupestris*)<br>Pumpkinseed (*Lepomis gibbosus*)<br>Black crappie (*Proxis nigromaculatus*)<br>Rainbow smelt (*Osmerus mordax*)<br>Muskellunge (Esox masquinongy) |
| Mammals | Eastern gray squirrel (*Sciurus carolinensis*)<br>Red squirrel (*Tamiasciurus hudsonicus*)<br>Eastern cottontail (*Sylvilagus floridanus*)<br>Snowshoe hare (*Lepus americanus*)<br>White-tailed deer (*Odocoileus virginianus*)<br>American black bear (*Ursus americanus*)<br>North American beaver (*Castor canadensis*)<br>Muskrat (Ondatra zibethicus) |
| Birds | Canada goose (*Branta canadensis*)<br>Canvasback (*Aythya valisineria*)<br>Mallard (*Anas platyrhynchos*)<br>Redhead (*Aythya americana*)<br>Wood duck (*Aix sponsa*)<br>Hooded Merganser (*Lophodytes cucullatus*)<br>Common goldeneye (*Bucephala clangula*)<br>American widgeon (*Mareca americana*)<br>American black duck (*Anas rubripes*)<br>Greater scaup (*Aythya marila*)<br>Lesser scaup (*Aythya affinis*) |

| Type | Species |
|---|---|
| | Bufflehead (*Bucephala albeola*)<br>Blue-winged teal (*Spatula discors*)<br>Gadwall (*Mareca strepera*)<br>Green-wigned teal (*Anas carolinensis*)<br>Northern pintail (*Anas acuta*)<br>Northern Shoveler (*Spatula clypeata*)<br>Rudy duck (*Oxyura jamaicensis*)<br>Ring-necked duck (*Aythya collaris*)<br>Ruffed grouse (*Bonasa umbellus*)<br>Mourning dove (*Zenaida macroura*)<br>Eastern Wild Turkey (*Meleagris gallopavo silvestris*) |
| Reptiles | Painted turtle (*Chrysemys picta*)<br>Common snapping turtle (*Chelydra serpentina*) |
| Plants | American Ginseng (*Panax quinquefolius, Panacis quinquefolis*)<br>White Cedar (*Thuja occidentalis*)<br>Wild Crabapple (*Malus coronaria*)<br>Morel (*Morchella esculenta*)<br>Fiddlehead (*Polypodiopsida* or *Polypodiophyta*)<br>Wild Ginger (*Asarum canadense*)<br>Wild Mint (*Mentha arvensis*)<br>Ramp/Leek (*Allium tricoccum*)<br>Wild asparagus (*Asparagus officinalis*)<br>Chaga (*Inonotus obliquus*)<br>Sweetgrass (*Hierochloe odorata, Anthoxanthum nitens*)<br>Wild rice (*Zizania palustris*)<br>Sweet Flag (Acorus calamus)<br>Crinkle Root (Cardamine diphylla) |

Further information regarding country foods was gathered during consultation calls pertaining to other First Nation allies, who confirmed that the list was considered comprehensive and satisfied the consultation departments' lists of the First Nations. Consultation departments indicated a need to periodically review and possibly update this list.

*Indigenous Fishing Huts*

The GIFN community sets up ice fishing huts on the east and west sides of the ice road and along the existing ferry line to fish for yellow perch in the winter (refer to Figure D-50 of the DPD) This area may shift from the east to the west depending on ice road conditions during a winter. Fishing within the Sand Island area is avoided as ice can be treacherous due to currents. No other fishing areas were identified by Indigenous communities. These areas are not located within proximity of the proposed Fixed Link alignments.

Information regarding fishing areas may be enhanced with results from further engagement with other Indigenous communities to verify whether they have traditional practices such as hunting, gathering, fishing, and trapping (e.g., whether there are fishing points that may be used by other

Indigenous communities) and whether they are concerned about impacts to those activities as a result of the project.

*Drinking Water*

Based on a review of *The Georgina, Fox and Snake Islands Subwatershed Plan* (2017) drinking water within the study area is provided through private wells (see the **Hydrogeology** section for information about the groundwater wells) and surface water takings from Lake Simcoe. According to LSRCA (2017), the GIFN provides drinking water to approximately 109 households on Georgina Island. This supply system has been in place since 1993 and intakes water from Lake Simcoe approximately 345 m off the western shore and treats it through the Georgina Island Water Treatment Plant.

## Social

### Population and Demographic

*Regional Population*

According to the Fixed Link Socio-Economic Study (2021) (**Appendix B of the DPD**), the main population of the GIFN reserve resides on the largest Island, Georgina Island. As of 2021, it recorded 179 members of 618 band members permanently resided 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.

According to the 2021 census (Statistics Canada, 2022a), the total populations of counties, districts, regions or single-tier municipalities located within 25 km of Georgina Island is nearly 2.5 million people, and within 50 km of the community was in excess of 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 (nearly 7 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 100 km, but for the purposes of this DPD, they have been included in their entirety. Within 25 km, there are over 840,000 households (Statistics Canada, 2022a).

*GIFN Population*

As of 2021, Georgina Island has a total population of 231 people. The population has declined by 11.5 percent from the 2016 census. In the last two censuses, GIFN population declined by 44 people, an average decline rate of 3.2% per year from 2016 to 2021. First Nations or persons with Registered or Treaty Indian status make up 67% of the total population.

Based on the Census data from 2001 to 2021, the GIFN population (which includes both GIFN Members and non-members) has shown a decreasing trend. The population percentage change between 2016 to 2021 was 11.5%. As of 2021, there are 550 private dwellings on the Reserve and 112 dwellings which are occupied by usual residents (Statistics Canada, 2021).

Based on 2021 data from the Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) First Nation Profiles, GIFN had a total membership of approximately 936 Members of which approximately 209 resided on the Island and 726 lived off the Island (CIRNAC, 2021;

GIFN, 2019). Of the 209 Members who resided on the Island, approximately 98 were male and 111 were female (CIRNAC, 2021).

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.

At the time of the census, Georgina Island had 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 19**).

***Table 19: 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 |

*Regional Population*

Seasonal influx of cottagers and tourists in the summer months is reported (**Table 20**). 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. In a recent survey 43 participants indicated this influx is one of the reasons for causing additional strain on both the ferry and community as a whole (Intrinsik, 2021).

*Table 20: 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** |

Impacts on the community include longer ferry wait times, which contribute to poorer access to island residences and mainland emergency healthcare or recreational activities. These impacts would be mitigated with a permanent transportation option, such as a fixed link.

### Education

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, 2017).

In the GIFN community, 7.4% of people aged 25 to 64 had a bachelor's degree or higher in 2016, while 25.9% had a college, Collège D'enseignement General et Professionnel ,or other non-university certificate or diploma as their highest level of education, and 18.5% had an apprenticeship or trades certificate or diploma as their highest level of education (**Table 21**).

*Table 21: 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, Collège D'enseignement General et Professionnel, or other non-university certificate or diploma | 60 | 27.91% | 20 | 35 |

| Education by highest certificate, diploma or degree | Chippewas of Georgina Island First Nation | | | |
|---|---|---|---|---|
| | Total Number [a] | Percentage | Male a | Female a |
| 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 |

[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.

### Recreational Resources

Lake Simcoe provides a vast number of recreational opportunities for GIFN Members, locals and tourists alike.

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

### Navigation

Currently, the waterway across the proposed Fixed Link is primarily used by recreational boats and sail boats. Details of these boats are provided below (C.Kinsella, Personnel Communication, November 7, 2022):

- Maximum draft of the boats using the waterway is 1.8 m.
- Maximum height of the sailboat approximately 6 m.
- Maximum number of boats pass through the waterway in summer is between 100 and 200.

In addition to the above, the following boat categories were used for to assess potential effects to boat navigation within the study area:

- Small, motorized boats (length < 5 m)
- Medium motorized boats (length 5 m to 8 m)
- Large, motorized boats (length > 8 m)

There are currently three boat launches located on the mainland at the Corner of Black River Road and Hadden Road, Sibbald Point Provincial Park, and Virginia Beach Marina (refer to Figure D-50 of the DPD).

On Georgina Island there are two boat launches one located within proximity of the Aazhaawe Ferry landing at Chief Joseph Snake Road south and the other is located the far east of the island at East point Marina on Milne Road. These boat launches are typically mostly used

during the summer by the GIFN community and other recreational boaters and sail boats and in the winter for the airboats.

All boat launch locations are located far from the proposed alignments and as such access to existing boat launches will likely remain unrestricted during the development of the Project.

### Transportation and Traffic

The detailed TIS is provided in Appendix N of the DPD.

The ice roads network currently consists of one landing location on the mainland side, at the corner of Hadden road and Black River Road, and three landing locations on the island side, at Chief Joseph Snake Road: south landing, Bob's Landing, and Larry's Lane. The ice roads typically consists of two-three lanes depending on the consisitency and stability of the ice. The ice road is considered safe for travel when it reaches a thickness of at least 30 cm.

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 Aazhaawe Ferry is the main mode of transportation as it is available for most of the year. The ferry can carry up to 18 cars and there is cabin space for 50 walk-on passengers. When the Aazhaawe Ferry is inaccessible due to weight and ice formation, the airboat is used. The airboat is utilized during the winter freeze-up and spring thaw seasons. An airboat can seat up to four to five passengers, not including the driver.

A water taxi is available for GIFN community members only and typically operates during spring and summer months.

The ferry terminal on Georgina Island connects to Chief Joseph Snake Road. On the mainland side the ferry terminal has a driveway that connects to Black River Road. The roadways within or in the vicinity of the Study Area include the Chief Joseph Snake Road, Bear Road, Black River Road, and Park Road (Regional Road 18). Further details regarding the characteristics of these roadways are provided in **Section 15.4.2** of the DPD.

York Region Transit does not provide local transit near the site. The closest fixed local transit route to the site is Route 50 (Queensway), which provides bus service between a bus stop in Sutton located on High Street at Burk Street and Newmarket Terminal Platform 1. Currently, Georgina Island residents are serviced at the ferry terminal at Virginia Beach by Mobility On-Request North (connecting to conventional service Route 50 – Queensway), Mobility On-Request Sutton-Pefferlaw, and Mobility On-Request 65+. Students are bussed to Sutton on the mainland for grades 6, 7, and 8. Secondary school students are bussed to Pefferlaw. Some students board on the mainland during the winter periods due to the lack of transportation options (Neegan Burnside Ltd., 2008).

None of the roadways in the study area (Chief Joseph Snake Road, Bear Road, Black River Road and Park Road/Regional Road 18) have sidewalks. The Town of Georgina OP Schedule F (Active Transportation Plan) identifies Black River Road and Hadden Road as part of their existing cycling network; however, there are no infrastructure provisions for cyclist along these roadways and cyclist need to share the roadway with vehicles.

Based on York Region's response to the TOR, and per the Region's 2022 10-Year Roads and Transit Capital Construction Program, there are no road improvements scheduled in the study

area (York Region, 2022a). The York Region 2022 Transportation Master Plan (TMP) also does not identify roadway improvements in the study area (York Region, 2022b).

The Region's 2022 10-Year Roads and Transit Capital Construction Program does not identify any capital transit improvements in the study area. The York Region 2022 TMP also does not identify transit improvements in the study area. The York Region 2022 TMP does identify active transportation improvements within the study area. The planned active transportation infrastructure in the study area along with the proposed multi-use trail on the Fixed Link will significantly improve the facilitation of active transportation travel.

The potential for future public transit on the island and the Fixed Link cannot be determined at this time and further consultation will be needed closer to completion of the Project. This will be included as a recommendation for future steps in the Project.

### Land Use

*Georgina Island*

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 their membership with easier access to local services. Most of the community's homes and community buildings are located on the west side of the island, along Chief Joseph Snake Road. Cottages occupy lots along the northwest, south and eastern portions of the island. There are approximately 330 cottagers on Georgina Island and about 227 cottage lots on Snake Island and approximately 64 lots on Fox Island. GIFN 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 terminal, located in the southwest comer of the island, is the main access point for residents, cottagers and visitors (Neegan Burnside Ltd., 2008).

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.

Three inactive landfills were identified on Georgina Island (Neegan Burnside Ltd., 2008). 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 (Neegan Burnside Ltd., 2008).

*Mainland*

The study area on the mainland is located within the Greenbelt Plan (Government of Ontario, 2017), 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 and the Oak Ridges Corridor Park Management Plan. Lands within the study area are designated as Protected Countryside Shoreline Areas Policy (Government of Ontario, 2017). 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 Niagara Escarpment Plan and the Oak Ridges Corridor Park Management Plan 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, issued under section 3 of the *Planning Act*, and its implementation through municipal OP policies and maps (Neegan Burnside Ltd., 2008).

