

SCARBOROUGH BLUFFS WEST PROJECT

ENVIRONMENTAL ASSESSMENT TERMS OF REFERENCE



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June 2025

In collaboration with:



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APPENDICES

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GLOSSARY

Glossary terms have been italicized throughout the document.

Term	Definition
Alternatives To	Functionally different ways of solving the identified problem or opportunity.
Alternative Methods	Different ways of implementing the preferred Alternative To.
Armourstone	Heavy irregular rock (typically comprising of limestone within the study area) used in hydraulic structures, such as lakeshore and riverbank protection or retaining walls.
Bikeway	A separate path or lane for the use of bicycles, which includes cycle tracks and bicycle lanes. (Cycle tracks refer to separate lanes for bicycles adjacent to the roadway, while bicycle lanes are a dedicated part of the roadway for cyclists).
Blue Flag Beach	A voluntary eco-label awarded to beaches that meet high environmental and quality standards.
Crest Migration	The natural process of the slope crest (top of Bluffs) receding back as a result of slope failures which occur in naturally oversteepened slopes.
“Do Nothing” Alternative	The “Do Nothing” Alternative needs to be considered as per the <i>Environmental Assessment Act (EA Act)</i> and includes the continuation of the status quo conditions.
Dynamic Beach	TRCA defines a dynamic beach hazard as areas of inherently unstable accumulations of shoreline sediments along Lake Ontario, as identified by provincial standards (TRCA, 2025). In practice, beaches that are integral parts of shoreline erosion protection works are not considered dynamic beaches. Apart from the western-most edge of Bluffer’s Park, the sand and/or cobble headland-beaches that exist within the Project Study Area are engineered together with the groynes (beach and groyne system) to form works that protect the shoreline and the Bluffs. As a result, these are not considered to be dynamic beaches.
Dynamic Communities	Vegetation communities subject to active energy/disturbance regimes (i.e., wind or waves). Example dynamic communities include: bluff, beach, dune, barren, prairie and savannah.
Environment as Described in the EA Act	Air, land, or water, plant, and animal life, including human life. The social, economic, and cultural conditions that influence the life of humans or a community. Any building structure, machine, or other device or thing made by humans. Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities. Any part or combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario.
Environmental Assessment (EA)	An EA is a study that assesses the potential environmental effects (positive or negative) of a proposed project. Key components of an EA include consultation; consideration and evaluation of Alternatives; and the management of potential environmental effects. Conducting EAs promotes good environmental planning before decisions are made.

Term	Definition
Erosion	The wearing away of soil, rocks, and other deposits on the earth's surface by natural forces such as water, wind, foot traffic, etc.
Erosion Control	Engineered solutions or natural features that provide resistance against processes that cause erosion.
Evaluation Criteria	A measure established to evaluate the extent to which Alternatives meet specific objectives and/or compare against each other for the purpose of selecting a Preferred Alternative. Evaluation criteria can be qualitative or quantitative in nature.
Fetch	Area of lake surface or length over water surface over which the wind blows in an essentially constant direction, thus generating waves.
Groyne	Structure that sits perpendicular to the shore and retain beach material that is either naturally moving past the site or is artificially placed.
Indigenous Peoples	A collective name for the original peoples of North America and their descendants. The Canadian constitution recognizes three groups of Indigenous peoples: First Nations, Inuit, and Métis.
Oversteepened Slope	A slope that is excessively steep, usually referring to a slope that is more than vertical (i.e., the slope face at the bottom has eroded further than the top).
Proponent	A person, agency, group, or organization who carries out or proposes to carry out a project or is the owner or person having charge, management, or control of a project.
Revetment	A reinforced surface using brick, stone, or another material, to protect an embankment.
Self-Stabilization	The process wherein an oversteepened slope erodes back to a more stable flatter inclination.
Stonehooking	Mining of aggregate and sheets of bedrock from the lakebed for construction purposes conducted in the nearshore areas of Lake Ontario in the 1800s and early 1900s.
Stratigraphy	The study of the layer of rock formations underground.
Tablelands	A plateau or other high region typically located near a watercourse.
Terms of Reference (ToR)	A document prepared by the proponent and submitted to the Minister of the Environment, Conservation, and Parks for approval. The ToR establishes the framework for the planning and decision-making process to be followed by the proponent during the preparation of the EA Report. In other words, it is the proponent's work plan for what is going to be studied and how consultation with the public, Indigenous communities, and stakeholders will occur. If approved, the EA must be prepared according to the ToR.
Toe Recession	Erosion occurring at the base of a slope causing the toe of the slope to move landward.
Toe of the Bluffs	Generally, the base of the Bluffs where it meets the beach/shoreline.
Top of the Bluffs	Generally, the upper edge of the Bluffs where it meets land at a higher elevation.
Watershed	The area of land that catches rain and snow that drains or seeps into a marsh, stream, river, lake, or groundwater.

ACRONYMS AND ABBREVIATIONS

Acronyms and Abbreviations	Definitions
ANSI	Area of Natural and Scientific Interest
CAG	Community Advisory Group
CASSARO	Committee on the Status of Species at Risk in Ontario
EA	Environmental Assessment
EA Act	Environmental Assessment Act, 1990
ECCC	Environment and Climate Change Canada
ELC	Ecological Land Classification
ESA	Environmentally Significant Areas
Ha	Hectare
IAA	Impact Assessment Act
ISMP	Integrated Shoreline Management Plan
km	Kilometres
m	Metres
mm	Millimetres
MECP	Ministry of the Environment, Conservation, and Parks (formerly MOECC)
MMAH	Ministry of Municipal Affairs and Housing
MNR	Ministry of Natural Resources
MOECC	Ministry of the Environment and Climate Change
PWQO	Provincial Water Quality Objectives
SAR	Species at Risk
SARA	Species at Risk Act
SBW	Scarborough Bluffs West
SWP	Scarborough Waterfront Project
TAC	Technical Advisory Committee
ToR	Terms of Reference
TRCA	Toronto and Region Conservation Authority
TTC	Toronto Transit Commission
WWFMP	Wet Weather Flow Master Plan

FOREWORD

This final Terms of Reference builds on the meaningful feedback received from the public, Indigenous communities and government agencies through the various engagement platforms in this phase of the Project.

Tables A-1 and A-2 (found in **APPENDIX A**) capture the detailed changes made in response to comments received and include several notable refinements, such as:

- Simplification of the project title
- Expanded summary of the history of waterfront planning and background materials
- Expanded description of the existing conditions of shoreline
- Clarification of the project elements to be considered in the EA phase

Thank you to all who have participated. The project team appreciates the perspectives and input shared and encourages all voices to continue to be engaged in future consultation opportunities for the Project.

1. INTRODUCTION

Toronto and Region Conservation Authority (TRCA), in partnership with the City of Toronto, is undertaking a Comprehensive (formerly Individual) *Environmental Assessment* (EA) for the Scarborough Bluffs West (SBW) Project. This project aims to establish a long-term vision to guide the renewal of approximately 4.5 km of Lake Ontario shoreline from Silver Birch Avenue to Bluffer's Park (Figure 1-1). The *Terms of Reference* (ToR) has been prepared as the first step of the EA process, in accordance with the "Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario" (MOECC, 2014).

The Scarborough waterfront has been the subject of over five decades of planning, studies and analysis seeking to understand stressors on the ecosystem, public access issues, and the nature of public safety and property risks posed by shoreline erosion. The Scarborough Bluffs are an iconic feature of the Lake Ontario shoreline; however, due to limited access and existing public safety hazards, the water's edge along this section of the waterfront is not equitably accessible to the public. The SBW Project will explore the enhancement and protection of sensitive shoreline and natural areas, in addition to opportunities for improved waterfront experiences and access to and along the shoreline between the Eastern Beaches (Silver Birch Avenue) and Bluffer's Park along Lake Ontario.

TRCA's The Living City Policies and the City of Toronto's Official Plan are guiding planning documents for the SBW Project, which recognize the need to balance waterfront regeneration and public access with natural heritage and natural hazard protection and management. There is no formal public access along the shoreline between R.C Harris Water Treatment Plant and Bluffer's Park (approximately 4.5 km) due to generally steep grades, risk to public safety caused by ongoing erosion of the Bluff face, private property, and restricted access associated with critical public infrastructure.

TRCA's The Living City Policies and the City of Toronto's Official Plan generally recognize that public ownership of waterfront lands is a key means to managing natural hazards, while providing accessible open space integrated with opportunities for public enjoyment, and aquatic and terrestrial enhancements. TRCA's The Living City Policies further supports this framework, and lays out a strategic direction for "*preventing, eliminating, or reducing the risk of flood and erosion hazards to life and property and promoting an integrated approach to revitalization of the waterfront (Section 7.2.4, Policy a)*" through "*increased public access, recreational opportunities, and continuous trail system (Section 7.2.4, Policy b)*"; while enhancing the terrestrial and aquatic natural habitats of the shoreline. The Official Plan lays out a framework for the City of Toronto in which "*a connected greenspace system links our parks and open spaces,*" and identifies that "*over time, lands on the water's edge should become a network of publicly accessible open spaces, offering a range of leisure activities connected by a continuous waterfront trail (Section 3.4, Policy 1.e)*".

The SBW Project will advance key TRCA and City of Toronto objectives such as environmental protection and resilience, safe and equitable access to public recreation and open spaces, removing barriers, and facilitating active transportation. The SBW Project will be informed by ongoing work to develop a renewed vision for Toronto's waterfront and will take advantage of the planning work done in the adjacent Scarborough Waterfront Project (SWP) EA and other recent studies.

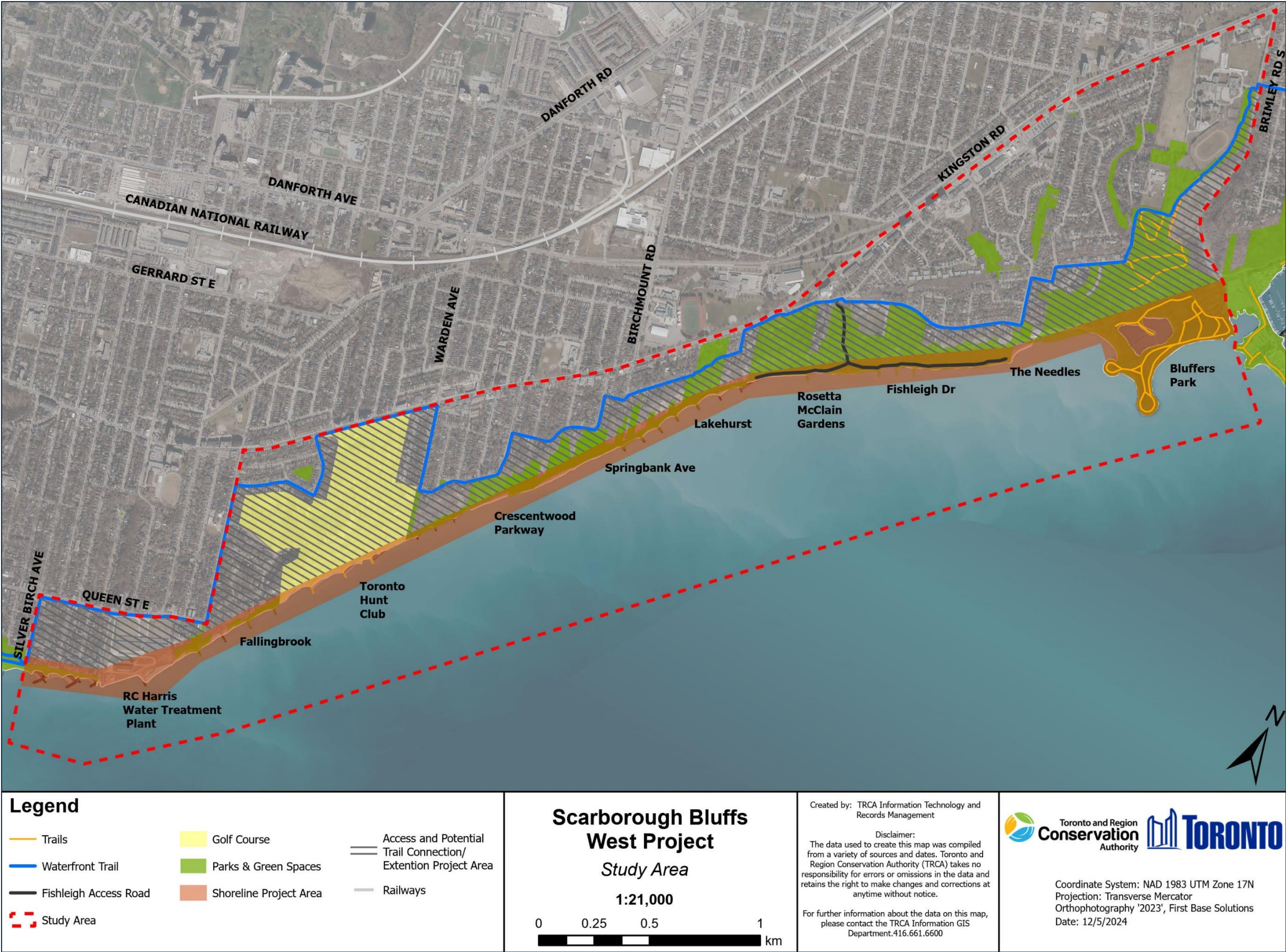


Figure 1-1: Scarborough Bluffs West Project Study Area

1.1 Project Background

There is a long history of progressive and evolutionary planning for the Toronto Waterfront (Table 2-1). The “Waterfront Plan for the Metropolitan Toronto Planning Area” (1967) established guidelines for the development and redevelopment of the Lake Ontario shoreline within the Metropolitan Toronto Planning Area and introduced a shoreline management approach to limit shoreline erosion while creating large parkland areas and public marinas connected by a waterfront trail system. In 1970, TRCA was designated by the province of Ontario as the lead implementing agency for the Etobicoke to Ajax shoreline, with the exception of the central harbour sector, and led the creation of waterfront plans and programs based on an integrated shoreline management approach. In 1992, the Royal Commission on the Future of the Toronto Waterfront (Royal Commission) released its final report entitled “Regeneration: Toronto’s Waterfront and the Sustainable City,” which outlined the lack of a coordinated, ecosystem approach to shoreline regeneration across the broader Lake Ontario shoreline. The Royal Commission recommended that a shoreline regeneration plan be prepared to protect and regenerate the Lake Ontario shoreline from the City of Burlington in the west to the community of Newcastle in the east.

To implement this recommendation, the Ontario Government established the Waterfront Regeneration Trust in June of 1992. To fulfill its mandate, the Waterfront Regeneration Trust initiated the creation of a Shoreline Management Strategy for the Lake Ontario shoreline from Burlington Bay to the Trent River. The Shoreline Management Strategy became a component of the overall “Lake Ontario Greenway Strategy” released in May 1995.

The “Lake Ontario Greenway Strategy” (1995) recommended that Integrated Shoreline Management Plans (ISMP) be developed to provide a framework for future development and management of the Lake Ontario shoreline. Based on the traditional shoreline hazard management activities undertaken by Conservation Authorities, ISMPs were intended to be more comprehensive in their scope, providing a coordinated ecosystem-based approach, addressing the need to limit high rates of erosion, while enabling safe public access, and the creation of regional scale parkland and waterfront recreation opportunities.

The 1994 Waterfront Plan replaced the 1967 Metropolitan Waterfront Plan as a policy document which provided direction for waterfront policies included in the Metropolitan Official Plan at the time. Policies for the waterfront reflected and reinforced the Official Plan’s integrated approach to land use planning and management of environmental, economic and social change. This Plan was designed to achieve a waterfront that is healthy, vibrant and publicly accessible. Several key themes of the earlier 1967 Plan, such as securing continuous public access along the water’s edge and the revitalization of underutilized lands, remained relevant through the 1994 Plan Update. However, public priorities had shifted to conservation which needed to be reflected as an additional guiding principle in the long-term vision for the waterfront.

More than 20 years ago, the City, Province, and Federal government jointly embarked on a project to make Toronto’s waterfront a place of local, provincial and national pride and public enjoyment. The tri-government approach led to a vision for the future, and the creation of Waterfront Toronto to implement a forward-thinking vision for Toronto’s central waterfront, as captured in the Toronto Waterfront Revitalization Task Force Report (2000). The report also noted that opportunities should be sought that would help achieve continuous public access across the entire Toronto waterfront.

Through \$2.75 billion of tri-government investment, a number of projects including public realm improvements have physically transformed Toronto's downtown waterfront to bring significant economic, social, and environmental benefits to residents and businesses.

However, the task is far from complete. In response to City Council direction, City staff are reflecting on previous efforts and engaging in a public, stakeholder, and Indigenous engagement process to refresh the vision for waterfront regeneration. While the original vision for Toronto's downtown waterfront and several precinct plans and frameworks remain relevant, a report outlining a renewed vision for the next phase of waterfront revitalization was approved in July 2022 which better reflects today's priorities across the "wider waterfront" from Etobicoke to Scarborough (City of Toronto, 2022):

- Strategic and inclusive economic development.
- Truth, justice, and reconciliation, including through Indigenous engagement.
- Equity, inclusion, and access, including through housing and community benefits.
- Climate resilience and sustainability.

The renewed vision for the next phase of waterfront revitalization will inform the continued transformation of Toronto's central waterfront, as well as complementary, coordinated investments across the full 43-kilometre span of the wider waterfront, from Etobicoke to Scarborough.

In 2021, the City Council directed TRCA to initiate an EA to explore the viability of a water's edge connection from Bluffer's Park to Eastern Beaches. The motion (Resolution EX28.6 adopted on December 15, 2021) identified SBW as a *"priority restoration project by the Toronto and Region Conservation Authority, as part of the 2022 Toronto Water Capital Budget."* City council directed the City Manager to enter into an agreement with TRCA to complete the SBW Project.

The SBW EA is being prepared using a well-established planning approach to address access and safety issues along the Bluffs, as well as improve habitat in a manner that balances the needs of the local ecosystem with those of the City of Toronto community and residents. Planning of the SBW Project builds on past planning efforts but is informed by the latest understanding of scientific approaches to coastal and geotechnical engineering, ecosystem management, and park and trail planning. It is also informed by the increasing desire for access to the waterfront, as demonstrated during the COVID-19 pandemic, which is ongoing. Finally, there is the need for equitable access, particularly as neighbourhoods get denser in response to demands for housing.

1.2 Proponent

TRCA and the City of Toronto are co-proponents of the SBW Project and are being supported by a multi-disciplinary consulting team led by Stantec. TRCA provides a number of critical functions along the Lake Ontario waterfront, and is leading the SBW Project for a number of reasons:

- TRCA has extensive experience planning and implementing shoreline protection works along the Lake Ontario shoreline in their *watershed*.
- TRCA is well-versed in the ecological characteristics of the Lake Ontario shoreline.
- TRCA is a leader of stewardship and restoration of shoreline ecology.
- TRCA owns a significant portion of the shoreline in the SBW Study Area.

- TRCA has a long history of nature-based trail planning and development, supporting the delivery of over 520 km of regional trails within its jurisdiction.
- TRCA has regulatory powers to provide input and review of shoreline plans on behalf of municipal partners through *Ontario Regulation 166/06*.

The City will be responsible for the operation and maintenance of the SBW Project once it is constructed as part of the open space system and active transportation network, with TRCA continuing to maintain shoreline protection assets.

1.3 *Environmental Assessment* and Approvals Framework

1.3.1 The Ontario *Environmental Assessment Act* (Ontario *EA Act*)

To meet the requirements of the Ontario *EA Act*, the SBW Comprehensive (formerly Individual) EA will be conducted in two Phases. Phase 1 involves collecting public input and understanding concerns to develop this ToR. The submission and approval of the ToR completes this first phase. Phase 2 involves the preparation and submission for approval of the Comprehensive EA in accordance with the approved ToR.

This ToR was completed as set out in Section 17.4(1) of the Ontario *EA Act* and follows the “Code of Practice: Preparing and Reviewing Terms of Reference for *Environmental Assessments* in Ontario” (MOECC, 2014). Within this ToR, the evaluation of *Alternatives To* the Project has been undertaken. Previous policy and planning studies for the waterfront have confirmed the need for a holistic solution that addresses access, improved experience, erosion, and habitat improvements. Planning for the SBW Project builds on these previous policies and planning studies, along with the existing policies in the City of Toronto’s Official Plan and TRCA’s The Living City Policies that further reinforce the need for a holistic solution to address these issues. As previous planning and existing policies support the need for the Project, this is a ‘focused’ ToR. It sets out the work plan for preparing the EA and carrying out the required public consultation.

Once the EA has been prepared, TRCA and City of Toronto will submit the document for review by the public and government agencies and decision by the Minister of the Environment, Conservation and Parks (MECP). The EA will contain the following:

- Purpose of the project.
- Statement of the rationale for:
 - The project.
 - The *Alternative Methods* of carrying out the project.
- A description of:
 - The *environment* that will be affected or that might reasonably be expected to be affected, directly or indirectly.
 - The effects that will be caused or that might reasonably be expected to be caused to the *environment*.
 - The actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate, or remedy the effects upon or the effects that might reasonably be expected upon the *environment*.

- An evaluation of the advantages and disadvantages to the *environment* of the project and the *Alternative Methods* of carrying out the project.
- A description of any consultation about the project by the *proponent* and the results of the consultation.

This ToR (Phase 1) describes how the *proponents* intend to undertake the EA (Phase 2) and evaluates the *Alternatives To* the project. However, the ToR provides flexibility to address new circumstances that may be identified as the EA progresses. This flexibility is not designed to permit the *proponents* to completely change the scope of the SBW Project, but rather to allow for the adjustment of the SBW Project without having to restart the planning process.

1.3.2 The *Impact Assessment Act* (IAA)

On June 21, 2019, Bill C-69 received Royal Assent. Bill C-69 includes the *Impact Assessment Act* (IAA), new federal legislation governing impact assessments at the federal level, and which also created the new Impact Assessment Agency of Canada (the Agency). The IAA came into force on August 28, 2019, repealing its predecessor, the *Canadian Environmental Assessment Act, 2012* (CEAA 2012).

The SBW Project is not currently described on the Physical Activities Regulations (SOR/2019-285) (Canada, 2019) and does not require a federal impact assessment under the new IAA.

1.3.3 Description of and Rationale for the Project

The Project entails the following set of activities by the Proponents in the area shown in Figure 1-1:

- Constructing or changing trails or changing existing roads to provide or enhance public access to or along the waterfront;
- Constructing or changing works for shoreline protection, erosion or sedimentation control or slope stability;
- Constructing, creating or changing works or spaces for recreational purposes or other public use;
- Any activity related to an activity described in the preceding bullets, including conserving, creating or changing aquatic or terrestrial habitat.

The final Project description will be included in the EA.

1.4 Other Approvals

Federal and provincial permits under the following legislation are anticipated to be required as part of the SBW Project. Additional federal and provincial requirements may be identified during the EA. Municipal approvals may also be required and will be identified as part of the EA.

1.4.1 Other Federal Approvals

- *Fisheries Act*. The Federal *Fisheries Act* applies to developments that are anticipated to impact fish habitat. The *Act* prohibits serious harm to fish, and by extension within the *Act*, fish habitat. In cases where unavoidable impacts are anticipated (after avoidance and mitigation measures are used), the *Act's* policies require that protection of fish habitat be achieved. Where serious harm

to fish is unavoidable, protection is most often achieved by way of employing habitat off-setting measures.

- *Canadian Navigable Waters Act*. The *Canadian Navigable Waters Act* is administered by Transport Canada. Navigable waters include all bodies of water that are capable of being navigated by any type of floating vessel for transportation, recreation, or commerce. The creation of land requires formal approval under Section 5(1)(2).
- *Migratory Birds Convention Act*. This Act is administered by Environment and Climate Change Canada (ECCC) and regulates potentially harmful human activities that may affect the conservation of migratory birds – both individuals and populations – and their nests. With some notable exceptions, activities that may affect migratory birds identified under Article I of the Act, including waterfowl, cranes, rails, shorebirds, pigeons, migratory insectivorous birds, and other migratory nongame birds, are strictly prohibited. In July 2022, the Migratory Birds Regulations under the Act were updated to provide better protection to migratory bird species and their nests and to modernize the Act with respect to enforcement issues and issues related to migratory bird hunting.
- *Species at Risk Act (SARA)*. The SARA contains prohibitions against the killing, harming, harassing, capturing, taking, possessing, collecting, buying, selling, or trading of individuals of endangered, threatened, and extirpated species listed in Schedule 1. The SARA also contains a prohibition against the damage or destruction of their residences (e.g., nest or den). The SARA applies to all species on federal lands as well as aquatic species and migratory birds off federal lands. Fisheries and Oceans Canada administers the SARA for aquatic species, while ECCC administers the SARA for all other federally listed species at risk (SAR) including migratory birds. Review under the SARA is typically undertaken in conjunction with requirements under the *Fisheries Act*. A permit is required for activities that may affect species listed on Schedule 1 and which contravene the SARA's general or critical habitat prohibitions.

1.4.2 Other Provincial Approvals

The following permits may be required for implementation of the SBW Project:

- *Lakes and Rivers Improvement Act*. The *Lakes and Rivers Improvement Act* is administered by the Ministry of Natural Resources (MNR) and provides for the use of the water of lakes and rivers and regulates improvements in them. The Act requires MNR approval for construction in lakes and rivers. The Minister of Natural Resources is given discretionary powers relating to the repair, reconstruction and removal of dams, maintenance of water levels, and regulation of use of waters or works. A permit under the *Lakes and Rivers Improvement Act* may be required.
- *Conservation Authorities Act and Regulations 41/24*. A proposal to infill portions of Lake Ontario along the shoreline is within the jurisdiction of TRCA and is therefore subject to these Regulations. Under *Ontario Regulations 41/24*, TRCA is able to:
 - Prohibit, regulate, or require the permission of the authority for straightening changing, diverting, or interfering in any way with the existing channel of a river, creek, stream, or watercourse, or for changing or interfering in any way with a wetland; and
 - Prohibit, regulate, or require the permission of the authority for development, if in the opinion of the authority, the control of flooding, *erosion*, *dynamic beaches*, pollution, or the conservation of land may be affected by the development.
- *Endangered Species Act*. The *Endangered Species Act*, administered by the MECP, protects species identified as being Endangered, Threatened or Extirpated in Ontario. Species status is determined

by the Committee on the Status of Species at Risk in Ontario (CASSARO). Under the *Act*, species are protected (Section 9) as well as their habitats (Section 10). Permits may be required from the MECP for any works within areas identified as habitat of a SAR in Ontario (SARO) and for sampling SARO species. A Section 17 permit for the protection and recovery of a provincial SAR may be required if SARO species are impacted.

- *Public Lands Act*. The *Public Lands Act* grants authority to the MNR to manage Crown Lands. A work permit may be required if the Project requires the disposition (i.e., release) of Crown land, such as the Lake Ontario lakebed. In order to dispose of the land, requirements will need to be met under the *Class Environmental Assessment* for MNR Resource Stewardship and Facility Development Projects.

1.5 Draft *Terms of Reference* Review Period

The draft ToR was made available for review by the public and agencies from July 8 to August 7, 2024. The document was made available electronically on the City of Toronto's project website at: toronto.ca/ScarboroughBluffsWest. Table A-1 in **APPENDIX A** provides responses to comments from the public. For simplicity, these comments have been grouped into themes and similar comments have been combined to eliminate repetition with a single response provided. Table A-2 provides comments received from reviewing agencies and the comments are reproduced verbatim. No comments were received from Indigenous Communities.

2. PURPOSE AND RATIONALE OF THE PROPOSED PROJECT

2.1 Planning Context

Section 2 provides the purpose of the SBW Project. The description is framed in terms of both the problem (poor and unequitable access to and along the waterfront, safety risk, ecological degradation due to unmanaged use) and the opportunity (creating better access to and along the waterfront and improving the public realm, managing public risk from *erosion*, and improving habitat integrity) that the SBW Project presents. Thus, the purpose of the SBW Project is to *explore the enhancement and protection of sensitive shoreline and natural areas, in addition to opportunities for improved waterfront experiences and access to and along the shoreline between the Eastern Beaches (Silver Birch Avenue) and Bluffer's Park along Lake Ontario*. This discussion is grounded in a planning context created by past studies and decisions.

There is a long history of planning, public engagement, and scientific studies with respect to the Scarborough waterfront. Many documents describing issues and opportunities along the Lake Ontario shoreline and nearshore areas have been developed for Toronto and Lake Ontario as a whole and are applicable to the SBW Project. Many of the planning documents build upon each other and reflect the learnings from previous projects, changes in policies and the changing needs of City residents. Through more than five decades of waterfront planning, a consistent policy direction emerged around equity and access to and along the waterfront, desire for a continuous waterfront trail across the city, recreational opportunities, and protection and enhancement of the natural environment. These documents are listed in Table 2-1 and some of the key studies are discussed in Section 2.1.

Table 2-1: List of Background Studies Developed for Toronto and Lake Ontario*

Title	Year	Author(s)
The Waterfront Plan for the Metropolitan Toronto Planning Area	1967	Metropolitan Toronto Planning
The Metropolitan Toronto and Region Waterfront Plan	1972	Metropolitan Toronto and Metropolitan Toronto and Region Conservation Authority
Vegetation and Erosion on Scarborough Bluffs	1978	York University, Department of Biology (Collishaw, Lewis, and Fowle) for Metropolitan Toronto and Region Conservation Authority
A Volumetric Analysis of Erosion	1979	Research and Development Division, Ocean and Aquatic Sciences, Central Region, Fisheries and Oceans (Weaver, RK)
Lake Ontario Waterfront Development Program	1980	Toronto and Region Conservation Authority
Erosion Control Study, Scarborough Bluffs	1982	Geocon Inc. for Metropolitan Toronto and Region Conservation Authority
Waterfront Erosion Control Site Report, Scarborough Sector	1987	Metropolitan Toronto and Region Conservation Authority
Regeneration: Toronto's Waterfront and the Sustainable City	1992	Royal Commission on the Future of the Toronto Waterfront (Canada), David Crombie
Metropolitan Waterfront Plan	1994	Metropolitan Toronto Planning
Lake Ontario Greenway Strategy	1995	Waterfront Regeneration Trust
Integrated Shoreline Management Plan	1996	Fenco MacLaren Inc.; Shoreplan Engineering Ltd.; EDA Collaborative Inc.; Tarandus Associates Ltd.; and Ecorp Inc. for Metropolitan Toronto and Region Conservation Authority
Our Toronto Waterfront! The Wave of the Future	1999	City of Toronto
Toronto Waterfront Revitalization Task Force Report	2000	City of Toronto
Understanding Natural Hazards: Great Lakes St. Lawrence System and Large Inland Lakes, Rivers and Stream Systems and Hazardous Sites	2001	Ministry of Natural Resources (MNR)
Toronto Waterfront Aquatic Habitat Restoration Strategy	2007	Aquatic Habitat Toronto for Waterfront Toronto
The Beautiful Lake: A Binational Biodiversity Conservation Strategy for Lake Ontario	2009	Lake Ontario Biodiversity Strategy Working Group with US – Canada Lake Ontario Lake-wide Management Plan
Toronto Beaches Plan	2009	City of Toronto

Title	Year	Author(s)
Scarborough Waterfront Combined Sewer Outfall and Stormwater Outfall Class EA and Flood Protection Study	2010	Aquafor Beech Limited (on behalf of Toronto Water)
Fill Quality Guide and Good Management Practices for Shore Infilling in Ontario	2011	Ministry of Environment and Climate Change (MOECC) (now MECP)
Environmentally Significant Areas in the City of Toronto	2012	North-South Environmental Inc., Dougan and Associates, Beacon Environmental Ltd for City of Toronto Planning
Investigation of Chronic Basement Flooding – Eastern Beaches (Area 32) Class EA	2012	City of Toronto
Fish Community Objectives for Lake Ontario	2013	Ministry of Natural Resources and Forestry (MNRF) (now MNR)/Great Lakes Fishery Commission
Natural Environment Trail Strategy	2013	City of Toronto
Pathways to Recreation: Ontario's Accessibility Standard for the Design of Public Spaces Guidebook	2014	Parks and Recreation Ontario
The Living Cities Policies	2014	Toronto and Region Conservation Authority
Multi-Use Trail Design Guidelines	2015	City of Toronto
Excess Soils Management Guidelines	2016	Ministry of Environment and Climate Change (MOECC) (now MECP)
Guide on Considering Climate Change in the Environmental Assessment Process	2017	Ministry of Environment and Climate Change (MOECC) (now MECP)
Parks and Recreation Facilities Master Plan 2019-2038	2017	City of Toronto
Toronto Ravine Strategy	2017	City of Toronto
Resilience Strategy	2018	City of Toronto
Trail Strategy for the Greater Toronto Region	2019	Toronto and Region Conservation Authority
TransformTO Net Zero Strategy	2021	City of Toronto
Scarborough Waterfront CSO/Stormwater Outfall Control and Flood Protection Study EA Addendum	2021	Stantec on behalf of the City of Toronto
City of Toronto Accessibility Design Guidelines	2021	City of Toronto
Reconciliation Action Plan 2022-2032	2022	City of Toronto
Update on the Next Phase of Waterfront Revitalization	2022	City of Toronto

Title	Year	Author(s)
Terrestrial Natural Heritage System Strategy	2022	Toronto and Region Conservation Authority
City of Toronto Wet Weather Flow Master Plan	2023	City of Toronto
City of Toronto Official Plan	2024	City of Toronto
City of Toronto Cycling Network Plan	2024	City of Toronto
Approved Source Protection Plan: CTC Source Protection Region	2024	Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Committee

* See **APPENDIX B** for an expanded version of Table 2-1 that includes a summary of key points for each study, as they relate to the SBW Project.