Land use within the study area is characterized in The York Region OP (November 2005) and the Town of Georgina OP. The Regional 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 (Neegan Burnside Ltd., 2008) (Neegan Burnside Ltd., 2008). 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 OP identifies Environmental Protection Areas, 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 (Neegan Burnside Ltd., 2008).

## Cultural Heritage Resources

### *Archaeological Resources*

A Marine Desktop Archaeological Assessment Report (2022) (Appendix Q1 of the DPD) and Marine Archaeological Impact Assessment (2025) (Appendix Q2 of the DPD) were completed to address the portion of the study area situated in Lake Simcoe, while the remainder of the study area was addressed in a separate Stage 1 Terrestrial Archaeological Assessment Report (Appendix R of the DPD).

#### *Marine Archeological Resources*

The purpose of the marine desktop archaeological was to assess the potential for underwater archaeological resources within the study area as defined in the report (Appendix Q1 of the DPD).

The review concluded that there are no registered archaeological sites within the preferred alignment, and the features identified during the site inspection (timber rock filled docks) will be avoided by the alignment and will not be directly impacted. However, the Marine Desktop Archaeological Assessment Report indicated in its assessment that identified nearshore areas have retained moderate archaeological potential. This area would also include the former terrestrial landscape along the shorelines and islands inundated following construction of the Trent-Severn Waterway in the 1920s, the segment of the former land bridge within the northwestern portion of the study area, the area of former resource extraction including the wild

rice fields east of the Sand Islands, and the potential for abandoned watercraft within close proximity to shore. Although the Sand Islands are currently above the waterline, they are within the marine landscape and are also considered to be areas of archaeological potential. The remaining portions of the study area are considered to possess low potential for submerged archaeological resources.

In August 2025, WSP completed a Marine Archeological Impact Assessment (2025) (Appendix Q2 of the DPD), which consisted of screening the sediments recovered from the geotechnical investigation or core sampling program that was initiated in the offshore area situated in between the southwest tip of Georgina Island and the mainland areas east of Sibbald Point Provincial Park.

This investigation provided insight into the stratigraphy of the buried substrate and associated archeological potential of the submerged landscape. Select boreholes revealed a stratigraphic sequence that can be correlated with an undisturbed paleosol. The distinct layering of organic material observed in multiple samples indicates that there is potential for an intact archaeological landscape in the lakebed substrate. When a paleosol is water-logged, it can create an anaerobic environment which helps preserve organic remains such as settlement layers, artifacts, and ecofacts. Further investigation will be necessary to properly assess these zones and mediate any impact.

### *Terrestrial Archaeological Resources*

The historical context for areas identified as possessing potential for archaeological resources within the terrestrial landscape is included in Section 2.3 "Contextual Study Area History" of the Stage 1 Terrestrial Archaeological Assessment draft report (Appendix R of the DPD). The types of potential artifacts and features associated with historical land use within the study area include those connected with both Indigenous peoples (including the GIFN) and the Euro-Canadian Colonial settlers, comprising land use extending during a period of over 10,000 years.

The Stage 1 terrestrial archaeological assessment reviewed accessible primary and secondary sources, including cartographic resources, to aid in the assessment of potential for archaeological resources within the study area. This assessment was also supplemented by a visual property inspection completed on 9 and 10 October 2022, which was completed on foot and primarily focused on the areas of the three project alignment options.

The archaeological potential model developed by York Region and ASI (2014) was used as the base plan for assessing the potential for archaeological resources within the terrestrial study area (Appendix R of the DPD). The York Region and ASI potential model also incorporated information and mapping provided by the GIFN to include their traditional family hunting trails, travel corridors and hunting territories within the study area (ASI & York Region, 2014).

Areas from the York Region and ASI model where no archaeological potential was identified were confirmed during this Stage 1 visual inspection and included the asphalt roadways comprising Black River Road, Della Street and Virginia Boulevard in Georgina Township and Chief Joseph Snake Road and Bear Road within the study area on Georgina Island. The marina areas comprising graded land, asphalt and buildings at the Virginia Beach marina in Georgina Township and the marina and associated infrastructure on Georgina Island were also confirmed to no longer possess archaeological potential. The residential houses and standing structures

within the study area identified in the York Region and ASI potential model were confirmed to no longer possess archaeological potential based on the Stage 1 visual inspection and review of 21st century aerial imagery (Appendix R of the DPD).

Additional areas of archaeological potential identified for this Stage 1 assessment that were not included in the York Region and ASI archaeological potential model include an area in Lots 9 and 10, Concession 8, the area in Lot 11, Concession 7 and the wetland area along the Lake Simcoe shoreline in Lots 10 and 11, Concession 8. All three areas are situated within 300 m of a water source and were identified as possessing archaeological potential in accordance with Section 1.4, Standard 1ciii in the MCM Standards and Guidelines (2011), which indicates “no areas within 300 m” of “water sources” “can be recommended for exemption from further assessment” unless there is clearly defined landscape disturbance that has negated the potential for archaeological resources.

Areas that were identified as possessing archaeological potential from the York Region and ASI potential model (Appendix R of the DPD), but were determined to no longer possess archaeological potential during this Stage 1 archaeological assessment include the property at 33 Lyall St that was previously assessed and no further archaeological assessments were recommended (Appendix R of the DPD) and the landscape disturbance areas in Lots 9 and 10, Concession 8, north of Black River Road, where the topsoil has been removed and displaced materials have been deposited (Appendix R of the DPD).

No known terrestrial archaeological sites are currently within the preferred alignment; however, since the study (Appendix R of the DPD) identified areas of archaeological potential, a Stage 2 archaeological assessment is recommended to identify the location of previously undocumented terrestrial archaeological resources that may be impacted by the Project. Information from the Stage 2 archaeological assessment will be used to identify the Project’s potential effects and appropriate mitigation measures.

*Built Heritage Resources and Cultural Heritage Landscapes*

In 2022, WSP prepared a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (Cultural Heritage Report) for the Project (Appendix O1 of the DPD), which documented known and potential BHRs (Built Heritage Resources) and CHLs (Cultural Heritage Landscapes) within the study area. Property visits were conducted via publicly accessible lands on October 21, 2022, to record the existing conditions of the study area. The field review was preceded by a review of available historical and current aerial photographs and maps. These photographs and maps were reviewed for any potential BHRs and CHLs that may be extant in the study area. One CHL (Lake Simcoe, including marsh and associated shoreline) and one BHR (7577 Black River Road) was identified and are presented in Section 15.7.2 of the DPD. Mapping of these BHRs and CHLs are presented in Section 15.7.2 of the DPD.

The Cultural Heritage Report identified Lake Simcoe, including the marsh and associated shoreline, as a potential CHL. WSP recommended that a CHER be completed given that direct impacts were anticipated to this potential CHL. The CHER was completed by WSP in June 2024, confirming that Lake Simcoe is a CHL. The preparation of the CHER was informed by applicable MCM guidance documents (Refer to Appendix O2 of the DPD).

Upon the completion of archival research, community engagement, field investigations, and O. Reg. 9/06 evaluation, WSP determined that the section of Lake Simcoe within the study area has local Cultural Heritage Value or Interest for its historical/associative and contextual value. WSP prepared a high-level cultural heritage integrity analysis and determined the Lake Simcoe is an evolved landscape that has been impacted by the change in water levels caused by the construction of the Trent Severn Waterway and surrounding environmental factors. Based on this evaluation, WSP prepared a draft Statement of Cultural Heritage Value or Interest and list of heritage attributes for the study area. The statement and the list of heritage attributes can be found in Section 6.3 of Appendix O2 of the DPD.

The CHER recommends the completion of a Heritage Impact Assessment to assess the impacts of the proposed work, identify conservation strategies, and recommend mitigation measures to conserve the heritage attributes of the CHL. Economic

### Employment

In 2016, the population of GIFN in the labour force was 130 individuals, out of which approximately 96% were employed (**Table 22**). 29% of the working population was employed in public administration, while the other 71% was split between 7 other industries as illustrated in **Figure 9** (Statistics Canada, 2016).

***Table 22: 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.

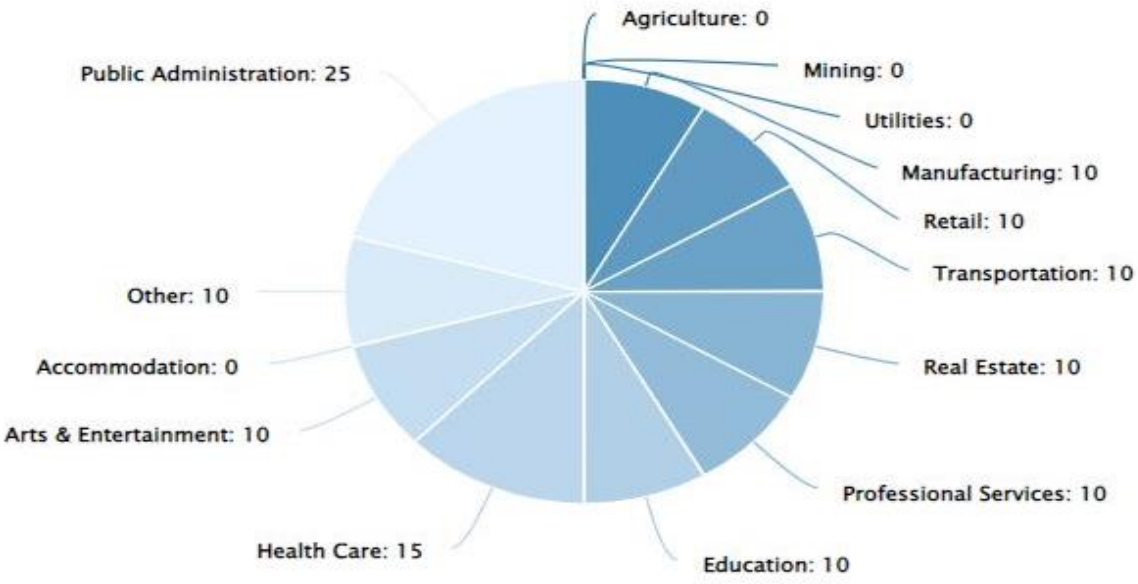


*Figure 9: GIFN Employment by Industry (Statistics Canada, 2022a)*

### Income

The median total income for GIFN in 2015 was $26,368 (**Table 23**), which is significantly less than provincial median income of $33,539, and a national median income of $34,204 (Statistics Canada, 2017). With a population at 261 people, most inhabitants at of Georgina Island are above the low-income cut-off, or the income a person must earn to be part of the low-income group.

***Table 23: 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 24**).

***Table 24: 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% |

## 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, where 48% of Ontarians call home (WOWA, 2022).

### *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 (Cambium Aboriginal Inc., 2019c).

### *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 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 (Intrinsik, 2021). Propane has also seen unprecedented price increases (~28%) in the last 12 months due to supply chain issues caused by the ongoing war in Ukraine.

Natural gas is not currently available in the community, but the construction of a fixed link would provide potential for natural gas infrastructure to be established in the community.

*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 (York Region, 2021).

*Housing*

From the 2021 census, 73% 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 (Statistics Canada, 2022a). 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. Although both real estate and rental costs have increased significantly since 2020, It can be expected that costs associated with housing/renting would be lower than off-reserve.

*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. Costs for food and everyday items have risen dramatically during 2022 due to supply chain issues and lingering effects from the COVID-19 Pandemic.

*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 and 2017, was by the residential and seasonal residential sectors (Cambium Aboriginal Inc., 2019c).

*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 (CIPS, 2022).

### Businesses

Community and membership have tried many business ventures over the past 10 years. Some were an attempt to reach the tourism market, whereas others were designed to reach an external goods and services market. At the present time, there are very few ventures operating on a full-time basis. This limited economy is the direct result of the community's island location. Table D-31 of the DPD illustrates the businesses that are operational today. Refer to Appendix B of the DPD for businesses that were established and are currently closed, and the type of ownership structure in place.

### Tourism

The local population surrounding the study area is more than 5.4 million (within a 1.5 hour driving radius). The preferred alignment of the Fixed Link would be located within an approximately 5-minute drive on the mainland to Sibbald Point Provincial Park, one of the most popular parks in Ontario with 70,000 visitors per year. Georgina Island is within 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 terminal on the mainland. Local tourism infrastructure is currently in place to support the demand and is fully operational.

The Georgina Island is situated in the prosperous Ontario Regional Tourism 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 (Central Counties Tourism, 2019). 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 Ontario Regional Tourism Zone 6 visitor profile survey in 2018, Cultural Sampling, Attraction to Nature and Ecological Lifestyle scored the highest social values in the survey (Central Countries Tourism, 2018). As with the GIFN being the larger of two First Nations located in this zone, there is a definite opportunity for Georgina Island to provide these unique experiences to visitors with existing businesses as previously mentioned in Section 2.4 or with new businesses as a result of the connection to the mainland. The construction of a fixed link, connecting Georgina Island to the mainland will provide easy, regularized and regular access to and from Georgina Island and contribute to the growth of the local tourism sector.