2.2 Key Studies and Plans

The SBW Project is being studied as a result of City of Toronto Council direction (Resolution EX28.6 adopted on December 15, 2021) and recommendations from previous planning processes which indicated that the focus of the SBW Project was to address the existing risks to public safety and public property including public infrastructure and the consideration for the creation of linked public spaces along the shoreline, both along the *top and toe of the Bluffs*, and equitable access to the shoreline. Key studies and plans providing relevant background information are summarized below.

2.2.1 City of Toronto Official Plan

The City of Toronto's Official Plan (2024) lays out a framework for the City of Toronto in which a connected greenspace system links our parks and open spaces. Section 1 outlines a vision for the City to 2051, planning for Toronto's future, including setting planning priorities related to reconciliation, equity, access and inclusion.

Section 2.3.2 of the Official Plan, Toronto's Greenspace System and Waterfront, indicates the following:

- [...] the waterfront, which extends from Marie Curtis Park in the west to Rouge Park Beach in the east, is a major feature of the Green Space System. It includes parks, beaches, wetlands, Bluffs, neighbourhoods, and cultural and entertainment destinations. Over time, lands on the water's edge should become a network of publicly accessible open spaces, offering a range of leisure activities connected by a continuous waterfront trail.
- Policy 2.3.1.1: Actions will be taken to improve, preserve and enhance the Green Space System by:
 - a) Improving public access and enjoyment of lands under public ownership;
 - b) Maintaining and increasing public access to privately owned lands, where appropriate;
 - c) Restoring, creating and protecting a variety of landscapes; and
 - d) Establishing co-operative partnerships in the stewardship of lands and water.
- Policy 2.3.2.3 a): The Green Space System will be expanded by:
 - Acquiring linkages between existing parks and open spaces, where feasible.

- To provide the basis for approving permit applications under Section 28 of the *Conservation Authorities Act*.
- To inform TRCA's advocacy role for The Living City in the planning and development process.
- To assist and enable our partners' and stakeholders' contributions to building The Living City.

Specific to the SBW Project, the following policies have direct relevance:

- To prevent, eliminate or reduce the risk of flood and *erosion* hazards to life and property through:
 - Appropriately planned development, site alteration, recreational use, and infrastructure.
 - Shoreline protection works that are undertaken on a comprehensive reach basis and naturalized to the extent possible.
 - The conveyance of hazard lands into public ownership, where feasible.
- To promote an integrated approach to revitalization of the waterfront that:
 - Provides for increased public access, recreational opportunities, and a continuous trail system.
 - Preserves and enhances public views of the lake and its shoreline features.
 - Improves or restores the quality of water, beaches, and terrestrial and aquatic natural habitats of the shoreline.
 - Connects and links waterfront habitats and amenities to the valley and stream corridors.

TRCA recognizes the need to balance waterfront planning efforts, including public access with those of the natural heritage system as well as natural hazard protection and management. Public ownership of waterfront lands is a key means to managing natural hazards, while providing opportunities to create accessible open space for public enjoyment, integrated with the restoration of aquatic and natural heritage.

2.2.3 Regeneration: Toronto's Waterfront and the Sustainable City

The Royal Commission's final report, *Regeneration: Toronto's Waterfront and the Sustainable City* (1992), used the ecosystem approach to integrate environmental, economic, and social concerns in developing a wide range of recommendations for waterfront communities, land use planning, *watershed* management, regional greenways, and a continuous Lake Ontario Waterfront Trail. Within the report, the Royal Commission recommended that these policies should outline ways to acquire, maintain and provide access to land along the waterfront and up the river valleys, and could take the form of a waterfront plan that should be incorporated in the City's official and secondary plans.

The report also encouraged continued development of a Waterfront Trail, including a two-tiered trail in Scarborough as part of the regional greenway and trail system, with one route above the Bluffs and one at their base. The system should also enhance access nodes to the waterfront, improve access to Bluffer's Park, and include facilities to educate the public on the geological processes that contributed to the formation of the Bluffs.

2.2.4 Understanding Natural Hazards: Great Lakes St. Lawrence System and Large Inland Lakes, Rivers and Stream Systems and Hazardous Sites

The MNR's Understanding Natural Hazards: Great Lakes – St. Lawrence System and Large Inland Lakes, River and Stream Systems and Hazardous Sites (2001) technical guide outlines the methodology for determining where a slope is at risk within the 100-year planning horizon, including the calculation of an *erosion* allowance (i.e., application of the *erosion* rate over 100 years), in addition to a stable slope allowance. The technical guide identifies flooding hazards for lands adjacent to the lakes, such as trails and beaches, including the 100-year flood level, wave uprush, and other water related hazards including ice piling and jamming.

The technical guide identifies minimum Factors of Safety, based on land use above or below a slope, recognizing the consequences or risks to land use or life by the occurrence of a slope slide. Based on these minimums, a Factor of Safety of 1.3 (Land Use B) is identified as appropriate for a recreational park with a formal trail at the *toe and/or top of the Bluffs*, while a Factor of Safety of 1.5 (Land Use D) is identified as appropriate for public land with infrastructure.

2.2.5 Integrated Shoreline Management Plan

The Integrated Shoreline Management Plan (ISMP) (1996) provided “an ecosystem-based framework to ensure that shoreline management activities result in a clean, green, accessible, diverse, connected, open, affordable, attractive, and useable waterfront.” The ISMP set out recommendations for shoreline regeneration, public access and safety, natural heritage targets, aquatic habitat restoration, and public use for the shoreline area between Tommy Thompson Park and Frenchman's Bay and provides the foundation for addressing multiple objectives along stretches of the waterfront.

2.2.6 Cycling Network Plan

The City's Cycling Network Plan (CNP) (2024) serves as a comprehensive roadmap and work plan, outlining the City's planned investments in the near term and intentions for the long-term. The CNP is an evolution of the Ten Year Cycling Network Plan, approved in principle in June 2016 and updated in 2019, 2021 and 2024 to include a revised approach to short-term programming and long-term planning that better reflects the nature of capital coordination, development planning, focus on safety and equity and an enhanced prioritization framework. The plan has three main components: the Long-Term Cycling Network vision, Major City-Wide Cycling Routes, and a three-year rolling Near-Term Implementation Program.

As part of the 2021 Cycling Network Plan Update, new and emerging analyses were considered in the near-term prioritization framework. The Cycling Network Plan has a rolling three-year near-term implementation program which regularly reviews the capital implementation program and brings forward new routes based on the near-term program prioritization framework. Within the 2022-2024 Near-Term Implementation Program, areas along Kingston Road are identified as a route for potential implementation of the cycling network.

Within the Major City-Wide Cycling Routes, the shoreline along the Study Area is noted as a route that requires further study (i.e., this EA).

2.2.7 Multi-Use Trail Design Guidelines

The City of Toronto Multi-use Trail Guidelines (2015) assist in the development and ongoing maintenance of multi-use trails throughout the City. The guidelines respond to the urban context of Toronto's trails and their varied locations in the city ravines, parkland, boulevards, and rail and hydro corridors.

The document provides guidance on trail design including trail configuration (trail and corridor width, trail surface, slopes, and radii), trail crossings, and other multi-use trail elements and amenities like signage and lighting.

The Guidelines identify that waterfront sites, such as the Waterfront Trail, will be subject to high seasonal use of a specific nature, and identifies the following key considerations in determining the appropriate trail classification:

- The proportion of pedestrians can be predicted to be very high, and they can be expected to mainly use the waterside of the trail.
- The widest range of ages and abilities should be expected.
- The presence of many distractions and crossing movements along the trail can also be foreseen.

The range of users and expected usage of waterfront trails indicate the need for an appropriate space that will serve to resolve or minimize potential conflicts that may arise. City experience from other waterfront trails indicates that high-capacity or twinned trails for cyclists and pedestrians are well used and help to minimize user conflicts (City of Toronto, 2015).

2.2.8 City of Toronto Wet Weather Flow Master Plan

Originally adopted in 2003, and updated in 2023, Toronto's Wet Weather Flow Master Plan (WWFMP) is a long-term plan that aims to protect the water quality in the lakes, rivers, streams and other water bodies from the rain and stormwater. Key objectives include improving water quality along the waterfront, beaches and watercourses, protection of vulnerable City sewer and water infrastructure from *erosion* and reducing the risk of flooding to private and City properties during extreme wet weather. Leading up to 2028, Toronto Water will be undertaking a review of the WWFMP and its implementation to determine its future.

2.3 Environmental Context

2.3.1 Fish Community Objectives for Lake Ontario

The Fish Community Objectives for Lake Ontario (2013) updates the 1999 goals and objectives for the Lake Ontario fish community established by the Great Lakes Fishery Commission's Lake Ontario Committee. The goal of fisheries management is to provide sustainable benefits to humans using fish for food, recreation, culture, ecological function, and aesthetics by sustaining or increasing the abundance of desirable fish. The goal for the nearshore fish community is to protect, restore, and sustain the diversity of the nearshore fish community, with an emphasis on self-sustaining native fish species.

2.3.2 Toronto Waterfront Aquatic Habitat Restoration Strategy

The Toronto Waterfront Aquatic Habitat Restoration Strategy (2007) strives to create a more sustainable waterfront by using an ecosystem approach to increase ecological integrity, to provide suitable conditions for the maintenance of self-sustaining aquatic communities and to improve ecological connectivity. The Strategy emphasizes conservation design based on native and naturalized species. It considers human uses of the shoreline and nearshore waters, and it was developed using a consultative, consensus-based approach involving stakeholders and the general public. The overall goal of the Strategy is "to develop and achieve consensus on an aquatic habitat restoration strategy that will maximize the potential ecological integrity of the Toronto waterfront."

2.3.3 Toronto Ravine Strategy

The Toronto Ravine Strategy (and consequently the Ravine and Natural Feature Protection Bylaw) supports "a ravine system that is a natural, connected sanctuary essential for the health and well-being of the city, where use and enjoyment support protection, education, and stewardship" (City of Toronto, 2017). The five guiding principles of the strategy include Protect, Invest, Connect, Partner, and Celebrate.

- **Protect:** overarching goal to protect these spaces.
- **Invest:** invest in these spaces to manage the pressures of population growth/recreational uses, climate change, and invasive species.
- **Connect:** create opportunities to connect with nature and the city's rich history.
- **Partner:** Work with individuals, organizations, and all levels of government to contribute to these spaces.
- **Celebrate:** encourage recognition and respect for these natural features.

The Ravine Strategy was developed through consultation with a variety of stakeholders including the public, interest groups, and other key stakeholders. Within the Project Study Area, the shoreline east of Silver Birch Beach is protected within the Ravine and Natural Feature Protection Area.

2.3.4 Resilience Strategy

The City's Resilience Strategy (2018) sets out a vision, goals, and actions to help Toronto survive, adapt, and thrive in the face of any challenge, particularly climate change and growing inequities. A set of 10 goals and 27 actions were developed to deliver on the vision and are organized into three focus areas: people and neighbourhoods, infrastructure, and leadership for a resilient city. Relevant infrastructure goals of the resilience strategy include creating a city more resilient to climate change, including hazards of flooding, and creating reliable, affordable, and safe mobility options.

2.3.5 TransformTO Net Zero Strategy

TransformTO was approved by City council in 2017 demonstrating the City's commitment to a global call for action to limit global temperature rise. The Net Zero Strategy was approved in 2021 and builds on the initial strategy. The TransformTO Net Zero Strategy triggers new and accelerated implementation actions to drive down community-wide emissions, particularly in the short term, and establishes the trajectory

needed to reach net zero by 2040. The strategy identifies actions and targets to be achieved by 2030 in key sectors, including buildings, transportation, and waste. Actions to be implemented include expansion of biking and pedestrian infrastructure, increased canopy cover and biodiversity and enhance greenspaces, and working with Indigenous rights holders and urban Indigenous communities to share knowledge.

2.3.6 Other Projects

- **Scarborough Waterfront Project (SWP):** The overall vision of the project was “to create a system of greenspaces along the Lake Ontario shoreline which respect and protect the significant natural and cultural features of the Bluffs, enhance the terrestrial and aquatic habitat, and provide a safe and enjoyable waterfront experience”. The EA was approved in 2019 and presents a Preferred Alternative including improvements to Brimley Road and a shore based multi-use trail. The SWP is currently in the detailed design phase for the west segment and includes the Brimley Road South Multi-Use Trail Project that provides pedestrian and cyclist access to Bluffer’s Park along Brimley Road from Barkdene Hills to the Bluffs and shoreline improvements at Bluffer’s Park to Meadowcliffe.
- **Scarborough Pumping Station Rehabilitation:** Rehabilitation of the pumping station to replace aging infrastructure, repurpose the existing reservoir to an emergency water overflow storage tank, construct a new above ground storage tank and to construct/upgrade ancillary infrastructure (i.e., fencing, outfall pipe, etc.)
- **Danforth-Kingston Complete Street Extension:** The project proposes to implement ‘complete streets’ features on Danforth Avenue (Victoria Park Avenue to Kingston Road) and Kingston Road (Danforth Avenue to Scarborough Golf Club Road). This includes changing the layout of the existing road space to accommodate vehicular traffic, transit, parking, *bikeways*, and other safety improvement features.

2.4 Project Vision and Objectives

The development of the Project Vision and Objectives build on more than five decades of waterfront planning, including strategic and consistent policy direction around equity and access to and along the waterfront, desire for a continuous waterfront trail across the city, recreational opportunities, and protection and enhancement of the natural environment, as summarized in the planning and environmental context described in Sections 2.1 and 3. The Vision and Objectives inform the range and type of Alternatives to be considered and provide a baseline for the *evaluation criteria* or factors to be used for the evaluation of Alternatives.

The Project Vision is a high-level, guiding purpose of the Project. The Project Objectives describe what the Project is trying to achieve if implemented. The Project Vision is to:

- *“Explore the enhancement and protection of sensitive shoreline and natural areas, in addition to opportunities for improved waterfront experiences and access to and along the shoreline between the Eastern Beaches (Silver Birch Avenue) and Bluffer’s Park along Lake Ontario.”*

The Project Objectives will provide a basis for the identification and evaluation of Alternatives and will guide the eventual detailed design and implementation of the Project. Objectives are not weighted or

prioritized and each hold equal value in determining and evaluating the Project Alternatives. The Project Objectives are:

Objective 1: Enhance Waterfront Experience

A number of factors contribute to an enhanced waterfront experience, including diversity of experience, views and vistas; access; multi-use trail connections; recreational opportunities; and education/appreciation of the natural and cultural features of the SBW Project shoreline. The SBW Project provides the opportunity to build on existing greenspace areas, explore moving the Great Lakes Waterfront Trail closer to the shoreline, and create better integration with the surrounding community. A trail along the waterfront to connect the existing greenspaces is recognized as a long-term objective within the Official Plan and TRCA's The Living City Policies. Population growth and changing patterns of recreational use will create increasing pressure for access to and along the waterfront. Exploring the feasibility of a connected trail system to meet these recreational demands has the potential to relieve pressures on sensitive ecological areas and local communities while managing informal access and use.

Objective 2: Manage Public Safety and Public Infrastructure (Property) Risk

Within the Project Study Area there are areas of risk to public safety due to *erosion* and slope instability. In addition, there is risk associated with safe access to and from the shoreline, as well as along the shoreline. There is also potential risk to existing and future users of the waterfront from waves and ice, as well as high lake levels. Finally, there are liability risks associated with inappropriate uses that may occur on unmanaged private and public lands and the inability for Emergency Services and the City to access these locations should situations arise. The SBW Project will evaluate Alternatives that may propose slope stabilization and/or shoreline protection infrastructure to support project infrastructure and provide access for Emergency Services, where feasible, which may require easements, land acquisitions, or negotiations with private residents.

Objective 3: Conserve and Enhance Terrestrial and Aquatic Habitat Features and Linkages

Habitat type, health, and sensitivity vary throughout the Project Study Area. Terrestrial and aquatic habitat throughout the Project Study Area has been and continues to be altered by human activity. The pressure to use and access the shoreline has resulted in unmanaged use which often results in negative impacts to habitat. The SBW Project will seek to replace unmanaged use with managed use and, where possible, enhance and restore terrestrial and aquatic habitat where changes are proposed.

Objective 4: Consistency, Compatibility and Coordination with Other Initiatives

Significant community planning has occurred in this area and with respect to the Toronto waterfront. The SBW Project will coordinate and be consistent with other planning processes (i.e., TRCA's The Living City Policies, City's Climate Change Resilience Strategy (2018) and the City's Reconciliation Action Plan), land uses (i.e., City's Official Plan), and initiatives, including the SWP. As appropriate, the SBW Project will build on and complement these other initiatives. Furthermore, the SBW Project will be sensitive to community concerns while minimizing impacts to existing residential areas and meeting project objectives. Finally, this objective will examine the ability of Alternatives to protect source water protection areas and minimize impacts to archaeological resources, built heritage resources, and cultural heritage landscapes.

Objective 5: Achieve Value for Cost

It is desirable to maximize the benefits achieved through the SBW Project in relation to the estimated project cost (capital, operations, and maintenance costs). The lowest cost Alternative is not necessarily preferred but there must be commensurate value for the investment to be made by TRCA and City of Toronto, and potentially other funding partners.

2.5 Problem/Opportunity Assessment

The SBW Project provides an opportunity to comprehensively plan for improvements to the Scarborough waterfront between the Eastern Beaches and Bluffer's Park, particularly to provide access to and along the waterfront, while managing *erosion* and risk to public safety, and enhancing habitat integrity, where changes are proposed. Many of the problems and opportunities listed below could be solved or managed on a piecemeal or ad hoc basis but that would not lead to a holistic and integrated solution. The SBW Project provides for that unique opportunity. Reference images of the Study Area are available in **APPENDIX C**.

2.5.1 Access to and Along the Waterfront

2.5.1.1 Key Problems

The Project Study Area shoreline is characterized by steep Bluffs which create challenging access to the water's edge. While approximately 85% of the water's edge within the Project Study Area is publicly owned, there are no formal public access points to the shoreline (as discussed in Section 5.3.1.4 and shown in Figure 5-13).

In addition, there is no continuous trail providing access along the waterfront through the SBW Project area. Within the City of Toronto, the Waterfront Trail is intended to provide a recreational amenity and active transportation corridor that connects waterfront parks, destinations, and communities. Throughout its length, the existing Waterfront Trail includes a combination of "off-road" multi-use trails and "on-road" routes along both residential streets and major arterial roads. Within the Project Study Area, the Waterfront Trail is currently located inland and away from the shoreline and mainly along residential streets and some major arterials (e.g., Kingston Road). Users have commented that this trail can be difficult to navigate. The steep terrain (the Bluffs) and lack of shoreline continuity limit the ability to extend the trail along the shoreline in the Project Study Area (Waterfront Regeneration Trust, 2014). Provision of this access has been constrained by slope stability issues and concern for public risk, lack of land base, and land ownership issues. Access opportunities are largely limited due to private property and steep slopes. The extension of the trail along the shore from Bluffer's Park to Manse Road was approved as the SWP in 2019.

As discussed in Section 2, there is strong policy direction, including in the City's Official Plan, TRCA's The Living Cities Policies, and Regeneration: Toronto's Waterfront and the Sustainable City, that access to and along the waterfront must be created so that all residents can experience the Lake Ontario shoreline. During public consultation, many residents expressed a desire for equitable access to and along the waterfront from Eastern Beaches to Bluffer's Park.

Given the limited access to the shoreline, City of Toronto Emergency Services are called upon every year to rescue people trying to access the shoreline using informal paths down the Bluff face or trying to make their own paths and are asked to respond in instances of inappropriate use. The rescues require

considerable time and resources due to the difficulties in accessing these locations. In addition, due to the lack of access, the public make their way to the water's edge using informal and sometimes treacherous routes, often through private property. Once at the water's edge, it has been reported that some engage in less desirable activities causing concern for adjacent residents. Some of these incidents occur on private property, sometimes resulting in calls to Emergency Services who have trouble accessing the shoreline.

2.5.1.2 Project Opportunities

There are currently no formal access points to the shoreline within the Project Study Area. The SBW Project provides an opportunity to create new access points and improve upon existing informal routes to and from the waterfront. This aligns with various planning initiatives around improving equitable access to the water's edge, creation of a connected trail system, and improvement of recreational facilities near the water's edge identified in documents such as TRCA's The Living Cities Policies, and the City's Cycling Network Plan, and Parks and Recreation Master Plan. The SBW Project can help to resolve neighbourhood concerns around less desirable uses, impacts to the natural environment, and liability concerns. Existing informal access points around R.C. Harris Water Treatment Plant, the Fallingbrook area, east of Fishleigh Drive, and the bottom of Warden Avenue will be studied with respect to formalizing these accesses.

Access to and along the waterfront through the Project Study Area would physically connect the neighbourhoods of the Beaches and Scarborough Southwest, providing potential social and economic benefits. Greater interconnection from neighbourhoods to businesses along Kingston Road is anticipated to improve economic development in the area and allow for increased social interactions among residents and users.

The SBW Project presents an opportunity to explore a comprehensive solution to improve access to and along the waterfront, including the relocation of the potential Waterfront Trail closer to the water's edge and as part of a dedicated trail. This includes exploring options for both the top and bottom of the Bluffs, or a mix of both. By examining opportunities for greater access, shoreline protection, and habitat improvements in a holistic way, solutions to meet long term needs can be identified.

2.5.2 Erosion and Risk to Public Safety

2.5.2.1 Key Problems

Since the arrival of early European settlers in the late 18th century, the shoreline has undergone many substantial changes. Not all the changes are readily evident, and slower changes were likely caused by *stonehooking*. Although this practice was known and identified in the past, its significance to coastal processes and shoreline development was not fully understood until relatively recently.

The *erosion* process along the Bluffs is complex and is related to both wave conditions and water levels. When water levels are high, waves attack the lower part of the Bluff, causing the toe of the Bluff to recede back, which in turn steepens the Bluff face and leads to slope failures. When water levels are low, wave action on the face of the Bluff is reduced but the vertical (downward) *erosion* of the nearshore profile continues. That vertical *erosion* process is referred to as downcutting. Downcutting increases the water depth offshore of the bluff, which then allows higher waves to strike the Bluff when water levels rise again.

Sand, cobble and boulder deposits along the shore and in the nearshore originated from both *erosion* of the Bluffs, downcutting, and glacial outwash during formation of rivers. These deposits, when they existed, formed natural armouring protection against *erosion* and the natural process of downcutting. As

a result of *stonehooking* operations, the natural *erosion* protection was removed, allowing accelerated downcutting of the nearshore. This led to higher recession rates along the Bluffs.

It is believed that the Bluffs eroded at a slower rate prior to commencement of the practice of *stonehooking*, although they were still undergoing and subject to *erosional* processes. Recognizing the continuously eroding shoreline located in close proximity to a highly developed urban area, protection has been implemented along approximately 94% of the shoreline within the Project Study Area. This shoreline treatment addresses the primary *erosion* mechanism of wave action acting on the Bluffs directly. Almost the entire extent of the shoreline between the Eastern Beaches and Bluffer's Park, with the exception of the Needles, an area of steep pinnacle shaped bluffs located west of Bluffer's Park, has some form of shoreline *erosion* protection works, which were installed between the 1930s and 2018. These structures can be categorized as:

- *Revetments* constructed at or very close to the toe of the Bluff.
- Rock *groynes* with naturally accumulating or artificially filled sand, gravel, or cobble beaches.
- *Armourstone* headlands with naturally accreting or artificially filled sand, gravel, or cobble beaches.
- Major lakefilling projects (Bluffer's Park, constructed in the 1970s).
- Steel sheet pile or concrete sea walls.

Shoreline protection activities and features have resulted in changes to shoreline *erosion* rates, both horizontal and vertical (downcutting) as compared to post-*stonehooking* rates. Existing protection works require maintenance, modification, or repair to address changing coastal conditions and provide climate change resiliency, and this will be investigated as part of the SBW Project during the EA phase.

While the *toe of the Bluffs* at the shoreline is protected, slope instability leading to flattening of the face and crest recession continues to occur ("*self-stabilization*"). *Self-stabilization* of the Bluff face may be gradual as a result of surficial *erosion*, or it may be more dramatic as a result of slope failure and landslides. A combination of natural processes and human activity contribute to slope instability and *erosion* along the Bluffs.

Surface water runoff from storm events or human activity may result in surficial soil *erosion*, in turn causing the slope to erode. The groundwater within the Project Study Area is connected to the lake. Groundwater seepage through the slope face may contribute to *erosion* and landslides creating over steepened slope faces, leading to greater slope instability, and increasing risk for infrastructure and users.

As slopes erode in the presence of shoreline protection, they will self-stabilize and re-vegetate over time (decades). Slopes that are gentler and more highly vegetated are less prone to slope failures. Slopes in the later stages of stabilization exist in areas where the toe *erosion* protection measures have generally been in place for longer periods of time (decades).

Climate change is also having an impact on rates of *erosion*. More frequent occurrences of extreme climatic events and weather pattern changes, such as unusually heavy rainfall, thick long-lasting snowpack, changing freeze-thaw cycles throughout the winter months, and more severe droughts (impacting vegetation), may lead to increased Bluff *crest migration* rates over time. Increased slope instability and *erosion* can lead to intermittent landslides which pose a risk to recreational users at the *toe of the Bluffs*.

The SBW Project provides an opportunity to mitigate the public safety risks associated with ongoing *erosion* and slope stability concerns in areas where trails and public spaces are proposed.

2.5.2.2 Key Opportunities

Shoreline protection works have been undertaken along the *toe of the Bluffs* for approximately 94% of the shoreline within the Project Study Area (see Figure 5-11). Given the age of some of these works and changing coastal conditions, these shoreline works may require redesign and modification to ensure ongoing shoreline protection and resiliency to climate change impacts, such as high-water levels and increased storm intensity into the future. There are still areas that are prone to slope instability and *erosion* and pose risks to public spaces above and below the Bluffs. In addition, there is public infrastructure at risk from slope instability and *erosion*. The SBW Project provides an opportunity to mitigate these risks through the improvement to or creation of new shoreline protection measures that may permit enhanced shoreline access, public realm improvements, and habitat improvements. There is also the opportunity to investigate the mitigation of slope instability through *erosion control* measures.

2.5.3 Habitat Integrity

2.5.3.1 Key Problems

Prior to European settlement, it is estimated that approximately 80% to 95% of the southern Ontario landscape contained natural forest and wetland cover (Butt et al., 2005; TRCA, 2012). *Indigenous Peoples*, including the Wendat, Anishinaabe and the Haudenosaunee, used the land for hunting and fishing.

Following colonization in the 18th and 19th Centuries, trees and other vegetation were cleared from the landscape, and wetlands were drained, with the purpose of preparing the land for agriculture (Butt et al., 2005). With continued population growth and subsequent land development over time, approximately 20% of the original natural cover remains in southern Ontario (Butt et al., 2005).

This trend of deforestation and removal of natural cover has affected the Project Study Area. Historically, there were a variety of aquatic and terrestrial habitats across Toronto's waterfront, including wooded shorelines and meadow, cobble reefs, bluffs and beaches, and estuaries and bays. Since the 1800s, various activities including development associated with colonization, transportation and recreational uses changed this portion of the waterfront significantly (Waterfront Regeneration Trust, 2001).

As the population continues to grow rapidly, and communities densify and diversify, such as in the Project Study Area, the demand for access to natural areas increases, putting pressure on both managed and unmanaged terrestrial areas that are already in limited supply (City of Toronto, 2017). It has been shown that Torontonians are shifting towards informal and individualized activities, with a growing interest in the use of trails for recreation, exercise, and active transportation (City of Toronto, 2017). One such pressure, resulting from increased demand and changes in natural area usage, is the development of user-created (informal) trail systems.

Informal trail systems form for a number of reasons, including but not limited to (Van Winkle, 2014):

- Currently implemented trail systems, if present, do not accommodate or anticipate the needs and desires of park users.
- Informal trails provide increased efficiency by creating a shortcut or providing more direct access to a natural feature.

- The existing system provides no or limited access to a desirable feature (e.g., a known viewpoint, a lake, a rock outcropping, etc.).

The formation of informal trails occurs in stages: trampling of vegetation, loss of organic soil material, and eventually compaction of soil (Van Winkle, 2014). Once a discernable path has been formed, this often creates a “releaser cue” that causes others to follow the same route (Van Winkle, 2014).

Within the Project Study Area, a network of informal trails has been identified that provide informal access to and along the waterfront.

The effects from informal trails on natural areas tend to be localized, but they can also exacerbate disturbances and contribute to changes at the landscape level (Van Winkle, 2014). They can result in the loss of native vegetation, habitat fragmentation, displacement of wildlife, soil compaction and resultant *erosion*, altered hydrology, and spread of invasive species (Van Winkle, 2014).

As with the terrestrial ecosystem, the aquatic ecosystem of Lake Ontario and the Toronto waterfront, including the Scarborough shoreline, has been impacted by human activities. The waterfront changed dramatically following the arrival of early European settlers in the late 18th century, largely in part due to the historical practice of *stonehooking*.