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.

While minor positive impacts to tourism are possible, no significant positive or negative impacts to tourism are expected as a result of the Project. The intent of the Project is not to increase future development or tourism (e.g., a casino) on Georgina Island.

# PART E: FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS, AND MUNICIPAL INVOLVEMENT

## 16. Potential Federal Financial Support

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

GIFN believes that, as part of the Treaty relationship with the Crown, the federal government has financial obligations pertaining to the transportation costs for the Island. As the first step in the assessment and shared responsibility, the GIFN will engage the federal government in negotiations pertaining to the seven generations cost burden of transportation. As the options are jointly compared, the First Nation and the federal government will assess the most efficient and effective financing package to pay for this Project

The financing mix will be determined during the negotiation process; however, the mix will be a combination of First Nation equity, Treasury Board support and loan support from the CIB, which 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 verifying accelerator funds, as well as verifying project eligibility for loan proceeds under CIB lending terms and conditions. Regular Project updates are also provided to the CIB.

It is estimated that 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 Project lifecycle, the GIFN community is unable to gauge what amounts may be available from each source in the long term. For that reason, the GIFN is operating on the assumption that it will be required to support the full 20% of equity needed and is 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)). **Table 25** provides a list of the potential federal authorities requiring authorizations for the Project, and whether they are anticipated to provide financial support.

## 17. Federal Lands That May Be Used for the Project

The Project largely falls within federal lands in the form of First Nation reserve lands, including Georgina Island and Sand Islands, or First Nation-owned lands, i.e., land owned by GIFN, which include Bayvista Property and the West Property (**Figure 10**).

Besides GIFN's reserve lands (**Section 13 of the DPD**), which are federal lands within the meaning of the IAA, there are no known federal lands within the local study area for the Project and the Project is not in proximity to the boundaries of another province or country. As a result,

no changes to the environment are expected to occur on federal lands, in a province other than the province in which the Project is proposed to be carried out, or outside of Canada

Any submerged lands under Lake Simcoe that were once dry lands belonging to Georgina Island, Sand Island or Gravel Island before the water levels of Lake Simcoe rose are also federal lands as defined in the IAA (see Section 13.3 of the DPD

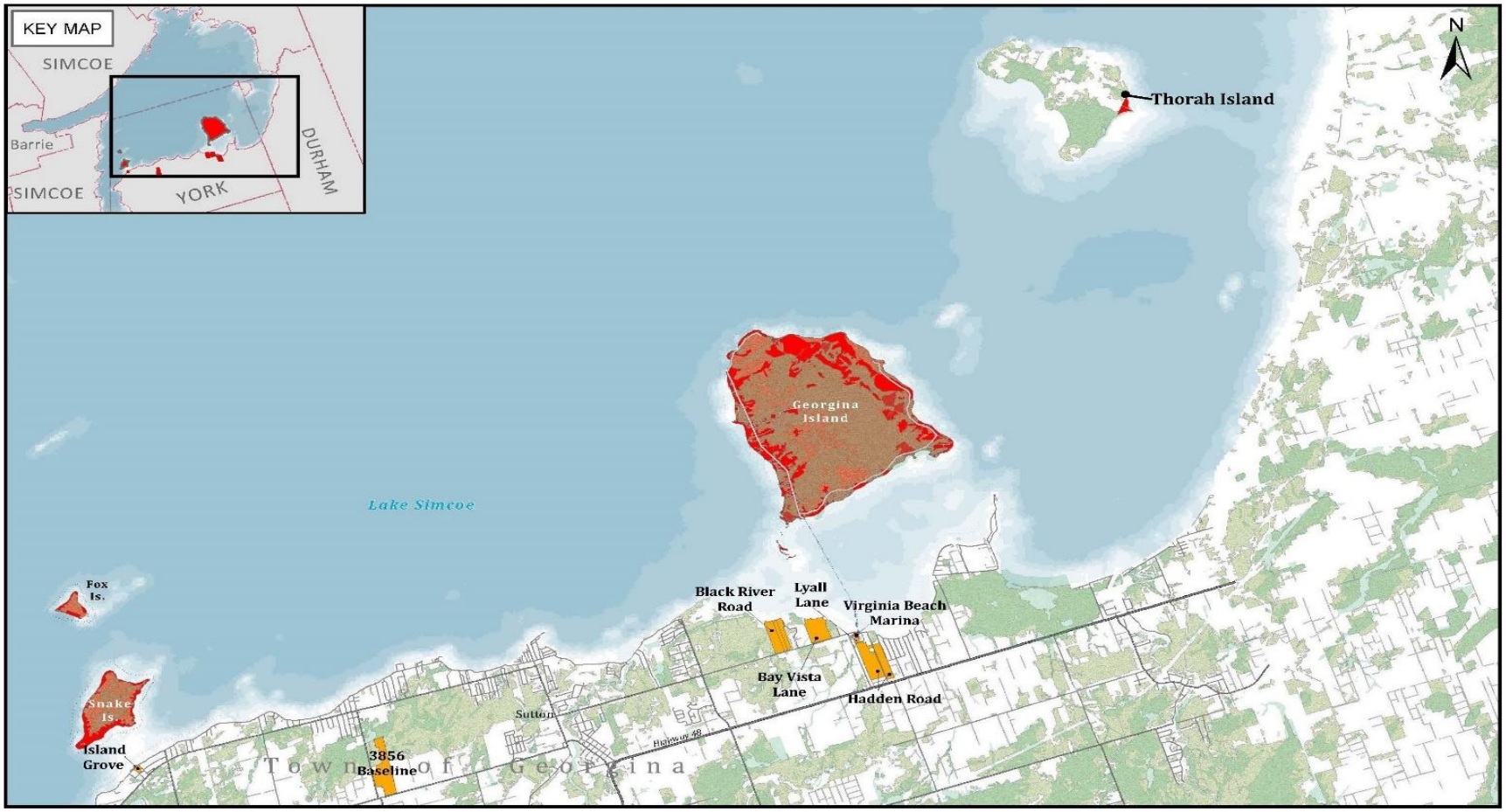


*Figure 10: GIFN Land Ownership – All Island and Mainland Properties*

## 18. Permits, Licenses, and Approvals

In addition to the current impact assessment process under the IAA, the proposed Project may be subject to required authorizations and approvals issued by various regulatory agencies. provides a list of potential and anticipated permits, licenses or authorizations that may be required for the Project.

***Table 25: Anticipated Permits, Licenses, and Approvals***

| Approving Agency | Permits, Licenses and/or Approvals |
|---|---|
| **Federal** | |
| Fisheries and Oceans Canada (DFO) | A *Fisheries Act* paragraph 35(2)(b) Authorization will be required if the Project is likely to cause the harmful alteration, disruption or destruction to fish habitat and/or a *Fisheries Act* paragraph 34.4(2)(b) Authorization if the Project is likely to result in the death of fish.<br>Another RfR will be submitted to DFO during the Detail Design phase to determine permitting requirements for future Project activities. It is anticipated that an Authorization will be required for the future Project activities. |
| | Protection provisions of aquatic species under SARA could also apply to the Project. |
| Transport Canada | Future Project activities will require approval under subsection 5(1) of the CNWA. |
| Environment and Climate Change Canada (ECCC) | SARA permits may be required if individuals or their habitat may be impacted for the following terrestrial species listed under the SARA: Blanding's Turtle, Eastern Whip-poor-will, Least Bittern, Western Chorus Frog (Great Lakes/St. Lawrence population), Little Brown Myotis, Northern Myotis, Tri-colored Bat, and Butternut, on federal lands. |
| Health Canada | No approval anticipated. However, Health Canada provides health-related expert advice and technical knowledge to support the assessment of potential impacts of the Project on human health. |
| Canada Infrastructure Bank | None. |
| Ministry of the Environment, Conservation & Parks (MECP) | A construction temporary Permit to Take Water, under the Ontario *Water Resources Act* may be required. |
| | ESA authorization (or registration) may be required for the following species: Blanding's Turtle, Butternut, Least Bittern, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat, as well as any newly-listed species will also require consideration.. However, per guidance from MECP, legal advice is required to determine whether the ESA* is applicable to Indigenous reserve lands within the study area.<br>*Note: The *Species Conservation Act* (2025) will replace the ESA once proclaimed into force by the Lieutenant Governor in Council. |

| Approving Agency | Permits, Licenses and/or Approvals |
|---|---|
| | An Environmental Compliance Approval issued under the *Environmental Protection Act, 1990* may be required for equipment emitting air, waste or noise. |
| | Compliance with the Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300) may be required. |
| | Compliance with *O. Reg. 419/05 – Air Pollution – Local Air Quality* may be required. |
| Ministry of Natural Resources (MNR) | The use of public land and shore lands are regulated under the *Public Lands Act*. As such, a work permit must be obtained from MNR to undertake certain activities on public land and shore lands, and to occupy public lands in Ontario, a proponent must receive prior approval from MNR unless the use is permitted by regulation. Construction activities and/or occupation on provincial Crown land (including lakebed) may require a work permit under the *Public Lands Act*. |
| | A Wildlife Scientific Collector's Authorization (WSCA) and/or Licence to Collect Fish for Scientific Purposes, under the *Fish and Wildlife Conservation Act* may be required for wildlife and/or fish salvage activities during construction. |
| Ministry of Citizenship and Multiculturalism (MCM) | Per *Ontario Heritage Act, Part VI*, it is expected that the proponent may be required to submit one or more archaeological assessment report to the MCM for review and acceptance. If the report complies with the Standards and Guidelines for Consultant Archaeologists (MCM, 2011), the report will be entered into the Ontario Public Register of Archaeological Reports, at which time a letter will be issued.<br>A copy of the Cultural Heritage Evaluation Report, dated June 26, 2024, has been accepted by GIFN, and has been provided to the MCM for review and information purposes. |
| Ontario Ministry of Transportation (MTO) | Prior to initiating the TIS to inform the DPD, a TIS Terms of Reference was submitted to MTO for review. MTO confirmed that the proposed Project is outside its jurisdiction and no provincial highway intersections need to be assessed; thus, it does not have an expected approval role (see Appendix F of the DPD for the correspondence). |
| Lake Simcoe Region Conservation Authority (LSRCA) | The LSRCA has confirmed that approvals will not be required under *Ontario Regulation 179/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* under the *Conservation Authorities Act.*<br>The LSRCA has confirmed throughout ongoing discussion in 2024 that it is not able to or required to, issue a permit for the Project as the Project subject to is a federal matter and is not subject to provincial legislation. |

| Approving Agency | Permits, Licenses and/or Approvals |
|---|---|
| Regional Municipality of York | According to the York Region Transportation Mobility Plan Guidelines for Development Applications **Invalid source specified.**, York Region and the nine local municipalities within York Region require development applications to provide a TIS to assess the impacts of the proposed development on the existing and future transportation network. |
| Town of Georgina | York Region and the nine local municipalities within York Region require development applications to provide a TIS to assess the impacts of the proposed development on the existing and future transportation network |

# PART F: POTENTIAL EFFECTS TO THE PROJECT

## 19. Changes to the Environment under the Federal Legislation

This section provides a summary of the changes that, as a result of the carrying out of the project, may be caused to components of the environment that are within legislative authority of Parliament. Specifically, a number of changes are anticipated to fish, fish habitat, aquatic species and migratory birds, as summarized below (**Table 26**).

***Table 26: Changes to the Environment under Federal Legislation with Mitigation Measures***

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| **Fish and Aquatic Habitat Protected Under the *Fisheries Act*** | |
| ▪ Anticipated direct impacts as a result of construction activities include:<br>  ▪ loss of fish habitat (permanent removal) in Lake Simcoe resulting from infilling for the causeway portions and the bridge pier areas;<br>  ▪ localized removal and loss of riparian habitat along lake shoreline areas; and<br>  ▪ potential for incidental fish mortality.<br>▪ Potential indirect impacts as a result of construction activities include:<br>  ▪ decreased habitat quality as a result of erosion and release of sediment;<br>  ▪ decreased habitat quality as a result of accidental spills; and<br>  ▪ decreased habitat quality and disturbance as a result of noise and vibration (potential disruption during fish spawning period). | ▪ Minimize impacts through ongoing collaboration between fisheries ecologists and the design team to ensure aquatic habitat considerations are incorporated into the design.<br>▪ 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.<br>▪ Complete a *Fisheries Act* Authorization application and determine appropriate mitigation and compensation / Off-setting Plan through that process with DFO.<br>▪ Potential use of steel sheet piles or armourstone to the reduce the footprint of some causeway sections found in more sensitive fish habitat and to provide containment of the work zone.<br>▪ An ESC Plan will be developed and implemented during all phases of construction and clean-up to prevent sediment laden runoff from entering the lake directly from the construction zone. At a minimum, the plan will address the following elements:<br>  ▪ Disturbed areas / construction zones that drain to the lake will be isolated using standard perimeter silt fencing to isolate the general construction zone up and downstream. The silt fencing will be heavy duty / reinforced fencing, but with no exposed mesh that might entangle wildlife. Silt fencing will be regularly inspected and maintained as required.<br>  ▪ In-water works will be isolated using appropriate techniques to be approved by DFO (e.g., sheet pile, armourstone, turbidity curtain) to maintain clean flow around and outside of the construction area. The isolation measures must adhere to DFO's Interim Standard for in-water isolation. If pumping is required, flow withdrawal hoses will be sited to avoid entrainment of fine sediment off the bed, and discharge hoses sited to prevent bed erosion and downstream sediment transport. Any dewatering pump intakes will be fitted with screens to prevent the entrainment or impingement of fish. All water intake screens must adhere to DFO's Interim Code of Practice: End-of-pipe fish protection screens for small water intakes in freshwater. No dewatering discharge will be released directly to the into the lake without appropriate treatment. Appropriate settling / filtration and energy dissipation measures will be used for discharge to ensure no erosion or sediment release occurs.<br>  ▪ All salvaged or stockpiled materials will be located a safe distance from the edge of the lake and stabilized to prevent migration of any sediment or other material to the lake.<br>  ▪ All work areas or other disturbed surfaces draining to the lake or watercourse and/or in the floodplains will be stabilized and re-vegetated with native species (e.g., native seed mix) as soon as feasible following construction.<br>  ▪ The ESC measures will be left in place, monitored and maintained in proper working order until all disturbed areas draining to the lake are fully stabilized, including establishment of vegetative cover, if required.<br>▪ In-water works should take place outside of the in-water work restriction timing window (to be established with MNR and DFO), to protect fish populations during their sensitive life periods (e.g., spawning).<br>▪ The contractor shall undertake a fish rescue in the zones isolated for the bridge and causeway works. Fish will be captured using appropriate techniques by a qualified person and transferred unharmed to an appropriate location in the lake. A License to Collect Fish for Scientific Purposes (from the MNR) will be obtained for this work.<br>▪ No equipment shall enter the lake except as outlined above and stipulated in the contract documents to construct the specified works.<br>▪ Activity will be controlled to prevent entry of any petroleum products, debris or other potential contaminants / deleterious substances, in addition to sediment as outlined above, to the lake. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| | ▪ Storage, maintenance or refueling or maintenance of equipment will be conducted at least 30 m away from the lake.<br>▪ The Contractor will have an appropriate Spills Management and Response plan in place throughout construction, including spill control and absorbent materials, instructions regarding their use and notification procedures.<br>▪ Appropriate clearing and disposal of all construction-related debris will occur following construction.<br>▪ Every effort will be made to retain and protect as much of the natural vegetation as reasonably possible to help ensure shoreline stability and control erosion, and to expedite the re-colonization of native plant species.<br>▪ Construction will be carried out in accordance with the Clean Equipment Protocol for Industry (https://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/Clean-Equipment-Protocol_June2016_D3_WEB-1.pdf). Specifically, construction equipment shall be inspected and cleaned prior to arrival on site to ensure non-native and invasive plant species are not being transported to and released on site.<br>▪ An experienced environmental inspector will be on-site and responsible for ensuring the ESC measures are functioning effectively and being maintained, and that the other mitigation measures are being implemented as intended.<br>▪ Potential mitigation measures for noise and vibration impacts will also be identified and could include a restrictive timing window for the works (e.g., pile driving) that may impact fish during their sensitive life stages (e.g., spawning). |
| ▪ Anticipated direct impacts as a result of operational activities include:<br>▪ Changes to fish habitat and aquatic species diversity (fish, benthic macroinvertebrates) from altered wind and current patterns;<br>▪ Changes to and disruption of fish movement and / or migration patterns from altered wind and current patterns<br>▪ Increase in the spread of invasive species (e.g., Phragmites, Starry Stonewort, Round Goby, Zebra Mussel)<br>▪ Disturbances to fish (e.g., lighting); and<br>▪ Decreased habitat quality as a result of contamination (e.g., road salt). | ▪ When developing the future offsetting plan in consultation with DFO, MNR's recommendation to disperse a mix of pea gravel, riverstone, rocks, woody debris and lunker logs in the vicinity of each bridge abutment to support fish spawning, will be incorporated.<br>▪ Bridge lighting should be designed to focus on the road and/or pedestrian walkways and should be directed away from the lake.<br>▪ Treatment of bridge deck drainage/runoff prior to entry into the lake should limit contamination potential. A plan for winter care of the bridge and causeway road surface should be established to minimize the use of salt.<br>▪ Promote educational opportunities (e.g., signage) to minimize the spread of invasive species.<br>▪ Incorporate a monitoring program to ensure mitigation measures are effective and incorporate adaptive management, where appropriate. For example, a water quality monitoring program measuring the pre-construction conditions and the post construction conditions along the preferred alignment should be developed and implemented during future design phases. |
| **Aquatic Species at Risk Protected Under 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. | ▪ None identified to date. |
| **Migratory Birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*** | |
| ▪ Anticipated and potential indirect impacts as a result of construction activities include:<br>▪ Loss of habitat as a result of the construction of the Fixed Link.<br>▪ Decrease habitat quality as a result of release of construction generated sediment to adjacent retained habitats.<br>▪ Decrease habitat quality as a result of contaminants, fuels and other materials that may accidentally reach retained natural areas.<br>▪ Changes to drainage patterns (groundwater and/or surface water runoff) that can impact wetland vegetation, and in turn the quality of wetland habitat for migratory birds. | ▪ Follow all measures outlined above and in Section 19.1.2 of the DPD for the protection of aquatic habitat to protect migratory bird habitat associated with the Lake Simcoe.<br>▪ 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).<br>▪ Keep vegetation removals to a minimum and clearly delineate removal limits on contract drawings and in the field to avoid unnecessary disturbances to retained natural areas.<br>▪ Employ appropriate vegetation clearing techniques (e.g., trees to be felled away from retained natural areas, trimming of damaged branches and roots).<br>▪ Require that all construction machinery arrives on site in a clean condition and working order, and will be maintained free of fluid leaks, invasive species and noxious weeds. The Clean Equipment Protocol for Industry will be adhered to.<br>▪ Require that all equipment maintenance and refueling take place at a designated and properly contained maintenance area.<br>▪ Implement dust control using water, not chemical suppressants. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| ▪ Introduction of invasive species (e.g., Common Reed [Phragmites australis]) that may alter the quality of retained habitats for migratory birds.<br>▪ Disturbance (e.g., noise, vibration, dust, lighting, increased human activity / presence) that may temporarily reduce the suitability of adjacent habitats for use by migratory birds. | ▪ Schedule vegetation clearing (including grubbing and tree / shrub / grass removal) and any construction activities in areas where migratory birds might nest (e.g., in culverts) outside of the Regional Nesting Period (approximately April 1 to August 31). The Contractor will be made aware that occasionally bird species will precede or exceed this core nesting period.<br>▪ No active nests of migratory birds will be removed, or birds or nests disturbed in accordance with the *Migratory Birds Convention Act, 1994*.<br>▪ The Contractor will be advised that all temporary brush piles and loose soil piles should be tarped or otherwise inspected regularly to prevent nesting as they provide potentially suitable nest sites for some species.<br>▪ If a nesting migratory bird is identified within or adjacent to the construction site and the construction activities are such that continuing in that area might result in a contravention of the *Migratory Birds Convention Act, 1994* (i.e., potential harm or stress to nests, birds, eggs, or young), all activities must cease, and the Contract Administrator notified immediately.<br>▪ Any wildlife incidentally encountered during construction will not be knowingly harmed or harassed and will be allowed to move away on its own. |
| ▪ Potential direct impacts as a result of operational activities include:<br>▪ Direct mortality due to collisions with vehicles travelling on the Fixed Link.<br>▪ Potential indirect impacts as a result of operational activities include:<br>  ▪ Reduced habitat suitability due to increased light, and noise from traveling vehicles.<br>  ▪ Reduced habitat suitability due to increased stationary lighting on the Fixed Link.<br>  ▪ Reduced habitat suitability resulting from the accidental introduction of invasive species (e.g., Phragmites).<br>  ▪ Potential for contamination of habitat resulting from spills and road salt, if spills and drainage are not properly contained, treated, and managed.<br>  ▪ Potential for ongoing edge effects to fragmented forest habitats on the mainland (e.g., noise, wind, sunscald, invasive species, predation), thereby reducing the quality and availability of interior habitat for area-sensitive bird species. | ▪ Incorporate stationary lighting designs that consider the effects to adjacent wildlife habitat (e.g., use of 'full cutoff fixtures' that place light directly on the road surface with no upward directed lighting and/or smart lighting that dims or turns off when not needed).<br>▪ Consider other design measures that could assist with minimizing noise and light disturbances to adjacent habitat (e.g., barriers).<br>▪ Incorporate appropriate salt management and SWM treatment measures into the design (e.g., use of oil-grit separators, bioswales, direct run-off away from retained natural areas).<br>▪ Incorporate mitigation measures to minimize edge effects, in particular edge effects to forest communities (e.g., edge plantings to help 'seal' the new forest edge).<br>▪ Incorporate a monitoring program to ensure mitigation measures are effective and incorporate adaptive management, where appropriate. |

## 20. Changes to the Environment on Federal Lands and Elsewhere

A number of changes are anticipated to federal lands and elsewhere as summarized in **Table 27** below. In addition to issues related to federal requirements, a number of the listed issues may be covered under provincial and local legislation and requirements.