Stone, gravel, and boulders, ranging in diameter of 450mm to 600mm, were removed from the Toronto Harbour for development purposes between 1830 and 1930 (Fenco McLaren Inc. et al., 1996). Stone material is an important component of the physical structure of the shoreline. The movement of stone material along the shoreline forms bays, points, and bars, which are critical elements of aquatic habitats providing cover, shelter, and foraging opportunities.

Open coast shorelines such as those found along the waterfront in the Project Study Area, provided historical spawning habitat for coldwater fish species such as Lake Trout and Lake Whitefish (Dietrich et al., 2008). The self-cleansing characteristics of the open coast shoreline exposed gravels, cobbles, and boulders, which provided essential conditions for over-wintering eggs and larvae (Dietrich et al., 2008). However, past modifications, particularly the removal of this coarse substrate, have significantly reduced the quality of habitat available in this area.

Development on the *tablelands* necessitated shoreline protection works to stop shoreline *erosion* along the *toe of the Bluffs* and reduce the risk to those *tablelands* from *crest migration*. The *tablelands*, located along the shore of the Project Study Area, are an elevated landform with steep cliff-like edges, and a flat top. The entire SBW Project shoreline (except at The Needles – an area of steep pinnacle shaped bluffs located west of Bluffer’s Park) has been altered with some form of shore protection works. Early protection works in the form of basic *revetment* features were implemented in the 1980s and 1990s along portions of the Project Study Area shoreline. As the primary focus of these works was *erosion control*, aquatic habitat enhancement features were not incorporated into their design. Extending parallel to the shoreline, these shoreline protection works have a simple linear profile and lack substrate diversity characteristic of historical Scarborough shoreline or more modern headland-beach systems.

Improved shoreline protection techniques have since been employed, including a combination of *armourstone*/rubble *revetment*, *riprap*, gravel/sand beaches and a series of *armourstone groyne*s/breakwater structures extending into the lake. These works were carried out over the last 50 years and have been generally effective in protecting against wave *erosion*.

2.5.3.2 Project Opportunities

Through implementation of the SBW Project, an opportunity exists to decommission much of the existing informal trail network with the provision of formalized access to and along the waterfront. By managing the anticipated increase in user volume through a formal trail system, regeneration and enhancement of the terrestrial ecosystem within the Project Study Area may be achieved as direct disturbance to the natural environment has the potential to be reduced. Additionally, the shoreline management works that could be a part of the SBW Project provide opportunities for aquatic habitat enhancement and/or creation, particularly in areas where less advanced techniques were previously applied.

The SBW Project presents an opportunity to enhance the terrestrial and aquatic natural features, while addressing *erosion* and risk prone areas, as well as improving public spaces and access to and along the shoreline between the Eastern Beaches and Bluffer's Park.

2.6 Project Study Area and Temporal Boundaries

For the purposes of the SBW Project, two study areas were considered: the Project Study Area and the Regional Study Area.

2.6.1 Project Study Area

Figure 1-1 denotes the area where the project will be located and where potential project effects will be assessed for many of the technical disciplines. The Project Study Area extends along the Lake Ontario shoreline from the Eastern Beaches in the west to Bluffer's Park in the east (approximately 4.5 km in length). The northerly boundary is Kingston Road, and the southern boundary is Lake Ontario to a maximum of 1 km offshore. The Project Study Area includes access routes and any potential effects to adjacent communities.

To help facilitate the Alternatives development and evaluation process, the Project Study Area has been divided into the following four proposed Shoreline Segments, recognizing the distinct characteristics along each Shoreline Segment, as shown in Figure 2-1:

Silver Birch Avenue to Warden Avenue (Segment 1): This area features Balmy Beach Park, the Silverbirch off leash dog park, the western extent of the Martin Goodman Trail, the R.C. Harris Water Treatment Plant, a portion of shoreline known locally as Secret Beach, and the Toronto Hunt Club. Except for the concrete seawall on the frontage of the R.C. Harris Water Treatment Plant, the shoreline throughout this section is a series of engineered beaches and *groyne* systems. Ownership of the shoreline is a mix of public and private ownership.

Warden Avenue to Birchmount Road (Segment 2): Shoreline protection works (*armourstone revetments* and engineered beach and *groyne* systems) exist along the entire length of this segment. There is no formal public access along the *toe of the Bluffs*. All shoreline in this area is under public ownership.

Birchmount Road to East End of Fishleigh Informal Access (The Needles) (Segment 3): Shoreline protection works (*armourstone revetments* and engineered beach and *groyne* systems) exist along the entire length of this segment. All shoreline in this area is under public ownership.

East End of Fishleigh Informal Access (The Needles) to Bluffer's Park (Segment 4): The only shoreline protection within this area is associated with Bluffer's Park. The area of the Bluffs known as The Needles is unprotected. All shoreline in this area is under public ownership.

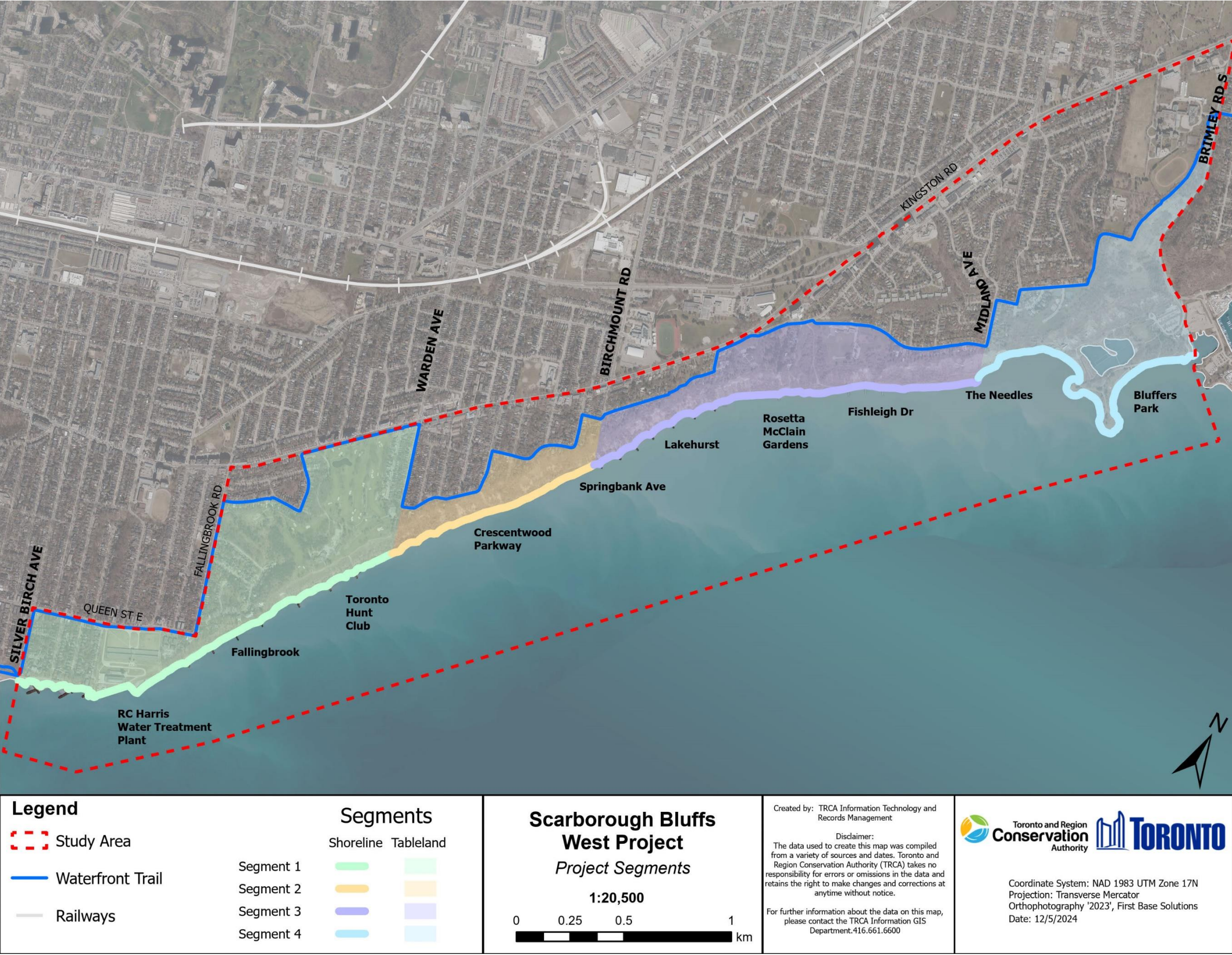


Figure 2-1: Scarborough Bluffs West Project Area Segments

2.6.2 Regional Study Areas

For certain technical disciplines, larger “Regional Study Areas” may be used to identify and assess potential effects at the appropriate scale (e.g., sediment transport and coastal processes, water quality modelling, socio-economic assessment).

2.6.3 Temporal Boundaries

Temporal boundaries will be used for the basis of the effects assessment. The temporal boundaries established for the EA include the construction and establishment phases of the SBW Project and are explained below.

The **construction phase** of the SBW Project is anticipated to commence following receipt of required approvals, permits, and funding. Timing for the construction phase, including time for permitting and detailed design, is currently unknown. Assumptions will be made during the EA regarding the construction timelines to support the evaluation of Alternatives.

The **establishment phase** will commence once construction is complete. The SBW Project is anticipated to exist indefinitely into the future. This phase will include post-construction natural feature establishment monitoring activities and could also be defined as the timeframe for monitoring and adaptive management of the SBW Project, which is expected to last approximately 15 years after construction.

3. ALTERNATIVES TO THE PROJECT

The Ontario *EA Act* requires the identification and evaluation of “*Alternatives To*” the project, including the consideration of the “*Do Nothing*” *Alternative*. “*Alternatives To*” the project are defined as different ways to solve the identified problem or address the identified opportunity.

As previously noted, TRCA and the City of Toronto intend to complete a ‘focused’ EA, in accordance with Section 17.4(1) of the *EA Act*. The need and justification for the SBW Project has been established through previous planning processes including the ISMP and other key guiding documents as described in Section 2. These studies and plans identify the need for integrating *erosion* protection works with habitat improvements and improved public access along the section of the Scarborough waterfront between the Eastern Beaches in the west and Bluffer’s Park in the east. In addition, the SBW Project builds upon the previous shoreline *erosion* protection works undertaken in the Project Study Area. Waterfront projects such as this do not have discrete Alternative solutions. Rather, the complexity of the site and the problems and opportunities creates a dichotomy of “doing nothing” or “doing something” with the latter being the subject of the “*Alternative Methods*” discussion.

As such, with the exception of the “*Do Nothing*” *Alternative*, the EA will not include an evaluation of “*Alternatives To*”. Once identified, the Preferred Alternative (the Project) will be compared against the “*Do Nothing*” *Alternative* to confirm the recommended Alternative. The “*Do Nothing*” *Alternative* includes:

- Continuation of monitoring activities by TRCA.

- Implementation of existing plans for the area, including localized shoreline *erosion control* works where deemed necessary and retrofits/maintenance activities to existing shoreline works.
- Continuation of the natural Bluff *erosion* process for the unprotected sections.
- Continued patchwork of formalized, informal, and unauthorized public access to the waterfront and its associated risks.
- On-going park management by the City of Toronto at Bluffer's Park, and other established park facilities within the Project Study Area but not within informal and inaccessible areas.

The "Do Something" Alternative may include some combination of the following, within all segments of the Project Study Area at the *top and/or toe of the Bluffs*:

- Shore protection works.
- Aquatic and terrestrial habitat enhancements.
- New and/or enhanced access points.
- Multi-use trail.
- Public spaces.
- *Erosion* and slope stability measures.
- Lakefill to facilitate any of the above.

Different combinations of the above (known as *Alternative Methods*) will be established based on the framework presented in Section 4 and will be consulted upon during the EA phase of the project as described in Section 6. The existing conditions are complex, and the Project team will consider the option to "Do Nothing" through each stage of the Project.

The advantages and disadvantages for "doing nothing" versus "doing something" are described below:

Do Nothing	Do Something
▪ No clear advantages other than the avoidance of new construction costs and environmental effects during construction. ▪ No resolution of long-term <i>erosion</i> risk. ▪ No active transportation connection across SBW Project site. ▪ Existing issues with respect to lack of access for Emergency Services, City staff and users and unmanaged use continues, potentially leading to conflict. ▪ Operational changes can be made to enforcement, parking, police presence, and litter but cannot be extended to or across private property.	▪ Consistent with City, TRCA, and Provincial planning and policies with respect to the waterfront and the need to integrate <i>erosion</i> protection works with habitat improvements and improved public access. ▪ Provides equitable access to the waterfront for all residents ▪ Addresses long term <i>erosion</i> risk. ▪ Addresses unmanaged use along the waterfront and lack of access for Emergency Services, City staff and users. ▪ Additional waterfront parkland and public access. ▪ Opportunity to enhance aquatic and terrestrial habitats. ▪ Potential need to traverse private property. ▪ Higher capital costs.

Given that “Do Something” is consistent with the planning and policy documents discussed in Section 2 and City Council Resolution EX28.6 (adopted on December 15, 2021), it will be carried forward and during the EA, *Alternative Methods* will be generated and evaluated as described in Section 4. Again, the “Do Nothing” *Alternative* will also be carried forward, as required by the EA Act.

4. DESCRIPTION, EVALUATION AND RATIONALE FOR “ALTERNATIVE METHODS”

The following section describes the steps to be followed in the EA to develop, assess, and evaluate the “*Alternative Methods*.” As previously noted, “*Alternative Methods*” (or designs) are different ways of carrying out the project. For example, for the Project, this may include consideration of different locations within the Project Area for project components (e.g., trail alignment, shoreline protection, public spaces, etc.). The “*Alternative Methods*” to be developed will address the identified existing problems (e.g., risk from *erosion*, limited waterfront access, and low habitat integrity) and identified opportunities. Furthermore, the “*Alternative Methods*” will be developed in a manner that is complementary to the existing natural features of the Project Study Area and sensitive to the concerns of local interests, the broader public, Indigenous communities, and agencies.

The “*Alternative Methods*”, along with the “*Do Nothing*” *Alternative*, will be assessed and evaluated on their ability to achieve the Project Vision and Objectives. *Evaluation criteria* and indicators will also assess the potential for negative environmental effects and will address all components of the *environment* (as defined by the EA Act). A Preferred Alternative will be selected that best meets the overall Project Vision and Objectives, while minimizing negative impacts. Throughout these steps, there will be opportunities for Indigenous, public, and stakeholder input as described further in Section 6.



Step 1: Determine the Footprint for the Alternatives

Based on problems and opportunities identified in Section 2, footprints will be established for each Alternative within each segment which represent the extent of changes to the landscape. Determining the footprint is comprised of two key inputs: risk lines and shoreline protection.

Risk lines are identified at the *toe of the Bluffs* and at the *top of the Bluffs*. At the *toe of the Bluffs*, the risk line identifies a rationally estimated extent of talus accumulation (or the area of accumulated earth from a slope failure); in other words, the line beyond which public safety risks have been adequately mitigated (as is the responsibility of the City of Toronto and TRCA). At the *top of the Bluffs*, the risk line is the rationally estimated extent of crest slope migration. Risk lines are calculated based on technical guidelines (established by MNR), geotechnical engineering criteria, observations, and professional judgement. Trail options are to be lakeward of the risk line at the *toe of the Bluffs* and shoreward of the risk line at the *top of the Bluffs*.

Shoreline protection works are then identified based on accommodating safe public access beyond the risk line for shore-based access and where existing works need to be enhanced or repaired. Shoreline protection works are developed through coastal engineering modelling and will be designed to be resilient to climate change.

Step 2: Identification of Desired Design Elements

The Alternatives must be able to provide safe and beneficial uses for both human recreation and the ecological system. To this end, there are a number of desired design elements that may be included in each Alternative as follows:

- New and/or enhanced access points and multi-use trail connections to and along the waterfront either at the shore and/or at the *top of the Bluffs* and/or on street.
- Public spaces/recreational attributes (opportunities for programmable spaces, placemaking, etc.).
- Shore protection works.
- *Erosion* protection and slope stability measures.
- Aquatic and terrestrial habitat enhancements.
- Lakefill to facilitate any of the above.