***Table 27: Changes to Environment on Federal Lands and Elsewhere with Mitigation Measures***

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| **Bedrock and Soils** | |
| ▪ Soil and sediment disturbance during construction (e.g., during clearing, grubbing, topsoil stripping and grading for the new road and temporary workspaces) may lad to acceleration of natural processes of erosion where soil is left exposed. | ▪ Utilize available construction methods that can minimize the effects to the lakebed and limit it to the footprint of foundation.<br>▪ In addition to the ESC methodologies highlighted in other disciplines (e.g., Fish and Fish Habitat), the following precautions will be taken as a minimum during construction to mitigate impacts on the environment:<br>  ▪ Construction activity will be confined to designated work areas (includes access roads, maintenance areas, parking areas and haul routes). Areas on which no work is designated will be protected with suitable barricades. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| ▪ If shallow overburden is encountered, disturbance during construction may cause soil erosion and slumping that may require rehabilitation, specifically in the steep area adjacent to the river.<br>▪ Damage or loss of soils through compaction, admixing and rutting.<br>▪ Accidental spills or leaks of contaminants during construction or operation could adversely impact soil quality. | ▪ A Spills Management and Response Plan will be developed and will include a spills containment kit for fuels and any other potentially deleterious substances will be on site and immediately available, and all employees will be trained in the proper spill cleanup procedure. The kit will consist of, at the least, sufficient absorbent boom and swabbing material to initially contain a spill as well as protective gear for handling of hazardous chemicals.<br>▪ Clearing, grubbing and topsoil stripping will only be performed immediately prior to commencing work in those areas. Work areas will be stabilized as soon as possible after work has been completed.<br>▪ Drainage ditches and other watercourses for surface water drainage will be properly maintained during construction, incorporating appropriate sediment retention measures.<br>▪ Equipment maintenance (fueling, cleaning, etc.) will be done in designated areas. No refueling will take place closer than 30 m from the watercourse. Equipment (including empty fuel or other containers) cannot be cleaned in the watercourse. Excess fuels, lubricants, pesticides, and other supplies will be removed from the site and disposed of in an approved manner.<br>▪ Additional measures that will be implemented to protect soil integrity and prevent erosion include the following:<br>▪ Minimize clearing during construction.<br>▪ Retain native vegetation in and around project activity and minimize soil disturbance as much as possible to prevent germination and establishment of invasive species.<br>▪ When undertaking activities such as stripping or excavating, remove and store topsoil separately; do not handle topsoil in wet or frozen condition; and replace excavated soil in the same order after excavation (topsoil nearest the surface).<br>▪ Remove all waste materials and ensure the site is reinstated to its original conditions, or better at the end of the work.<br>▪ Restoration activities will include the restoration of both topsoil and native vegetation.<br>▪ Revegetate as soon as possible within the growing season.<br>▪ If unfeasible, stabilize disturbed areas with erosion control blankets to keep the soil in place and prevent erosion in water bodies. Leave blankets in place until immediately before the commencement of revegetation work.<br>▪ Sediment control practices during construction may include the following:<br>▪ Sedimentation pond during construction prior to releasing into the lake<br>▪ Use of sedimentation fence (silt fence). Specifications indicated in Section 19.1.2. should be considered to avoid wildlife entanglement.<br>▪ Use of Oil-Grit Separator during construction prior to releasing into the lake |
| **Vegetation Communities (including Wetlands) and Flora** | |
| ▪ Project construction will result in the direct removal of vegetation communities, including wetlands.<br>▪ Potential indirect effects to retained vegetation communities, wetlands and flora during construction, include:<br>▪ Release of construction-generated sediment to adjacent habitats.<br>▪ Vegetation clearing / damage beyond the working area.<br>▪ Spills of contaminants, fuels and other materials that may reach natural areas.<br>▪ Changes in drainage patterns (groundwater and/or surface runoff flow) that can impact dependent vegetation / wetland areas located either upgradient or downgradient.<br>▪ Blocking of existing surface / subsurface drainage patterns can result in upstream and downstream vegetation dieback / condition changes. An increase in downstream runoff can result in erosion impacts on receiving vegetation. | ▪ Complete wetland and woodland staking and have the limits surveyed. Accurate features limits will be used to inform the detail design, permitting and any habitat compensation that may be required.<br>▪ Minimize the extent of construction-related disturbance.<br>▪ Delineate construction access areas to prevent unnecessary disturbance.<br>▪ Install temporary vegetation and tree protection measures (e.g., temporary fencing) to protect vegetation that does not require removal for purposes of the construction.<br>▪ Employ appropriate vegetation clearing techniques (e.g., felling trees away from retained natural areas).<br>▪ Avoid unnecessary traffic, dumping and storage of materials over tree roots.<br>▪ Develop and implement appropriate spills prevention measures and a Spills Prevention and Response Plan, including spill control and absorbent materials, instructions regarding their use and notification procedures. The plan will be maintained on-site at all times, and all personnel will be familiar with its implementation. No storage, maintenance or refueling of equipment will be permitted near natural areas.<br>▪ Require that vehicles, machinery, and heavy equipment arrive on-site in clean condition, including free of mud / soil / dirt from other locations and including clean wheel / tire / tracks, and will be maintained free of fluid leaks. To reduce the spread of invasive species, |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| ▪ Spread of invasive species from within or off-site due to un-clean construction equipment.<br>▪ Edge effects resulting from the exposure of a new forest edge. | equipment will be thoroughly cleaned before being brought onsite and before leaving the site in accordance with the Clean Equipment Protocol.<br>▪ Implement edge management measures (e.g., planting to 'seal' the new forest edge), where appropriate.<br>▪ Review opportunities for restoration of retained natural areas and/or habitat creation / compensation measures. These may be required as part of federal permitting for SAR.<br>▪ Incorporate opportunities to refine the design to minimize direct impacts to the more sensitive vegetation communities and wetlands as the design progresses. |
| ▪ Project operation and maintenance has the potential to have ongoing effects to the retained vegetation communities, wetlands and flora, including:<br>▪ Damage from excessive or improper application of herbicides and pesticides for maintenance requirements.<br>▪ Damage to adjacent natural vegetation from roadway maintenance activities, such as salting and sanding, structure repairs, and ditch cleanout. | ▪ The potential effect of the Project operations on vegetation can be managed through design-related mitigation measures, including:<br>▪ Incorporate appropriate salt management and SWM treatment measures (e.g., use of oil-grit separators, bioswales, direct run-off away from retained natural areas).<br>▪ Incorporate vegetated filter strips wherever feasible. |
| **Wildlife and Wildlife Habitat** | |
| ▪ Potential construction effects on wildlife habitat are generally similar to those discussed for the vegetation communities, consisting of direct and indirect effects to habitat features (e.g., woodlands, wetlands, meadows), and temporary construction-related disturbance effects.<br>▪ The Project may impact wildlife movement opportunities on the mainland with the introduction of a new north-south road.<br>▪ There is potential for incidental encounters with wildlife during construction<br>▪ Operation of the Project has the potential to have an ongoing effect to wildlife and wildlife habitat, including:<br>▪ Damage to adjacent natural habitats from roadway maintenance activities such as salting and sanding, structure repairs, and ditch cleanout.<br>▪ Increased wildlife-vehicle collisions as a result of a new north-south roadway and the Fixed Link infrastructure.<br>▪ Sensory disturbance through ongoing noise and lighting effects.<br>▪ Disruption of animal movement patterns. | ▪ The mitigation measures outlined for reducing effects to vegetation and vegetation communities also apply to wildlife habitat, generally (e.g., minimize areas of disturbance, implement a Spills Prevention and Response Plan, implement edge management where appropriate).<br>▪ Implement measures for the protection of migratory birds (see Sections 19.3.2).<br>▪ Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away on their own. If they do not, the environmental inspector will capture and release any small wildlife (e.g., amphibians) stranded within the construction zone. If the animal is injured, a wildlife rehabilitator will be contacted.<br>▪ Install temporary ESC fencing to protect the adjacent watercourses and terrestrial / wetland habitats that will also function generally as exclusion fencing for turtles (or other small animals) that may inadvertently enter into the construction areas.<br>▪ Integrate opportunities to minimize impacts to wildlife and wildlife habitat through design measures will be integrated, as feasible.<br>Design-related mitigation measures will be incorporated to manage these and other effects; these will be further refined at future study phases. Examples of measures to be included are:<br>▪ Implement wildlife crossing structures or designated terrestrial passages, where feasible.<br>▪ Incorporate wildlife fencing to direct wildlife to crossing structure(s).<br>▪ Incorporate stationary lighting designs that consider the effects to adjacent wildlife habitat (e.g., use of 'full cutoff fixtures' that place light directly on the road surface with no upward directed lighting and/or smart lighting that dims or turns off when not needed).<br>▪ Consider other design measures that could assist with minimizing noise and light disturbances to adjacent habitat (e.g., sound barriers).<br>▪ Incorporate appropriate salt management and SWM treatment measures (e.g., use of oil-grit separators, bioswales, direct run-off away from retained natural areas).<br>▪ Incorporate mitigation measures to minimize edge effects in particular edge effects to forest communities (e.g., edge plantings to help 'seal' the new forest edge).<br>▪ Incorporate a monitoring program to ensure mitigation measures are effective and incorporate adaptive management, where appropriate.<br>In addition, the Contractor will submit an Information Gathering Form (IGF) to the MECP's Species at Risk Branch to assess whether the Project will have impacts on the provincially-listed SAR and their habitat, and to provide further guidance to ensure the Proponent has fulfilled its due diligence. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| **Significant Wildlife Habitat** | |
| ▪ Minor direct and indirect effects to the edge of the Georgina Island PSW Complex may affect the associated SWH.<br>▪ The preferred alignment also has potential to have effects on the SWH features located on the West Property. | ▪ Many of the mitigation measures outlined previously for vegetation, wildlife and wildlife habitat, and SAR will serve to mitigate the potential effects to SWH as well. These will be further refined as the design progresses and through the permitting process for SAR since many of the SAR habitats overlap with SWH features. |
| **Species at Risk (SAR)** | |
| ▪ The Project's direct and indirect effects to SAR and SAR habitat will be determined and quantified during Detail Design, and as part of federal SARA permitting processes. | ▪ It is anticipated that a SARA permit will be required for the species that have been confirmed and whose habitat or individuals may be impacted by the Project. Permitting, including mitigation and compensation measures, will be determined in consultation with ECCC during the Detail Design phase<br>▪ It is expected that the mitigation required will include measures such as the following:<br>▪ Ensure the development of an avoidance and mitigation plan by a qualified biologist in accordance with all relevant legislation if the work proposed may impact a SAR species protected under federal or provincial law.<br>▪ Train all contractors in a site-specific SAR awareness.<br>▪ Ensure the work area is surveyed by a person trained in SAR identification prior to start-up to validate SAR absence. Further measures may be needed to continue the activity.<br>▪ In the event a SAR is encountered in the work area, allow it to move out of the work area voluntarily (without harassment). If it does not move, and construction activities would result in harm or disturbance to the animal, stop all activities and notify the qualified biologist (who may consult ECCC to discuss mitigation options).<br>▪ Prior to the control of undesirable vegetation / nest / small animal, ensure compliance of the activity under the SARA and the Ontario ESA, the *Migratory Birds Convention Act*, 1994, and the Ontario *Fish and Wildlife Conservation Act*.<br>▪ Protect any federally or provincially protected tree species (seedling, sapling or tree). Implement all necessary protective measures, such as flagging the tree or installing protectors at the dripline or critical root zone (CRZ) of the tree, whichever is greater. Never prune or cut these species or trees without authorization from ECCC. Any flagging tape and protection measures used must be removed once work is completed.<br>▪ The location of or information related to SAR or sensitive ecological areas (e.g., nests, roosts or dens) is never to be disclosed to the public without ECCC authorization. |
| **Invasive Species** | |
| ▪ The Project may result in additional, unwanted invasive species having easier access to Georgina Island or the West Property, and invasive species may be introduced during construction.<br>▪ During operation, the Fixed Link may allow easier access for vehicles to travel back and forth; thus, allowing invasive species to travel more freely (e.g., on equipment and vehicles), than the Aazhaawe Ferry does. | During construction, the contractor should follow best management practices such as:<br>▪ Train workers to identify the exotic invasive species present on site.<br>▪ At the start-up meeting, make the workers aware of the presence of invasive plants and the procedures they need to follow to prevent the spread of invasive plants.<br>▪ Identify the zones where invasive plant species are located prior to the commencement of work to prevent workers from entering those areas unnecessarily, and to ensure that appropriate procedures are followed to prevent the spread of invasive species in cases where they do enter those zones.<br>▪ If invasive species need to be disturbed, removed or trimmed, implement relevant best practices from the Ontario Invasive Plant Council for removal and disposal.<br>▪ Ensure management plans are consistent with federal standards under the federal Invasive alien species strategy (https://www.canada.ca/en/environment-climate-change/services/biodiversity/invasive-alien-species-strategy.html) (Environment Canada, 2004).<br>▪ Remove invasive plant species. Follow the Best Management Practices (https://www.ontarioinvasiveplants.ca/resources/best-management-practices/) for invasive alien plants established by the Ontario Invasive Plant Council. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| | ▪ Before entering or leaving an area infested with invasive species, apply the procedures in the:<br>▪ Clean Equipment Protocol for Industry.<br>▪ Best Management Practices for Preventing the Spread of Aquatic Invasive Species |
| **Groundwater / Hydrogeology** | |
| ▪ Excavations at the study area are expected to encounter groundwater and require dewatering.<br>▪ Should the proposed development require temporary or permanent dewatering and/or groundwater or surface water diversion, site-specific investigations will assess the impacts of the dewatering and/or diversion on the local natural and built environments.<br>An uncontrolled discharge of water during dewatering could cause localized downstream flooding, erosion or sedimentation. | ▪ For permanent installation of services or foundations that are below the water table, proper precautions should be taken to avoid uplift, groundwater channelization or instability.<br>▪ If foundation drainage systems (active or passive) are proposed, the potential groundwater quantities diverted through them should be assessed.<br>▪ Permitting requirements, both for the water taking and for the water disposal and discharge, will be confirmed based on the results of the site-specific investigations.<br>▪ Should excavation work be necessary at depth that may interfere with underground aquifers associated with neighbouring water wells, mitigation will include advising neighbours that temporary compensation of water will be supplied and follow up assessment of groundwater quality will be provided in order to ensure that water quality returns to previous levels, levels that are in compliance with provincial acts (i.e., the *Ontario Clean Water Act*) and federal guidelines (Canadian Drinking Water Quality Guidelines).<br>▪ Dewatering, disposal and discharge may require permitting from the appropriate agencies (e.g., the MECP).<br>▪ Appropriate mitigation measures will be identified and installed during isolation and dewatering activities to manage discharge water, including appropriate ESC measures and ensuring that discharge water is properly filtered (i.e., filter bags, discharge across grassed areas, check dams) prior to discharge.<br>▪ The Contractor and ultimate owner will also be required to review the LSRCA's "Guidance for the protection and restoration of significant groundwater recharge areas (SGRAs) in the Lake Simcoe watershed" (LSRCA, 2014) to confirm that the appropriate recommendations for the protection of SGRAs are implemented.<br>▪ As well, the South Georgian Bay Lake Simcoe Source Protection Region Source Protection Plan's policies will be reviewed to confirm that relevant activities (e.g., relating to the handling, storage, and application of road salt, storage of snow, handling and storage of fuel and DNAPL, and water taking) will be adhered to during construction and operation. |
| **Stormwater / Drainage** | |
| ▪ There is a potential for impacts to stormwater quality as a result of oil, grit, and other contaminants, such as salt or other de-icing agents, contacting surface water on the road, causeway, bridge or other surfaces.<br>▪ Scour, the impact of ice, shoreline stability, and erosion and sedimentation are also concerns in proximity to the lake. | ▪ The drainage design for the Fixed Link includes three separate stormwater treatment processes (refer to Section 20.4.1 of the DPD). With these treatment processes, the amount of oil, grit, and other contaminated runoff outletting to Lake Simcoe will be reduced to or below the acceptable minimum.<br>▪ Climate Change considerations (refer to Section 20.4.1.1 of the DPD) will be implemented during the design phase to assess the capabilities of the system during higher intensity rainfall scenarios.<br>▪ The Stormwater Management (SWM) strategy for the Project will meet the requirements highlighted in the provincial and municipal design guidelines.<br>▪ As required by local and provincial guidelines, an "Enhanced" (level 1) water quality control (equivalent to a minimum 80% Total Suspended Solids removal standard) and a removal of 80% of the annual Total Phosphorus load from all impervious areas will be achieved by the Project. To achieve such performance, it is anticipated that a treatment train composed of either (1) an Oil-Grit-Separator with extended oil storage system in conjunction with a filter treatment unit or (2) an Oil-Grit-Separator with extended oil storage system in conjunction with a bioswale be used on the Project.<br>▪ 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. The Regional Office of the MECP will be consulted prior to application of alternative deicers by municipalities or commercial users.<br>▪ A comprehensive Accidents and Malfunctions Plan will be completed during the Detail Design phase and will include a Spill Prevention and Response Plan. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
|---|---|
| | ▪ If an accident does occur during any phase of the Project (including accidental releases), measures to control, contain, recover and clean up the release are to be implemented in a timely manner to minimize the potential for adverse environmental and human health effects.<br>▪ Consultation with the MECP and stormwater management staff at LSRCA will collaboratively assist in informing the design on best management practices to support the high degree of water quality sought on this Project.<br>▪ The outlet from the bridge into Lake Simcoe will be coordinated with drainage, environmental and geotechnical considerations in mind to ensure that the final design has considered and addressed these elements of concern.<br>▪ As well, the South Georgian Bay Lake Simcoe Source Protection Region Source Protection Plan's policies will be reviewed to confirm that relevant activities (e.g., relating to the handling, storage, and application of road salt, storage of snow, handling and storage of fuel and DNAPL, and water taking) will be adhered to during construction and operation. |
| **Atmospheric Environment** | |
| ▪ Dust and diesel combustion emissions are expected from activities related to earthworks, material transportation, construction machinery, and paving.<br>▪ During operation, changes to air quality, specifically dust, transportation-related air pollutants and GHGs, are expected as a result of more vehicles using the new roadway and the Fixed Link; however, reduced emissions to water are expected as a result of no ferry service. | ▪ During the Detail Design phase, an Air Quality Management Plan for dust and other emissions will be developed to minimize construction-related air emissions (see Section 20.5.2 of the DPD).<br>▪ Avoid excavating during high wind events.<br>▪ Apply regular watering during excavation/material piles.<br>▪ Move material off-site to avoid long-term storage piles, minimize pile heights.<br>▪ Excavate soils in accordance with the Air Quality Management Plan to limit air emission impact off site.<br>▪ Reduce materials being handled (per hour and per day); minimize the number of trips made optimizing construction schedule.<br>▪ Minimize the barge trip number and distance.<br>▪ Limit the number of pieces of mobile equipment operating at any time.<br>▪ Avoid summer months when sensitive receptors in the area may have open windows, thus reducing the likelihood of receiving air complaints.<br>▪ Select road surfacing material to minimize GHG emissions.<br>▪ Limit the length of construction time on site, and the quantity of materials brought to the Project site. To minimize dust impacts related to operations, regular bridge maintenance (e.g., street cleaning) should be completed to minimize dust. |
| **Acoustic Environment** | |
| ▪ Impacts of noise generated from construction and operations activities on nearby noise sensitive land-uses and human receptors. | ▪ The construction workday should be limited to 10 hours for compliance for both HC and MTO-MECP guidelines.<br>▪ As the Project proceeds through the Detail Design phase, noise mitigation measures will be further refined and validated to demonstrate compliance with HC Guidelines.<br>▪ The mitigation, offsetting and/or overall benefit measures for impacts to aquatic species will be determined in engagement with relevant regulatory agencies, such as ECCC and DFO, and through future permitting processes where required.<br>▪ Standard mitigation measures for construction are expected to include the following:<br>▪ Follow applicable municipal noise bylaws and conduct construction during permitted hours.<br>▪ Use equipment with noise muffling devices and keep all equipment in good repair.<br>▪ Prior to work commencing, determine where power generating equipment should be placed to reduce exposure and minimize the disruption to adjacent occupants; shield loud power equipment.<br>▪ Provide suitable personal hearing protection as well as proper instruction to construction workers for their health and safety.<br>▪ Advise nearby residents of construction schedules, specifically for work that could potentially generate excess noise or disruption. Erect a noise barrier if required. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
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| | ▪ If construction noise will last for more than one year (i.e., long term) at receptors for operational noise, and existing noise levels will be in the range of 45–75 dB, evaluate health impact endpoints on the change in the percentage of the population (at a specific receptor location) who become highly annoyed.<br>▪ Prepare and implement a Construction Noise and Vibration Management Plan that includes the following items:<br>▪ Instrumentation<br>▪ Monitoring locations<br>▪ Applicable noise and vibration limits at the nearby noise and vibration sensitive receptors<br>▪ Monitoring procedures<br>▪ Reporting requirements<br>▪ Response plans for noise and vibration levels exceeding the limits<br>▪ The Underwater Acoustics Assessment Report will be completed following the 30% design completion. This study will discuss underwater acoustics and its effects to aquatic species.<br>▪ Once the design is complete (i.e., >30%), the Project Team will undertake a more detailed analysis of the acoustic impacts of the Project on aquatic species and wildlife. |
| ▪ Impacts of vibration generated from construction and operations activities on nearby noise sensitive land-uses and human receptors. | It was determined that the Prohibited Construction Vibration originating from general construction does not extend beyond 20 m from the construction boundaries. There were no receptors noted within this zone of influence. Therefore, a detailed vibration assessment was not completed. |
| **Coastal Environment** | |
| ▪ The use of barges to transfer materials and equipment may affect the coastal environment during construction.<br>▪ The construction of the causeway and bridge will bring about some changes such as narrowing the flow area, increasing velocities, altering wave heights, and leading to localized erosion and sedimentation. | ▪ Measures will be implemented during construction to ensure that habitat disturbance is kept to a minimum and that construction activities are isolated from the rest of the Lake. In-stream control practices may include temporary sediment curtains, which will be installed in the lake prior to construction to stop silt, dirt, or debris from continuing past the construction limits.<br>▪ Proper planning, scheduling, and maintenance will be required in advance of any in-water work, particularly to ensure effective ESC measures during construction.<br>▪ Sediment control methodologies that will be in place during construction will include:<br>  ▪ Temporary sediment curtains installed in the lake prior to construction.<br>  ▪ Equipment, methods and procedures selected to minimize turbidity during dredging or filling operations.<br>  ▪ Any shore areas that have been disturbed will be stabilized and revegetated as soon as possible upon completion.<br>  ▪ Causeway material will be adequately deposited at pre-approved sites or put to proper reuse. Placement of causeway material will be above the high-water mark (i.e., so that the material will not regain access to the water) and will be stabilized as soon as possible to prevent erosion.<br>  ▪ All debris will be contained in the immediate work area and adequately disposed of on land.<br>  ▪ Gravel and sand to be placed in a lake will be clean and free from fine materials and organic matter.<br>  ▪ All disturbed surfaces, bed, banks and overbank areas, will be appropriately rehabilitated as soon as practical.<br>▪ In addition, mitigation measures in Section 19.1.2 of the DPD. will be implemented to avoid negative impacts to fish and fish habitat. |
| ▪ During operation, the new infrastructure, such as the causeways, foundations and piers, will cause permanent changes to the existing coastal environment, which could prohibit water movement and circulation at certain locations (refer to Section 20.7.1 of the DPD).<br>▪ Climate change will likely impact the lake ice characteristics and behaviour. It is anticipated that the ice season will be shortened, maximum ice thickness will be reduced, and mid-winter ice movement will be more frequent | ▪ These changes to the environment are being taken into account in the design of the new structure. Design solutions to minimize the impacts identified, including culverts, will be explored during the Detail Design phase of the Project.<br>▪ During operations, unsafe ice conditions could develop near the bridge piers. Safe passage for snowmobiles should be maintained and flagged. |