The range of footprints determined in the previous step will be refined in this step through an iterative process to include each of the design elements listed above. A key aspect of this step will be to optimize the balance between access, safety, human use, terrestrial and aquatic habitat gains, and value for cost. The designs will be developed with a sensitivity to the ecological and cultural heritage of the shoreline.

The outcome of this step will be the development of a series of project Alternatives which respect the range of footprints defined in Step 1 above and address the SBW Project objectives. Coarse level habitat restoration, public realm opportunities and trail/access locations will be defined for each Alternative such that differences between the Alternatives can be assessed.

Step 3: Development and Evaluation of Short List of Alternatives

The Alternative SBW Project configurations will be developed for each project segment and described in sufficient detail to distinguish between them for the construction and establishment phases. Should there be a long list of Alternatives for any segment (i.e., more than 5), the Alternatives may be screened to identify a shorter list for evaluation. The purpose of the comparative evaluation is to choose for each segment the Alternative which has the greatest potential to meet the SBW Project objectives and minimize negative impacts. The comparative evaluation will be undertaken using the preliminary *evaluation criteria* and indicators presented in Table 4-1, which will be refined and finalized as part of the EA based on public and agency review. The criteria are organized by the SBW Project objectives and represent all aspects of the *environment* as per the Ontario *EA Act*. The criteria and indicators are objective-based, meaning they are focused on measuring the extent to which the Alternatives achieve the SBW Project objectives.

For all Alternatives, mitigation measures to lessen negative effects or enhance positive benefits will be identified. In some instances, this will be part of the design for each Alternative, for example different types of shorelines provide different types, quantity and quality of habitat. For construction-related impacts, a standard set of mitigation measures will be detailed. For each indicator, each Alternative SBW Project configuration will be given a qualitative score of 'least preferred', 'moderately preferred', or 'most preferred'. The evaluation will result in the identification of a Preferred Alternative for each segment

based on the *evaluation criteria* using a reasoned trade-off analysis which explicitly considers trade-offs between the Alternatives and relative advantages and disadvantages. Public and agency input will be sought on the Alternative SBW Project configurations and the decision method. The analysis by indicator will be presented in an evaluation matrix. Once a Preferred Alternative is chosen for each segment, they will be joined together to create the overall Preferred Alternative.

Step 4: Refine and Undertake Detailed Assessment of the Preferred Alternative

As noted above, the Alternative SBW Project configurations will only be described in sufficient detail to distinguish between them (i.e., a conceptual level of design). Thus, it is anticipated that the Preferred Alternative will need to be refined and construction will be defined in more detail to undertake the detailed assessment. The detailed assessment will result in a final discussion of how the Preferred Alternative meets the SBW Project objectives, a summary of potential environmental effects and mitigative measures, and an assessment of advantages and disadvantages.

Table 4-1: Preliminary Comparative Evaluation Criteria and Indicators

Environmental Component (Criteria)	Sub-Criteria	Indicators	Sub-Indicators	Indicator Definitions	Data Sources/Assessment Method
OBJECTIVE 1: Conserve, create and enhance terrestrial and aquatic natural features and linkages (Natural Environment)					
Natural Environment	Effects on aquatic habitat	Extent of aquatic habitat enhanced or diminished	Ability to increase shoreline morphology by increasing shoreline irregularity	As supported by long-term monitoring data, open coast shorelines with more complex profiles result in increased species richness. Each Alternative results in an impact to shoreline morphology. Increasing the morphology via increasing irregularity improves essential aquatic habitat and benefits local resident and migratory fish while providing optimal functional open coast habitat. In particular, a complex shoreline profile provides for increased foraging opportunities, cover, and shelter.	- TRCA on-going fish monitoring surveys - Measurements of existing and proposed shoreline features using CAD and/or ArcGIS
			Ability to increase shoreline substrate type diversity	As supported by long-term monitoring data, more diverse open coast shorelines support increased species richness. Each Alternative results in an impact to shoreline substrate type composition. Increases in the relative amounts of cobble and boulder substrate, in relation to sand, brings the shoreline closer to historical conditions. This increased diversity improves essential aquatic habitat and benefits local resident and migratory fish, while providing optimal functional open coast habitat. In particular, increased shoreline substrate diversity provides more foraging, cover and shelter opportunities for fish.	- TRCA on-going fish monitoring surveys - Measurements of existing and proposed shoreline features using CAD and/or ArcGIS
			Potential for aquatic habitat loss or modification	Alternatives differ in terms of their overall footprint, as indicated by their area of infill. Alternatives with the most infill have the potential to result in the highest amount of existing habitat lost or modified. As this does not consider the quality of the habitat, and as the Alternatives’ conceptual designs can be refined to minimize the footprint overall, this Indicator considers the potential for habitat loss only, as compared to the other Alternatives. Alternatives with a small amount of or no infill will be ranked higher.	- TRCA on-going fish monitoring surveys - Measurements of existing and proposed shoreline features using CAD and/or ArcGIS
	Effects on terrestrial habitat	Extent of terrestrial habitat attributes created, enhanced, or diminished	Potential to create a suitable land-water interface for terrestrial species	Potential exists to create land-water interface that benefits terrestrial species. Where the interface provides ease of access for wildlife and is always out of the water, the Alternative is preferred.	Measurement of existing and proposed shoreline features using CAD and/or ArcGIS
			Potential to create or enhance terrestrial habitat	Potential exists to create or enhance terrestrial habitat attributes. Alternatives which create or enhance more terrestrial habitat are preferred.	- TRCA terrestrial habitat surveys - Measurements of existing and proposed terrestrial habitat features such as meadows, wetlands, and forests using CAD and/or ArcGIS

Environmental Component (Criteria)	Sub-Criteria	Indicators	Sub-Indicators	Indicator Definitions	Data Sources/Assessment Method
			Impact to vegetation communities of concern (note: vegetation communities are key criteria for designation of ESAs and ANSIs)	Different Alternatives have varying levels of impact on vegetation communities of concern. Vegetation communities provide habitat for both flora and fauna species.	- TRCA terrestrial habitat surveys - Measurements of existing and proposed terrestrial habitat features such as meadows, wetlands, and forests using CAD and/or ArcGIS
	Effects on terrestrial and aquatic Species at Risk (SAR)	Potential for impact on terrestrial and aquatic Species at Risk (SAR)	Potential effects to habitat for terrestrial SAR	Potential terrestrial SAR present in the Project Study Area includes Bank Swallows. Alternatives that benefit SAR and minimize negative impacts will be preferred.	- TRCA terrestrial habitat surveys - Measurements of existing and proposed terrestrial habitat features such as meadows, wetlands, and forests using CAD and/or ArcGIS
			Potential effects to habitat for aquatic SAR	Potential aquatic SAR present in the Project Study Area include American Eel and Atlantic Salmon. Alternatives that benefit SAR and minimize negative impacts will be preferred.	- TRCA on-going fish monitoring surveys - Measurements of existing and proposed shoreline features using CAD and/or ArcGIS
OBJECTIVE 2: Manage public safety and property risk (Social & Technical Environment)					
Technical Environmental	Effects on public safety and property	Ability to minimize public safety risk and property loss as a result of slope and shoreline erosion/failure	Ability to provide a trail lakeward of risk line along the shoreline and shoreward of the risk line along the top of the bluff	Bluff erosion processes can result in slope failure (e.g., landslide). The improvement of existing trails and development of new trails along the toe/top of the slope could result in public safety risks as a result of the potential for slope failure. Alternatives that better accommodate this risk are more preferred.	- Risk line calculation based on MNR guidance - Measurement of length of trail outside of risk lines using CAD and/or ArcGIS
			Ability to address the potential loss of public property and infrastructure as a result of slope (slope <i>crest migration</i>) and shoreline <i>erosion</i> /failure	Bluff erosion processes can result in slope failure (e.g., landslide), including loss of tableland and erosion of the Bluff face. There are varying levels of risk for slope failure within the Project Study Area which can impact public property and infrastructure. Different Alternatives will have different levels of shoreline and slope erosion control protection.	- Geotechnical assessment of need for erosion control protection - Identification of locations where protection is not possible and is possible
			Ability to minimize public safety risk for trails along water’s edge	Potential for trail to experience wave uprush or overtopping	Various planning documents identify a trail along the water’s edge as a long-term objective. Trails along the water’s edge may be susceptible to wave uprush or overtopping, which can result in trail closures and dangerous conditions for users. Trails that are designed to experience less frequent, or no overtopping are preferred.
Social Environment	Effects on Emergency Services access along the waterfront	Ability to improve Emergency Services access to the waterfront	Ability to provide Emergency Services access along the waterfront	Currently Emergency Services vehicle access to the shoreline is largely limited to the Fishleigh Informal Access Road and Bluffer’s Park along Brimley Road, and to the tablelands at various parks. Alternatives which provide opportunity for additional Emergency Services vehicle access along the entire shoreline Segments are more preferred.	- Discussions with EMS - Viability of new access points to shore to accommodate EMS vehicle based on geotechnical and environmental feasibility (through geotechnical assessments and existing terrestrial ecology data)
OBJECTIVE 3: Enhance Waterfront Experience (Social Environment)					

Environmental Component (Criteria)	Sub-Criteria	Indicators	Sub-Indicators	Indicator Definitions	Data Sources/Assessment Method
Social Environment	Effects on public access to the waterfront	Improve public access to the waterfront	Potential to provide continuous formal public access along the shoreline	As mentioned above, various planning documents identify a trail along the water's edge as a long-term objective. The Project considers a trail network along the shoreline that provides access to both the top and toe of the Bluffs. Improved public access along the shoreline includes consideration for increased formal public access and continuous connections. Alternatives which are better able to provide continuous formal public access along the water's edge are preferred.	Assessment of extent to which continuous trail is possible, through coastal and geotechnical assessments, along with existing terrestrial/aquatic ecology data
			Potential to provide formal public access from tableland to the shoreline	Various planning documents identify access to the water's edge as a long-term objective. The Project considers improved public access to the shoreline. Alternatives which are better able to provide formal public access to the shoreline are preferred.	Assessment of number and types of access provided between tablelands and the shore, the feasibility of which will be determined through on-going geotechnical assessments and existing terrestrial ecology data
			Ability to accommodate a high-capacity multi-use trail	Within the Greater Toronto Area, the Waterfront Trail experiences significant demand, and user conflicts along shared paths have been reported. The provision of a high-capacity multi-use trail is recognized as an opportunity to alleviate these pressures. While existing physical and environmental constraints may limit the ability to accommodate such a trail, Alternatives which provide the greatest opportunity for a primary or high-capacity multi-use trail outside the risk line within the Segment are preferred.	ArcGIS-based assessment of extent to which continuous high-capacity multi-use trail is possible
			Ability to provide for all ages and abilities	Improved access along the shoreline includes opportunities to provide physical accessibility, by minimizing grades where possible and if not possible providing rest stops and other modifications. Alternatives which are better able to accommodate a range of abilities are preferred.	ArcGIS-based assessment of lengths and locations of trail where accessibility may be limited or modified
			Potential to provide direct public access to and into the water	The public desires opportunities for direct access to the water. Alternatives that provide direct access to the water are more preferred.	Measurement of number of locations where direct access to the water in provided using CAD and/or ArcGIS
	Effects on recreational use of the waterfront	Potential for changes to the use of the waterfront for recreation	Potential for change to sandy shorelines	The existing sandy shorelines just east of R.C. Harris (aka Secret Beach) are valued by the public. Potential changes to sandy shorelines (e.g., reducing the size of the sandy shoreline) should be minimized and Alternatives that achieve this and provide opportunities for enhancement will be considered preferred.	Measurement of extent of change to existing beaches using CAD and/or ArcGIS
			Potential for impact to surfing	Surfing is an increasingly popular activity in the Project Study Area, particularly around the Needles. Alternatives that minimize the effect on surf areas will be preferred.	- Assessment of change to accessibility to beaches for surfing using CAD and/or ArcGIS - Coastal analysis on changes to wave direction and energy for surfing beaches
			Opportunity to create activity nodes or gathering spaces.	The nature and location of public realm spaces created will determine the ability to program the space. Proximity to access points and the size of the site will all be taken into consideration. The SBW project has the opportunity to create activity nodes that integrate tableland and shore based public realm opportunities and use access points as activity nodes. These spaces can be used for Indigenous experiences and activities. Alternatives with a range of activity nodes or gathering spaces in proximity to access points will be preferred.	Number and location of activity nodes created, captured as part of an opportunities/constraints mapping analysis during the EA
	Effects within the community	Ability to integrate within community	Proximity of access points to transit stops	The SBW project should be accessible by transit to minimize the need for parking. Alternatives with access points within proximity to transit stops will be preferred.	ArcGIS-based analysis of number of transit stops within a 10-minute walk of an access point

Environmental Component (Criteria)	Sub-Criteria	Indicators	Sub-Indicators	Indicator Definitions	Data Sources/Assessment Method
			Proximity of access points to existing and proposed cycling network	The SBW project should be accessible by bikeways to minimize the need for parking. Alternatives with access points within proximity to the cycling network will be preferred.	▪ ArcGIS-based analysis of proximity of bikeways to access points ▪ Assessment of direct connections to existing or proposed bikeways, captured as part of an opportunities/constraints mapping analysis during the EA
			Proximity of access points to parks	Improved connectivity between access points and existing parks will improve integration of recreational spaces; Ability to link with parking, community facilities and other amenities has the potential to create integrated public spaces and will be preferred.	▪ Assessment of direct connections of access points to existing or proposed parks, captured as part of an opportunities/constraints mapping analysis during the EA
	Effects on viewsheds or scenic lookouts	Opportunities for viewsheds or scenic lookouts	Number of viewsheds or scenic lookouts created	Opportunities to view the lake from the Bluffs or to view the Bluffs from the shore are desired to deter unmanaged access to seek those views. Alternatives which create more viewsheds or scenic lookouts will be more preferred.	▪ Assessment of number of viewpoints created, modified or removed, captured as part of an opportunities/constraints mapping analysis during the EA
OBJECTIVE 4: Consistency and co-ordination with other initiatives (Natural, Social & Cultural Environments)					
Social & Natural Environment	Effects on City and other agency plans and initiatives	Ability to integrate with City and other agency plans and initiatives	Ability to integrate with new and proposed plans or initiatives	There are many plans and initiatives underway within the Project Study Area including for example: the Scarborough Waterfront Project and improvements to Toronto Water Infrastructure. The Alternatives will need to integrate and accommodate these other initiatives. Alternatives that can best accommodate these plans/initiatives will be preferred.	▪ Review of plans and initiatives ▪ Assessment of ability to integrate with and accommodate other initiatives
			Consistency with the City of Toronto’s 2022-2032 Reconciliation Action Plan	The Reconciliation Action Plan guides the actions that the City of Toronto will take from 2022 to 2032 and beyond to achieve truth, reconciliation, and justice to the extent that it remains consistent with the self-identified needs of Indigenous communities in Toronto. Alternatives which are able to support these actions are preferred.	▪ Assessment of ability to support needs of Indigenous people in Toronto

Environmental Component (Criteria)	Sub-Criteria	Indicators	Sub-Indicators	Indicator Definitions	Data Sources/Assessment Method
			Ability to integrate with existing Toronto Water infrastructure	Toronto Water Infrastructure must continue to function with any Alternative proposed. The Alternatives which are compatible with the operation of existing infrastructure, including improving access for maintenance, will be preferred.	Assessment of potential impacts of Alternatives on the function of existing Toronto Water infrastructure
			Consistency with the goals of the Fish Community Objectives for Lake Ontario	The Fish Community Objectives for Lake Ontario were created to maintain and increase target fish species in Lake Ontario. Alternatives which are able to advance these objectives are preferred.	Assessment of how each Alternative creates habitat to support fish community objectives
			Consistency with the objectives of the City of Toronto's Cycling Network Plan	The City of Toronto's Cycling Network Plan identifies implementation priorities. Priorities for the Project Study Area include studies of potential bikeway along Kingston Road between Warden Avenue and Cliffside Drive. Alternatives that support the implementation of this priority or that provide connectivity to future bikeways are preferred.	Assessment of connections to proposed bikeways
			Consistency with the Integrated Shoreline Management Plan (ISMP)	The 1996 ISMP identified a series of recommendations for the Project Area including: - Preserve the Needles formation as an eroding geological feature. - Develop long-term shoreline stabilization. - Link with economic activity along the Kingston Road corridor. - Improve natural inland linkages and trail links with neighbouring segments. - Improve public parking. Alternatives which support these recommendations are preferred.	Assessment of how each Alternative supports recommendations
			Consistency with the 2022 City of Toronto Next Phase of Waterfront Revitalization vision	The 2022 City of Toronto Next Phase of Waterfront Revitalization vision sets out the priorities for the broader waterfront from Etobicoke to Scarborough. Alternatives that are consistent with the priorities for waterfront revitalization are preferred.	Assessment of how each Alternative supports priorities
			Consistency with City of Toronto's TransformTO Net Zero Strategy and Resilience Strategy	TransformTO Net Zero Strategy and Resilience Strategy identify a range of goals to minimize carbon emissions and ensure city assets are resilient to the effects of climate change. Alternatives that are consistent with the Net Zero Strategy and Resilience Strategy will be preferred.	Assessment of how each Alternative is consistent with the strategy in creating infrastructure resilient to climate change
			Consistency with City of Toronto Wet Weather Flow Master Plan (WWFMP) and Basement Flooding Studies	Key objectives of the WWFMP include improving water quality along the waterfront, beaches and watercourses, protection of vulnerable City sewer and water infrastructure from erosion and reducing the risk of flooding to private and City properties during extreme wet weather. Several Basement Flooding studies undertaken by the City identify recommendations to address these objectives in Southwest Scarborough. Alternatives that support the objectives from the WWFMP and the recommendations from the Basement Flooding studies are preferred.	Assessment of how each Alternative supports recommendations
			Compatibility with existing communities	Residential and open space land uses exist within the Project Study Area. Alternatives which minimize impacts on existing residential areas are more preferred.	Assessment of potential nuisance impacts from construction and use of the trail and park spaces on local residents and communities
Natural Environment	Effects on source water protection areas	Ability to protect source water protection areas	Potential for impacts on water quality at water intake pipe locations	Water supply intake pipe locations are considered as source water protection areas by the Province. Water quality within these source water protection areas cannot be negatively impacted.	Reference to past water quality modelling along the Scarborough waterfront, which showed no water quality concerns unless new embayments were created as

Environmental Component (Criteria)	Sub-Criteria	Indicators	Sub-Indicators	Indicator Definitions	Data Sources/Assessment Method
					part of proposed shoreline treatments If new embayments are created as part of a proposed shoreline treatment, water quality will be assessed by comparing water exchange rates for the existing versus proposed shoreline configurations using the CMS circulation model
Cultural Environment	Effects on archaeological resources, built heritage resources, and cultural heritage landscapes	Potential impact on archaeological resources, built heritage resources, and cultural heritage landscapes	Potential to impact known or potential archaeological resources and areas of archaeological potential	Impacts to the disturbance or destruction of archaeological resources (terrestrial and/or marine) need to be minimized or mitigated. Alternatives that best achieve this will be considered as preferred.	- Stage 1 and potential Stage 2 Archaeological Assessment - ArcGIS-based assessment of potential for each Alternative to disturb archaeological resource
			Potential to impact known or potential built heritage resources and cultural heritage landscapes	Impacts to the displacement of known and/or potential built heritage resources and /or cultural heritage landscapes by removal and/or demolition and or disruption need to be minimized or mitigated.	- Built heritage inventory and city registry - Technical cultural heritage studies - ArcGIS-based assessment of potential for each Alternative to disturb heritage resources and cultural landscapes
			Potential to impact or recognize traditional land uses and valued cultural features	It is important to recognize any features or areas in the Project Study Area that have traditional/cultural importance to Indigenous communities. Further, opportunities to celebrate these features and educate the public about them will be explored. Alternatives that best achieve this will be preferred.	- Discussions with Indigenous people to identify features with traditional/cultural importance - Identification of opportunities to create new features of traditional/cultural importance - Assessment of potential for each Alternative to disturb, enhance or create these resources
OBJECTIVE 5: Achieve value for cost (Technical Environment)					
Technical Environmental	Cost	Estimated capital cost	Estimated cost to construct (relative to each other)	High relative costs for the Alternatives have been developed. Less expensive Alternatives will be scored higher.	Coarse level cost estimate
			Potential amount of water lot and property acquisition required (relative to each other)	Some Alternatives could require Crown water lots (measured between the outmost extent of the Alternative and the shoreline), private property and/or easements across private property. Alternatives that minimize impacts to Crown water lots and private property are Preferred.	ArcGIS-based analysis to measure number and extent of property requirements

* Criteria and indicators will be refined through the EA as Alternative Methods are developed, and potential effects are better understood.

5. DESCRIPTION OF THE ENVIRONMENT

The purpose of Section 5 is to present an overview of the *environment* potentially affected by the proposed SBW Project, to create familiarity with issues to be addressed and the complexity of the *environment* likely to be affected by the SBW. All aspects of the *environment* relevant to the project¹ and its potential effects within the Project Study Area (Figure 1-1) have been described in this chapter. The chapter is divided into three sub-sections which capture different components of the *environment*:

1. Physical environment characteristics, which describe the coastal and geotechnical processes acting on the Project Study Area;
2. Natural environment conditions, which include terrestrial and aquatic habitat; and
3. Socioeconomic components, which include existing and planned land use, land ownership, archaeology, cultural heritage, recreation and Aboriginal interests.

The description of the existing *environment* is based on the information from a number of studies, which have been referenced in the applicable sections. Additional field surveys were also undertaken where required. It is not anticipated that additional studies will need to be completed to understand existing environmental conditions. Should additional studies be required, they and the results will be documented in the EA. Where appropriate future environmental conditions are also discussed. For most components of the *environment*, existing conditions within the Project Study Area are described. Where appropriate, conditions within the broader regional study area are described. As required, these studies will be updated during the EA.

5.1 Physical Environment

5.1.1 Topography

Within the Project Study Area, the topographical areas are divided, for the most part, by the tableland, the slope face, the slope toe, and the waterfront. The tableland increases in elevation from the west to the east from approximately Elev. 78.5 m (at the R.C. Harris Water Treatment Plant) to Elev. 153.5 m (at Brimley Road South). In general, the slope face rises steeply from the waterfront to the tableland forming the Bluffs. The elevation of the Bluffs is lower at the west end and higher at Bluffer's Park. Along the Bluffs the slope face moves lakeward or landward as a result of *erosion* and the creation of gullies. From the *top of the Bluffs* to Kingston Road the change in elevation is more gradual.

The majority of the slope face is over steepened, becoming near vertical in some areas (most notably at the Needles).

The toe of the slope is the meeting point between the slope face and the water's edge. The toe of the slope is generally separated from the edge of water by beaches, *groynes*, *revetments*, or infilled land, again with the notable exception of the Needles where it is directly adjacent to the lake and subject to wave action.

¹ Components of the environment not relevant to the project such as Noise, Air Quality, GHG emissions, are not considered.

The exception to the above-described topography is the area west of R.C. Harris Water Treatment Plant. The backshore area west of the plant is gently sloping from the water line up to Queen Street and beyond. The elevation of Queen Street East is in the order of 90 m and this rise occurs over approximately 300 m distance. The slope of the backshore is suitable for residential development. There is no clear high top of bank. The shoreline is formed by man-made headlands and beaches. R.C. Harris Water Treatment Plant was built into a transition between these two types of shorelines.

5.1.2 Geology

The geological formations present across the Project Study Area are presented in Table 5-1.

Table 5-1: Project Study Area *Stratigraphy*

Formation	Description
Earth Fill	Variable earth fill may be placed across the Project Study Area. Earth fill identified includes rubble fill placed on the slope face or infilling at the toe of slope.
Iroquois Sand (Ir)	Gravelly sands to sandy gravel.
Thornccliffe Formation Clay (Th)	Glacial, fluvial, and lacustrine clay deposits interbedded with till sheets.
Thornccliffe Formation Sand (Th)	Glacial, fluvial, and lacustrine sand deposits interbedded with till sheets.
Meadowcliffe Formation Till (M)	Silty clay glacial till, which is well jointed.
Seminary Formation Till (S)	Unsampled, assumed to be similar to Sunnybrook Till.
Sunnybrook Formation Till (Sb)	Silt glacial till. This unit displays well developed joint sets. Around the Fishleigh Drive area, this glacial till was reported to have higher strength.
Scarborough Formation Sand (Sc)	Fine to coarse sand to sandy silt and grey to brown. Silt laminations present in unit.
Scarborough Formation Clay (Sc)	Silty clay to silt and dark grey to brown. Coarser layers present in unit.
Don Formation (D)	Gravelly sands within the Project Study Area; variable across the Greater Toronto Area.
York Till (Y)	Silt and clay shale rich diamict till.

Below the overburden soils described above, Georgian Bay Formation bedrock is anticipated at approximately Elev. 62 to 60 ±m across the Project Study Area.

5.1.3 Slope Stability

The Scarborough Bluff landform is at variable stages of stabilization across the Project Study Area. As the Bluffs continue to stabilize, the movement of soil poses a risk that must be considered. An assessment of the existing slope stability is critical in determining hazardous areas along the tableland and at the toe of slope.

The Scarborough Bluffs have been over steepened from historical toe *erosion* caused by wave action from Lake Ontario. In some locations (e.g., the cove at Bluffer's Park at the eastern extent of the Project Study

Area), this process is still ongoing. Shoreline *erosion* protection has been constructed over the majority of the Project Study Area, reducing or eliminating toe *erosion*.

Within the Project Study Area, the stages of stabilization for the Bluffs are summarized as follows:

- **Unstabilized:** Areas characterized as having “no toe *erosion* protection” feature ongoing toe *erosion* from water action from Lake Ontario, slope *erosion* and failure (landslides), and *crest migration*. The only portion of slope in the Project Study Area characterized this way is the unprotected slope immediately west of Bluffer’s Park (the Needles).
- **Early to Middle Stage:** Areas where toe *erosion* protection has been in place for about 10-30± years, the Bluffs are characterized as being in the “early” to “middle” stages of *self-stabilization* through continuing *crest migration* and talus accumulation. In these areas, there is no further toe *erosion*, but slope failure (landslides) and *crest migration* continue to proceed over the long term. The early stage is characterized by some accumulation of talus and vegetation, whereas slopes in the middle stage have more talus and more vegetation and are less steep with fewer sub-vertical scarps.

Within the Project Study Area, the slopes that are characterized as “early” stage include the slope at the east end of Fishleigh Drive. The slopes that are characterized as “middle” stage include Fallingbrook, Toronto Hunt Golf Club, Crescentwood Road, Kingsbury, Springbank, Rosetta McClain Gardens, and the western section of Fishleigh Road.

- **Late Stage to Fully Stabilized:** Where toe *erosion* protection and other stabilization measures are being maintained and have been in place for over 30-40± years, the Bluffs are typically in the “late” stages of stabilization or have fully stabilized (whether naturally, or through slope stabilization measures). In these areas, there is no further toe *erosion*. Slope failures are less likely to occur (although they are not impossible) and the *crest migration* rate is effectively reduced to near zero, provided the slope establishes and maintains a vegetative cover and toe and surficial *erosion* conditions do not substantially change.

Within the Project Study Area, the slopes that meet these criteria include the shore immediately east of R.C. Harris Water Treatment Plant to Rockaway Crescent and Bluffer’s Park.

The shorelines of R.C. Harris Water treatment plant and the shoreline west of it within the Project Study Area are not included in this classification.

5.1.4 Surface Water

Natural surface water features such as creeks, and features such as ravines, ditches and marshes provide a preferential flow path for stormwater runoff draining to the shoreline. Surface water runoff can also be captured by outfalls which eventually drain into surface water bodies. These natural and man-made surface water drainage features tend to have flow conditions that change. The flow conditions are dependent on the natural topography and seasonal precipitation. Changes to surface water features in the Project Study Area can serve as early indicators of soil *erosion* and crest recession on the slopes and opportunities for their prevention.

Surface water runoff features such as gullies and minor ravines were observed at multiple locations along the slope face. Most of these features appear to result from surface runoff, and to a lesser degree by groundwater seepage. Along the *oversteepened* sections of the Bluffs (where no minor ravines are present) surface water is transmitted down the slope face via sheet flow which creates open water

channels at the base. This process accelerates *erosion*. The resulting accumulation of surface water drainage was observed flowing into channels draining into the shoreline.

5.1.5 Groundwater

Groundwater in the Project Study Area is recharged by precipitation from as far away as the Oak Ridges Moraine. The broad collection area includes Highland Creek, Don River, and Lake Ontario Waterfront *watersheds*.

The Iroquois Sand, Thorncliffe Sand, and Scarborough Sand are the three main aquifer zones in the Project Study Area. Typically, the Thorncliffe and Scarborough Sands are not completely saturated and do not have high water pressure. Instead, groundwater is usually present in these zones close to their bases. Therefore, pressurized, or confined aquifer issues and their implications for slope stability are generally not included in groundwater considerations.

Groundwater typically flows southward, from the Bluff face into Lake Ontario. Deep ravines and gullies on the Bluff face, which frequently function as drainage features themselves, locally impact groundwater flow. Groundwater is discharged from the slope face when these features sever the Bluffs profile and intersect the aquifer units. As such, the Project Study Area's groundwater discharge presents as small discernible seepage zones along the exposed faces of the numerous gullies and ravines as well as along the exposed faces of the Bluff face.

On the face of the Bluffs, seepage is visible as darker moister zones where there is no considerable vegetation (i.e., places that are *oversteepened*) or where there are intermittent vegetated areas on more stabilized slope faces.

5.1.6 Bathymetry

Bathymetry is the elevation of the lakebed. Bathymetric data are required to develop numerical grids for the wave and sediment transport analyses. A composite bathymetric data set was prepared from Canadian Hydrographic Service field sheets, bathymetric contours provided by TRCA, and topographic contours provided by TRCA. Figure 5-1 shows the composite bathymetric data along the Project Study Area. Nearshore depths throughout the Project Study Area are generally less than 4 m, increasing to greater depths further from shore. Within the greater regional area, depths reach greater than 90 m.