| Potential Environmental Effect | Preliminary Mitigation Measures |
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| **Transportation and Traffic** | |
| ▪ During construction, vehicles and equipment, possibly transporting large Project components, will need to access the Project site, and may cause temporary nuisance effects to other traffic and local stakeholders.<br>▪ During operation, traffic patterns may be altered, warranting different intersection controls (i.e., all-way stop control vs. two-way stop control). | ▪ A Traffic Management Plan for construction will be prepared to ensure that construction equipment can safely arrive and depart from the site and to minimize disruption to other road users.<br>▪ The measures are expected to include, but not be limited to, the following:<br>  ▪ Define accessible areas by the installation of construction strips or temporary fencing.<br>  ▪ Restrict vehicle and equipment traffic to designated work areas and access points and use vehicles suitable for the load bearing capacity of the road or driving surface.<br>  ▪ Ensure the Project area is accessible to people living in nearby communities, including the socio-economically vulnerable, for example, they will:<br>  ▪ Ensure sufficient lighting and signage.<br>  ▪ Ensure pathway connections.<br>  ▪ Remove barriers to accessibility (fences).<br>▪ Once the traffic control recommendations are accepted by reviewing agencies, the functional and Detail Design will need to be completed for the intersection improvements, as well as the traffic management plan |
| **Navigation** | |
| During construction, navigation is expected to be impacted by the use of barges and construction activities.<br>Once constructed, the infrastructure will have impacts to how people navigate vessels between the south shore of the island and the mainland; however, it is anticipated that the boats that currently use the waterway during the boating season will be able to continue doing so (refer to **Section 20.9.1** of the DPD). | ▪ Prior to construction, the Project Team will consult with Transport Canada's Navigation Protection Program (NPP) to discuss the requirements for an application under the *Canadian Navigable Waters Act*. It is expected that consultation with the NPP will identify the requirements to be in compliance with the *Navigable Waters Bridges Regulations* and that the Minister may attach conditions to an approval that will be identified as commitments to mitigate impacts.<br>In general, mitigation measures may include:<br>▪ Ensuring that the perimeter of the work site is visible from sunset to sunrise and during periods of restricted visibility by the placement of navigational aids (e.g., flashing lights and visible cautionary buoys).<br>▪ Dredging of the channel between piers if required to maintain navigability for boats.<br>▪ Installation of navigational aids for safe navigation during operation.<br>▪ Installation of lights or markings to be exhibited on the bridge or any span through or under which any passage to navigation is approved. |

## 21. Changes to Indigenous Physical and Cultural Heritage, Traditional Land Use or Archaeology

Overall, GIFN views the Project as beneficial to physical and cultural heritage and the current use of lands and resources for traditional purposes. **Table 28** below provides a summary of the potential effects to these components as well as proposed mitigation measures.

***Table 28: Changes to Indigenous Physical and Cultural Heritage, Traditional Land Use or Archaeology with Mitigation Measures***

| Potential Effects | Preliminary Protection/Mitigation Measures |
|---|---|
| **Marine Archaeological Resources** | |
| Potential to impact archaeological sites in the nearshore areas that have retained archaeological potential. | ▪ Further assessment is recommended to determine whether there are any buried archaeological resources within the areas of archaeological potential identified, and whether they may be impacted by the Project.<br>▪ To better inform the assessment and ensure that Indigenous interests are integrated into the study, the marine archaeologist(s) will engage with the GIFN and other interested Indigenous communities (i.e., the Williams Treaties First Nations) to inquire as to how they would like to participate.<br>▪ The archaeological resources identified during the field investigation will be communicated to the GIFN and the Project Team, which will determine if the site(s) can be avoided and whether additional First Nation engagement is appropriate.<br>▪ If the resources cannot be avoided, then mitigation through documentation and/or excavation may be required prior to any project impacts in the location of the site(s).<br>The marine desktop archaeological assessment and Marine Archaeological Impact Assessment reports (Appendices Q1 and Q2) have also provided the following recommendations:<br>▪ Should any project activities that may disturb the environment be required within the locations of the two timber and rock infill docks and associated buffers, these activities should be preceded by an inspection and/or documentation of the wooden features by a qualified marine archaeologist to determine the size, context and historical significance of the feature(s).<br>▪ If unrecorded archaeological resources (i.e., features and/or artifact concentrations) are encountered during construction activities, any potential disturbance activities should cease in the immediate area and a qualified marine archaeologist should be contacted to assess the context and significance of the resource and determine the requirements to mitigate the chance find. The Project team should also ensure that all observed saturated or waterlogged cultural materials are kept submerged and/or wet until they can be archaeologically assessed.<br>▪ It is recommended that further archaeological investigation be undertaken prior to any impacts to the lakebed. Specifically, further investigation should comprise:<br>  ▪ Additional investigation of the extent of the buried landscape. This could comprise further geotechnical investigation or the excavation of 1 m by 1 m test units.<br>  ▪ Once the extent of the buried landscape is characterized, systematic test unit excavation should be undertaken at 5-metre intervals along the proposed alignment. Test units should extend north and south of each borehole containing a paleosol until the extent of the buried landscape has been reached. All sediments recovered from the excavation units should be screened through 6 mm wire mesh for the recovery of archaeological material.<br>  ▪ The archaeological Inadvertent Discoveries Plan (IDP) should be implemented during project activities that could potentially disturb the lakebed within the study area. The IDP provides information on the types of Indigenous and Euro-Canadian archaeological resources that may be located within the project area and recommends appropriate procedures to address unexpected discoveries. |
| **Terrestrial Archaeological Resources** | |
| Potential to impact archaeological resources in the areas that have retained archaeological potential. | ▪ A Stage 2 archaeological assessment is recommended to identify the location of previously undocumented terrestrial archaeological resources that may be impacted by the Project.<br>▪ The discovery of any archaeological resources during the Stage 2 archaeological assessment will be communicated to the GIFN, who will determine the appropriate responses and will decide whether additional First Nations Communities will be engaged.<br>▪ For any archaeological sites identified, the preferred recommendation is avoidance of the archaeological site(s).<br>  ▪ If the site(s) cannot be avoided, then the site(s) will require mitigation through excavation, or a combination of avoidance and excavation. Should the site(s) be avoided, no direct impacts will occur.<br>  ▪ If the site(s) cannot be avoided by the Project, then the direct impact will be archaeological excavation to mitigate the site(s). |

| Potential Effects | Preliminary Protection/Mitigation Measures |
|---|---|
| | ▪ All engaged Indigenous communities will be notified of the results of the Stage 2 terrestrial archaeological assessment, including details of archaeological sites identified. Input from Indigenous communities will be requested when assessing the Cultural Heritage Value or Interest of sites and when making recommendations for further assessment, if required. A draft copy of the Stage 2 terrestrial archaeological report will be also provided to Indigenous communities for review and comment to ensure their interests are considered.<br>▪ Further assessment, such as a Stage 3 Archaeological Assessment and a Stage 4 Archaeological Mitigation, may be required to mitigate impacts if archaeological site(s) are present. Mitigation measures will be developed in consultation with the GIFN.<br>▪ An IDP may also be developed to identify the appropriate protocols should any previously unidentified archaeological resources or burial sites be identified during the Project. This would include protocols to stop work and information regarding who to contact. |
| **Cultural Heritage** | |
| Impacts are anticipated to the Lake Simcoe Cultural Heritage Landscape due to the Project works associated with the construction of a new bridge, causeway. | ▪ A Heritage Impact Assessment is required to assess the impacts of the proposed work, identify conservation strategies, and recommend mitigation measures.<br>▪ Construction activities should seek to avoid direct impacts to Lake Simcoe including the shoreline (e.g, avoid removing and negatively impacting trees, plants and marsh lands wherever possible), as well as direct impacts the identified CHL.<br>▪ Where avoidance is not possible, mitigation measures should be developed in consultation with the GIFN. Methods of minimizing or avoiding a negative impact on a BHR or CHL include, but are not limited to:<br>▪ Staging and construction activities should be appropriately located and/or planned;<br>▪ Alternative development approaches;<br>▪ Isolating development and site alteration from significant built and natural features and vistas;<br>▪ Design guidelines that harmonize mass, setback, setting and materials;<br>▪ Limiting height and density;<br>▪ Allowing only compatible infill and additions;<br>▪ Reversible alterations;<br>▪ Buffer zones, site plan control and other planning mechanisms;<br>▪ Recommendations for additional studies, including CHERs, Heritage Impact Assessments, and Strategic Conservation Plans; and,<br>▪ Alterations to project design during construction planning and project controls (i.e., vibration reduction, dust suppression or other 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.<br>▪ 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.).<br>▪ Possible for outsiders to access and affect cultural/spiritual/ sacred sites.<br>▪ Potential to impact archaeological sites | ▪ Application of appropriate habitat protection and mitigation measures.<br>▪ Effort to reinforce language and culture through changes to educational curriculum that provide additional cultural enrichment opportunities.<br>▪ Controlled road access/security<br>▪ Include Indigenous groups in the archaeology investigations at all stages. |

| Potential Effects | Preliminary Protection/Mitigation Measures |
|---|---|
| **Traditional Land Use** | |
| ▪ 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.<br>  ▪ Impacts to traditional land use in Lake Simcoe are expected to be temporary during construction when avoidance to areas under construction will be required, and should be unimpeded or facilitated during operation of the Fixed Link<br>▪ 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.).<br>▪ Possible for outsiders to access and affect cultural/spiritual/ sacred sites. | ▪ Application of appropriate habitat protection and mitigation measures.<br>▪ Effort to reinforce language and culture through changes to educational curriculum that provide additional cultural enrichment opportunities.<br>▪ Controlled road access/security<br>▪ Develop Land Use Management system to control new development.<br>▪ Develop Conservation plans, By-laws and Land Use Plan.<br>▪ Develop communication plans to regulate lands in a meaningful, proactive manner.<br>▪ Safe passage for snowmobiles should be maintained and flagged during the winter season. |
| **Country Foods** | |
| ▪ There may be direct impacts and displacement of some country food species and the habitats in which they are found.<br>▪ As the country foods and medicinal sources for GIFN are fish, plants and wildlife species, the previous sections that outline impacts to fish and fish habitat, vegetation and wildlife (i.e., Sections 19 and 20 of this document; further detailed in Sections 19.1.1, 20.2.2.1 and 20.2.3.1 of the full DPD) also apply generally to the associated groups of country foods. | ▪ Mitigation measures outlined in Sections 19 and 20 of this document apply generally to the associated groups of country foods and their habitats.<br>▪ Information regarding country foods may be enhanced with results from further engagement with other Indigenous communities to verify whether they identify country foods within the study area, and whether they are concerned about impacts to those country foods as a result of the Project. If so, an assessment to determine the extent to which displacement of individual of these species would impact consumption of potential impacts to country foods may be considered during detailed design and<br>▪ Additional mitigation measures may be warranted, as determined in consultation with GIFN and other Indigenous communities during detailed design. Such measures may include timing windows for certain activities during construction to protect specific areas during harvesting seasons or targeting specific areas for harvest prior to construction (e.g., for plant species that will be directly impacted / removed by construction activities). |

## 22. Changes to Indigenous Health, Social or Economic Conditions

Overall, GIFN views the Fixed Link as having a net positive impact on the community as a result of economic, community well being, educational, social and human health improvements. The potential positive and negative effects, as well as mitigation measures, are outlined in **Table 29**, **Table 30**, and **Table 31** below.

***Table 29: Potential Effects to Indigenous Health***

| Aspect | Potential Positive Effects | Potential Negative Effects | Preliminary Protection/Mitigation Measures |
|---|---|---|---|
| Physical and Mental Health | ▪ Consistent and regular access to health care services.<br>▪ Reduced travel time and transportation costs will lower costs of food and necessities, improving mental health.<br>▪ The reduction of loss of life due to ice road related accidents will improve the community's mortality rate and overall community mental health.<br>▪ More services can be offered from health professionals.<br>▪ Safe access to medical appointments scheduled during winter months.<br>▪ Improved food security and access to nutrient foods.<br>▪ Less physical and mental stress for everyday activities; buying groceries or running other household errands.<br>▪ Potential for members to remain on Georgina Island and receive medical care and long-term care access 24/7.<br>▪ Health services requiring confidentiality or discretion can be sought on the mainland since there is a perceived sense of lack of privacy or confidentiality from health services currently offered in the community.<br>▪ Lower costs for food and other everyday necessities as transit improves; thus, reducing stresses on residents and improving overall mental health.<br>▪ Increased ability of and convenience for elderly residents to access health care services (e.g., emergency services) on the mainland. | ▪ Loss of local services and on territory jobs in the health services as many will be perceived as duplication once the federal government designation of remote location is lost.<br>▪ Current health services professional may be lost as the First Nation cannot compete with mainland pay and benefits.<br>▪ Refer to the Safety and Security row for additional stressors that may affect physical and mental health. | ▪ Develop a plan for retaining/recruiting island health services staff |
| Emergency Services | ▪ Ambulance Services will be quicker and more reliable especially in winter months since emergency vehicles cannot travel on ice and stretchers cannot fit in airboats.<br>▪ Overall cost of services will be reduced due to better access to the island.<br>▪ There would be cost savings for purchasing and maintaining emergency equipment.<br>▪ Access to services 24/7 services resulting in a safer and more secure community.<br>▪ There may be a reduction in homeowner insurance rates with the increased access to services.<br>▪ A fixed link would cut response times between 25 minutes and multiple hours depending on the time of day. This could be the difference between life and death. | ▪ The existing emergency services on the island may be eliminated with the construction of the Fixed Link, which may result in:<br>▪ Eliminating existing culturally appropriate and sensitivities that are beloved by the community and fear that island services may no longer be needed.<br>▪ Loss of community specific jobs would be lost.<br>▪ Current First Nation staff may be lost as the community cannot compete with compensation packages of the mainland emergency services.<br>▪ Increased traffic and economic activity may all result in increased crime potential placing a higher demand on emergency services. | ▪ Develop a plan for retaining/recruiting island emergency staff.<br>▪ The current Georgina Island emergency responders could have new agreements put in place where their services are contracted out to Township/Region for Airboat Rescue, Fire and other emergency services. |

| Aspect | Potential Positive Effects | Potential Negative Effects | Preliminary Protection/Mitigation Measures |
|---|---|---|---|
| Safety and Security | ▪ For individuals in the community experiencing violence or other health or security issues, the construction of a fixed link provides a method for leaving the island at any hour, any day of the year and provides access to support services on the mainland. For individuals experiencing violence, that would not be readily available with the current ferry system in place.<br>▪ A fixed link will also reduce response times for services like external police services when necessary. | ▪ Concern related to workers brought in temporarily to the area to support construction.<br>▪ Potential instances where community members are at risk of violence, such as when travelling to and from the island using transportation methods such as public transit, taxi services, Uber, etc., could increase.<br>▪ The Fixed Link may increase crime and make access to drugs and other narcotics easier to access from the mainland.<br>▪ The introduction of the Fixed Link may increase incidents of sexual assault and gender-based violence as a result of increased access to the island from the mainland. This is a particular risk for Indigenous women and 2SLGBTQQIA+ people. | ▪ Development of a Health and Safety (H&S) Plan by the construction contractor. The project will require the contactor to have a strong health and safety management system and a commitment to implementing the best practices as part of its H&S Plan (see Section 22.2.4.2 of the DPD).<br>▪ The contractor must also establish policies that are specific to protecting the safety and security of the community and the public, and specifically Indigenous women, girls, and gender diverse people (see Section 22.2.4.2 of the DPD).<br>▪ A community advisory committee will be formed by GIFN to engage on the development and implementation of the H&S Plan.<br>▪ The community is currently drafting a Residency By-Law and a Land Use plan to protect the community from unique criminal elements in the community.<br>▪ The construction of a fixed link creates the opportunity to implement controlled access in the form of gates, security cameras and security personal carrying out checkpoints.<br>▪ Mechanisms for controlled access that can help identify and intervene on potentially dangerous situations for community members. |

*Table 30: Potential Indigenous Social Effects*

| Aspect | Potential Positive Effects | Potential Negative Effects | Proposed Protection/Mitigation Measures |
|---|---|---|---|
| Island Culture | The Project is considered to provide overwhelmingly positive benefits to Indigenous communities and populations | ▪ 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.<br>▪ There is strong fear that the community may lose Island identity and a significant piece of what it means to be a Georgina Islander.<br>▪ In community engagement activities, the First Nation community expressed considerable fear of outsiders, drugs, crime, and unwanted non-community members.<br>▪ Hard to enforce action on undesirable activities pertaining to community lands and land policy<br>▪ Members want different laws than cottagers/visitors to the island | Controlled road access/security through toll booths to maintain some level of control of access to Georgina Island is maintained. |
| Indigenous Culture | ▪ GIFN 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 versus ferry. | ▪ Exposure and potential destruction of GIFN Culturally Significant Areas.<br>▪ Traditional food and medicine areas on the island facing increased exposure due to increase in visitors.<br>▪ Loss of Island identity due to students re-locating to mainland schools, community members seeking better | These effects will 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, through the application of appropriate habitat protection and mitigation measures. |

| Aspect | Potential Positive Effects | Potential Negative Effects | Proposed Protection/Mitigation Measures |
|---|---|---|---|
| | | employment on the mainland and assumed increase developments within the community. | |
| Education | ▪ One of the most significant benefits will be that children and youth are able to stay at home throughout the whole school year without billeting during freeze up and thaw season.<br>▪ Students will be able to travel, uninterrupted, by bus or personal vehicle to school or extracurricular activities rather than bus/airboat/bus in the winter months or bus by ferry during warmer months.<br>▪ This will reduce travel time to and from school or extracurricular activities, will negate tardiness or absenteeism due to unexpected ferry issues.<br>▪ Increased time for extracurricular offerings.<br>▪ Students will be able to have more opportunity for youth employment.<br>▪ There will be the opportunity to attract and hire qualified teachers at a more competitive salary, rather than those having to cross on ferry boat.<br>▪ Parents residing off territory will be able to send their children to Community School to retain their “island identity’ and teachings. | Student Safety – if the Fixed Link is not monitored, there will be many more people coming and going through the community<br>▪ There may be a need for a Residency By-law to support education, taxation if population begins to grow.<br>▪ More children and youths staying to attend school or off reserve sending them to Community School creating a bigger demand on the current education system.<br>▪ Fear that school needs to be closed due to parents pulling children and youths out and sending them to mainland schools causing numbers to decline. | ▪ Effort to reinforce language and culture through changes to educational curriculum that provide additional cultural enrichment opportunities.<br>▪ Controlled road access/security.<br>▪ Develop plans for student retainment and enrollment.<br>▪ Managing the Fixed Link through an entry point (toll station) allowing for better security and controlling access of visitors. |
| Recreation | ▪ More opportunity for physical activities/ extracurricular activities.<br>▪ Increased social activities and reduction in absence and cancellations due to transportation issues.<br>▪ GIFN members will have the ability to schedule social plans without worrying about the ferry schedule and weather-related delays or having to stay the night on the mainland.<br>▪ Community members can stay home in the winter months without having to worry about access to jobs or health services.<br>▪ Increase of recreation opportunities as ferry schedule may not fit recreation offerings off territories.<br>▪ Increased access to municipal programs and services, especially in mitigating social isolation of the elderly who live on Georgina Island. | ▪ There may be an increase in crime and access to drugs and other narcotics.<br>▪ Community members may be exposed to negative comments or racial stereotyping by participating in mainland base recreation and social improvement programs. | ▪ Further enhancement or reinforcement of essential services; such as health, social and police services.<br>▪ Controlled access (gates) of the Fixed Link and security (cameras, staff).<br>▪ Enhancement of cultural activity offerings both within community, and nearby schools.<br>▪ Continued consultation with the community during all stages of construction.<br>▪ Implementing clear signage for pedestrians and vehicle operators to ensure smooth transition once the Fixed Link is operational.<br>▪ Developing a governance structure that steers and facilitates system-based community development.<br>▪ Development of a Health and Safety (H&S) Plan (see Section 22.2.4.2 of the DPD for further details). |

***Table 31: Potential Indigenous Economic Effects***

| Aspect | Potential Positive Effects | Potential Negative Effects | Proposed Protection/Mitigation Measures |
|---|---|---|---|
| Economic Development | ▪ Increased Employment opportunities<br>▪ Airboat Rescue Agreements possible with Town and surrounding areas<br>▪ Partnerships with small business between Band and others<br>▪ Opportunities for Band Members to start or expand small businesses<br>▪ More access to markets in the Greater Toronto Area<br>▪ The overall size of GIFN's economy is expected to grow<br>▪ Lower costs for food and other everyday necessities as travel time and ferry costs are eliminated and potential for businesses supplying necessities within community.<br>▪ Reduced time and costs of construction projects as materials can be delivered on demand rather than being based on ferry boat | ▪ 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.<br>▪ 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. Negative effects are not anticipated for Indigenous fishing areas as none were identified within proximity of the alignment (see Section 15.3.3.1)<br>▪ 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 to 15 minutes. The local market will reduce as a result of a fixed link. | ▪ During construction, the GIFN community will develop communication and complaint resolution plans to realize procurement benefits.<br>▪ CIPS will maintain regular monthly meetings with WTFN during construction to ensure that the complaints process for First Nation communities is adequately supported. |
| Employment | ▪ Opportunity for a more qualified work force in the lands department and other departments.<br>▪ Can get experts and services needed at market rates without paying the 'Island premium'.<br>▪ Greater access to employment, including youth employment, for residents of Georgina Island, as well as benefits to the labour pool for local businesses.<br>▪ Greater opportunity for more training.<br>▪ Opportunity for a more qualified work force to be developed with access to employment related services off territory.<br>▪ Reduced commute time to off territory employment.<br>▪ Hiring of By-law Officers possible as new sector developed as a part of the community's growth.<br>▪ More qualified/educated GIFN members coming home to work.<br>▪ More opportunities for GIFN members to be employed.<br>▪ Succession planning made possible.<br>▪ New employment opportunities through staffing potential controlled access stations to the Fixed Link, as well as increased requirement of road maintenance. | ▪ Loss of highly qualified individuals to mainland opportunities.<br>▪ The community will have a hard time competing with mainland for pay scale.<br>▪ 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. | In effort to mitigate potential negative effects on employment described above, the GIFL Secretariat developed the Procurement Principles guidance document (see Appendix S of the DPD) and the GIFL Workplace Recruitment Strategy (see below). |

## Workforce Recruitment Strategy

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

### Summer and Youth Opportunities

Building Environmental Aboriginal Human Resource) 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. GIFN will begin to provide Building Environmental Aboriginal Human-certified or unique opportunities for youth that includes on the job support. 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 a number of Georgina Island members that will realize project-based employment opportunities:

- 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 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.

### 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 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.

## 23. Greenhouse Gas Emissions

### Construction

The Aazhaawe Ferry is the single largest energy user within the GIFN. From 2014 to 2017, the ferry consumed approximately 244,600 litres (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, using the annual fuel usage, it is estimated that the Aazhaawe Ferry is responsible for the production of an estimated 676 tonnes of carbon dioxide equivalent (CO2eq) annually, which is about 17% of the total GHG emissions produced by GIFN per year when compared to GHG data provided in GIFN CEP Update (Cambium Aboriginal Inc., 2019c).

By building a fixed link, and eliminating the need for the ferry, there is a potential for annual GHG production (and fossil fuel combustion) to be reduced. A qualitative GHG comparison was not provided for the construction phase given the construction methodologies and details (such as equipment to be used) are not yet finalized. The following factors will be taken into consideration when assessing the construction GHG production: Type of fixed link, fixed link length, and increased vehicle traffic (See Section 23.1 of the DPD).

The best-case scenario includes choosing the shortest possible route for the Fixed Link, choosing a low producing GHG emission construction (i.e., a causeway, which is assumed to have shorter construction time, resulting in lower GHG emissions), and driving does not significantly increase (i.e., less than 25% increase). Realistically, the construction of a fixed link would likely be close to CO2eq 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.

### Potential Mitigation Measures

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).

## Operation

Detailed GHG calculations were conducted for the operation phase, and comparisons between the initial proposed Fixed Link design alternatives and the current Aazhaawe Ferry are presented below. The GHG assessment was updated during the reference concept design stage, following selection of the preferred alignment.

When assessing GHG emissions associated with the project, the assessment follows the instructions under the “SACC”, published in October 2020, Section 4.1.1 and Equation 1 to quantify project emissions. The acquired energy GHG emissions, $CO_2$ 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.

$$\begin{aligned} \textit{Net GHG emissions (SACC Equation 1)} &= \textit{Direct GHG Emissions + Acquired energy GHG emissions} - \textit{CO}_2 \textit{ captured and stored} - \textit{Avoided domestic GHG emissions} - \textit{Offset credits} \\ &= \textit{Direct GHG Emissions} \end{aligned}$$

*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 ferry. To quantify the GHG emissions from the operation of the 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 Factor" Table A6.1-14 Emission Factors for Energy Mobile Combustion Sources, Marine, Diesel. GHG emissions from vehicle activities were calculated from the estimated vehicle-kilometer travelled and vehicle emission factors for the 2021 year were generated using the latest Motor Vehicle Emission Simulator emission model.

GHG emissions from the proposed route alignments include the emissions from vehicles traveling on the Fixed Link, which were quantified using the vehicles emission factors and the vehicle-kilometer travelled calculated from the length of fixed link in each alternative.

Based on this assessment, it was estimated that the Aazhaawe Ferry generates approximately 696 tonnes of CO2eq annually. The preferred alignment (3,335 m in length) is anticipated to generate approximately 518 tonnes of CO2eq annually.

Based on these calculations, the fixed link would provide approximately 25% reduction in GHG emissions compared to the ferry.

## 24. Types of Waste and Emissions

**Table 32** and **Table 33** below provide a summary of waste and emissions that are likely to be generated by the Project during each of phase of the Project.

***Table 32: 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 - typically metals, petroleum hydrocarbons, Polycyclic aromatic hydrocarbons , Electrical conductivity/ sodium adsorption ratio | 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, | Bridge and causeway structures/superstructure (steel, concrete, asphalt, aggregate) | Steel and other metals/alloys, concrete, asphalt, aggregate demolition materials to be | Post-operation (demolition) |

| Type of waste/ emission | Source | Management/Re-uses | Project phase |
|---|---|---|---|
| concrete, asphalt, aggregate | | segregated and assessed for re-use or recycling. | |
| **Geological Spill** Metals, petroleum hydrocarbons (PHCs), EC/SAR, cyanide are typical | Spill/Erosion | Comprehensive ESC Plan. Spills management Prevention and Response Plan | Construction Operation (in the event of a spill; accumulation in storm water management pond/sediment basin/Oil-Grit Separator) Post-operation (demolition) |
| **Geological** To be determined through Phase II Environmental Site Assessment/soil and sediment characterisation sampling; metals, PHCs, EC/SAR, cyanide are typical | Pre-existing Contaminated soil/sediment<br><br>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 Environmental Site Assessment /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 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) |
| **Air Emissions** Nitrogen dioxide, sulphur dioxide, particulate matter | Fossil fuel combustion, dust-generating activities | ▪ Develop a Best Management Practices Plan for Dust. | Construction (construction equipment, |

| Type of waste/ emission | Source | Management/Re-uses | Project phase |
|---|---|---|---|
| (total suspended particles, $PM_{10}$, $PM_{2.5}$), carbon monoxide, ozone, volatile organic compounds, PAHs, metals, diesel, particulate matter, carbon dioxide, methane, nitrous oxide | | ▪ Manage construction timing and duration appropriately<br>▪ Construction equipment selection and maintenance | fugitive sources)<br>Operation (vehicle activity) |
| **Water discharge to lake, ground water**<br>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.<br>▪ Crushing/screening may be required for re-use as granular if the re-use will be subject to Ontario Provincial Standard Specification.<br>▪ Fine materials maybe considered soils for management purposes. | Construction |
| **Fuel spill**<br>Petroleum hydrocarbons F1-F4, metals | Construction vehicles<br>Traffic on causeway/bridge | Clean up/remediate per comprehensive Spill Prevention and Response Plan. | Construction<br>Operation<br>Post-operation (demolition) |

***Table 33: Summary of Emissions Sources***

| DIRECT EMISSIONS | | |
|---|---|---|
| **Option** | **Source** | **Details** |
| **Ferry** | Ferry | The Aazhaawe Ferry operations emissions |

| DIRECT EMISSIONS | | |
|---|---|---|
| **Option** | **Source** | **Details** |
| | 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) |

# CONCLUSION

The Georgina Island Fixed Link Project will provide significant benefits to the Chippewas of the Georgina Island First Nation and other island occupants. The Project will increase safety and level of security for GIFN members and will improve access to the island significantly. The Fixed Link will provide a permanent, safe, year-round transportation route for crossing between Georgina Island and the mainland. The Fixed Link will also provide economic benefits for the GIFN members. While the Project will have some impacts on the local environment, these impacts will be further assessed through several permitting processes supported by a number of environmental and technical studies and will be addressed through Project design and by implementing mitigation measures, including offsetting. Initial stakeholder, public, and indigenous consultation has occurred, with all inputs being documented and considered in the development of mitigation plans.