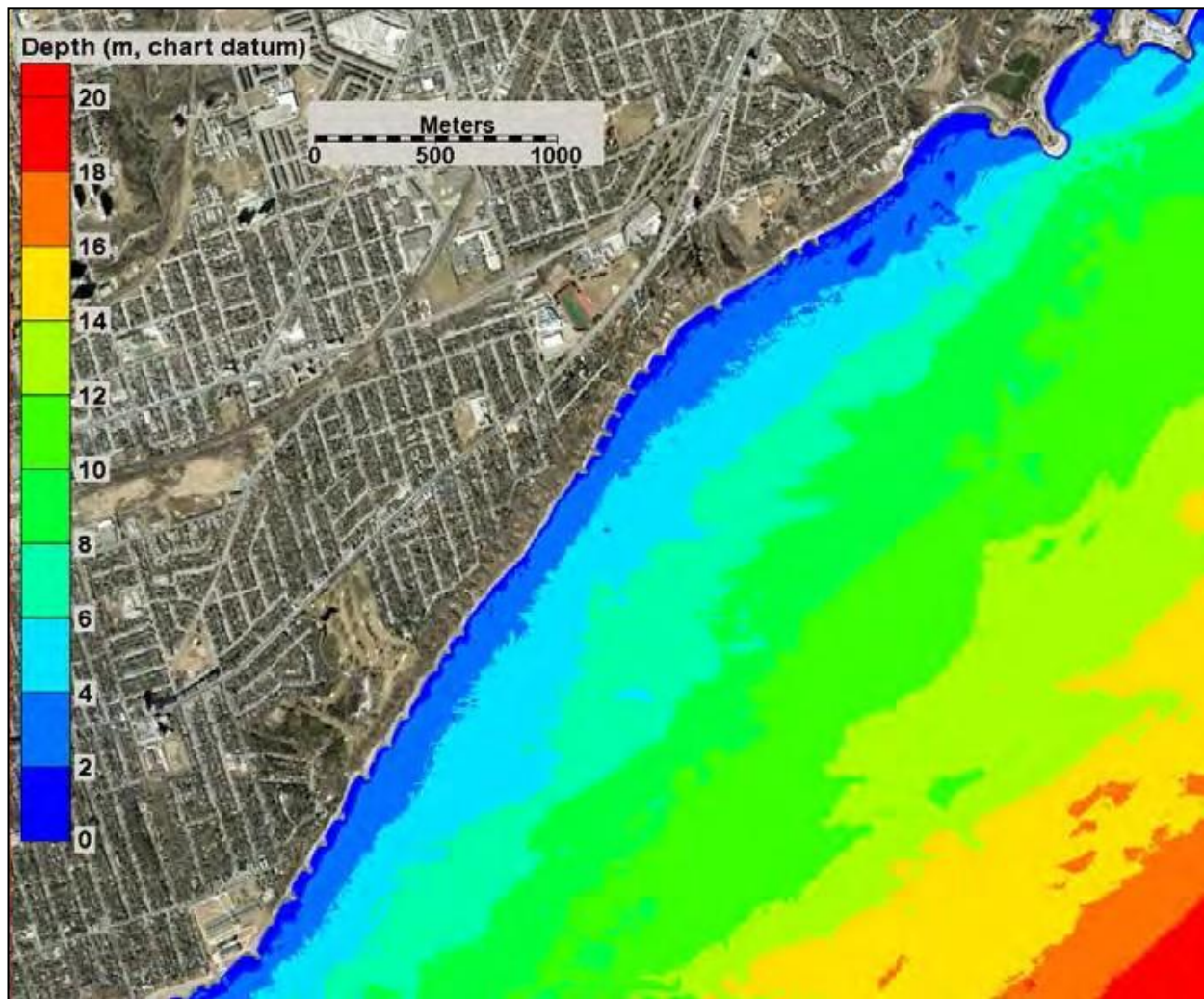


Figure 5-1: Project Study Area Bathymetry

5.1.7 Water Levels

Water levels play an important role in both nearshore wave conditions and alongshore sediment transport. Levels on Lake Ontario fluctuate on short-term, seasonal, and long-term bases. Short-term fluctuations last from less than an hour up to several days and are caused by local meteorological conditions. These fluctuations are most noticeable during storm events when barometric pressure differences and surface wind stresses cause temporary imbalances in water levels at different locations on the lake. These storm surges, or wind-setup, are highest at the ends of the Lake, particularly when the wind blows down the length of the Lake.

Seasonal fluctuations reflect the annual hydrologic cycle which is characterized by higher net basin supplies during the spring and early part of summer with lower supplies during the remainder of the year. Figure 5-2 is a hydrograph for Lake Ontario showing mean monthly water levels. It can be seen from Figure 5-2 that water levels generally peak in the summer (June) with the lowest water levels generally occurring in the winter (December). The average annual water level fluctuation is approximately 0.5 m. Although water levels below chart datum are rare, the lowest monthly mean on record is approximately 0.4 m below chart datum.

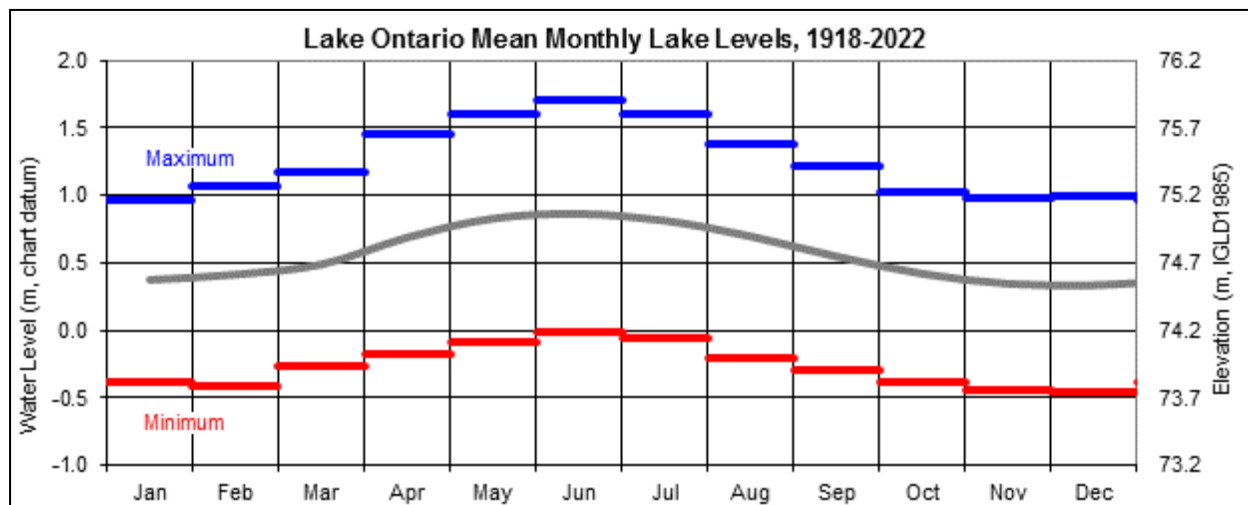


Figure 5-2: Lake Ontario Hydrograph

Long-term water level fluctuations on the Great Lakes are the result of persistently high or low net basin supplies. More than a century of water level records shows that there is no consistent or predictable cycle to the long-term water level fluctuations. Figure 5-3 shows Lake Ontario's mean monthly water levels from 1918 to 2022. Both long-term and seasonal fluctuations can be seen in Figure 5-3.

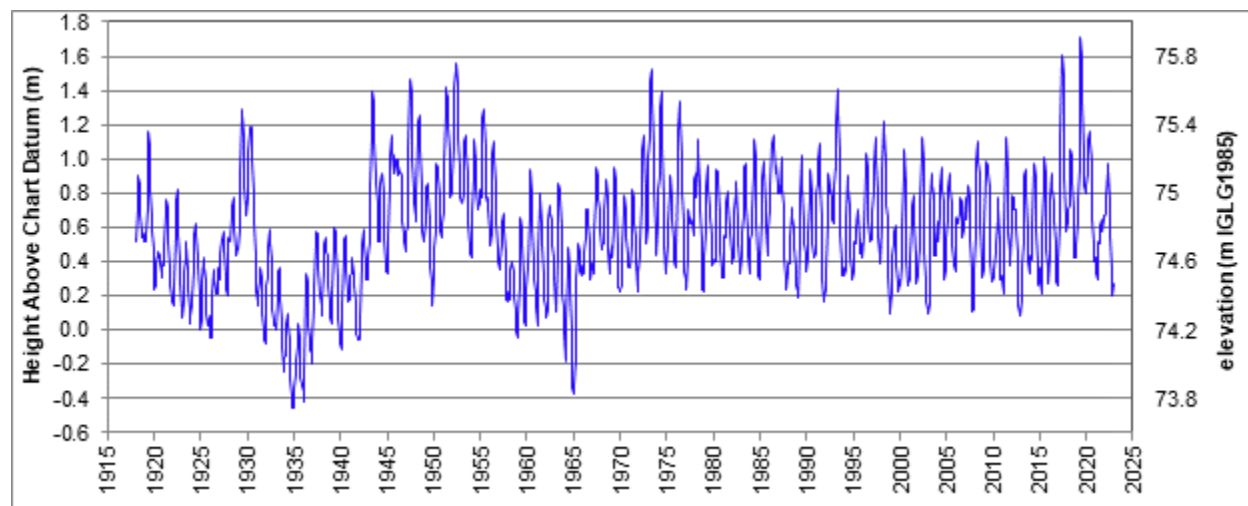


Figure 5-3: Lake Ontario Mean Monthly Water Levels, 1918-2022

5.1.7.1 Design Water Level

TRCA has adopted a design water level of 76.20 m based on the International Great Lakes Datum 1985 for their Lake Ontario shoreline. That value has also been adopted for the SBW Project. It represents the instantaneous water level with an estimated return period of 100-years and contains an allowance for potential changes to Lake Ontario's water levels due to the International Joint Commission's Plan 2014 regulations (International Joint Commission, 2014).

5.1.8 Wind

Wind data are recorded at Toronto Island's Billy Bishop Toronto City Airport. Figure 5-4 is a wind rose showing the frequency of occurrence of different wind speeds by direction of origin. The highest recorded wind speed between 1973 and 2022 was 96 kph and come from the southwest sector.

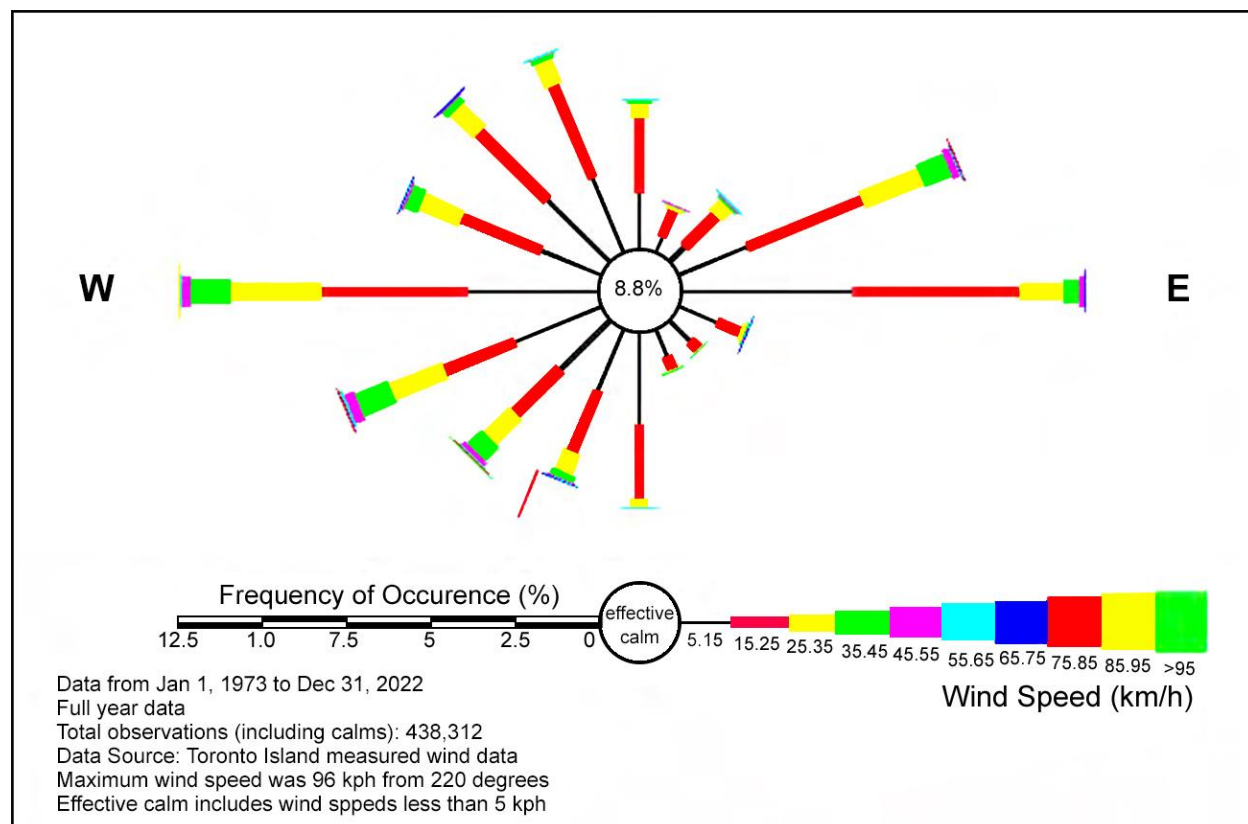


Figure 5-4: Wind Rose for Billy Bishop Toronto City Airport

5.1.9 Offshore Waves

Wave characteristics are an important factor in the design of coastal structures. Due to a scarcity of locally measured wave conditions, a process known as hindcasting is used to develop a long-term wave database suitable for statistical analysis. Hindcasting uses recorded wind data to model the wave conditions expected to have occurred due to those winds. By hindcasting we can produce wave climates which represent expected conditions over a period of years.

A wave hindcast was completed by using wind data recorded at Toronto Island's Billy Bishop Toronto City Airport to produce deep water wave conditions offshore of the site. Wind data recorded from January 1, 1973, to December 31, 2022, were used to produce hourly estimates of the deep-water significant wave height, peak wave period and mean wave direction. Wind data prior to 1973 were not used due to the relatively high occurrence of missing data.

The deep-water wave climate offshore of Scarborough has a bi-modal distribution of the total wave power with predominant easterly and southwesterly peaks. Figure 5-5 shows the directional distribution of the highest hindcast wave heights and the total offshore wave power from the 49-year hindcast.

Approximately 60% of the total power comes from the east and approximately 40% comes from the southwest. There is a greater frequency of south westerly waves, but the longer *fetches* to the east allow the generation of higher wave heights, which contain more wave energy.

Figure 5-6 presents “all-directions” wave height and period exceedance curves which show the percentage of time a given wave height or period is exceeded. Figure 5-7 and Figure 5-8, respectively, show the annual and monthly variation of the total offshore wave power from the 49-year hindcast.

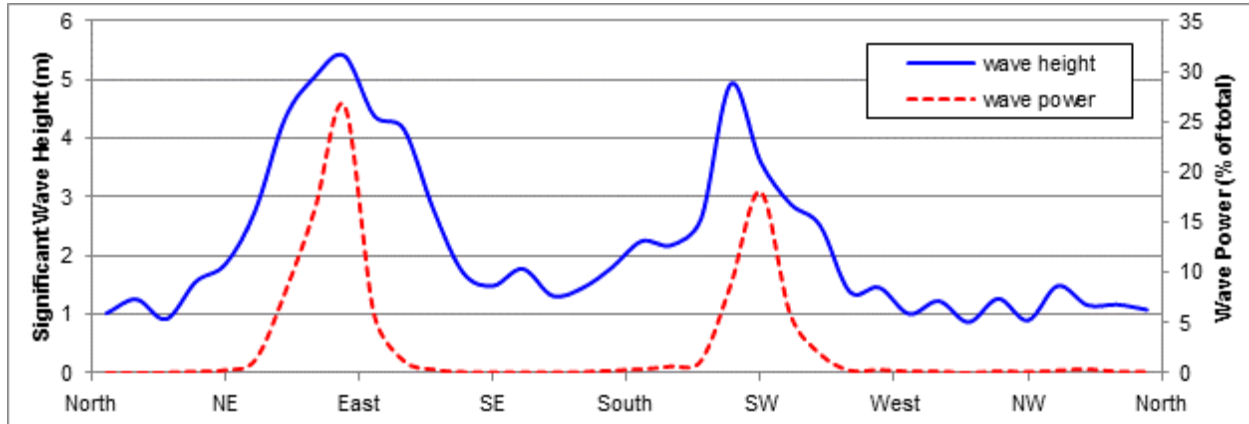


Figure 5-5: Distribution of Highest Hindcast and Total Wave Power

A similar analysis of southwesterly storms yields a 100-year return period wave with a 4.9 m significant wave height and a 9.0 second spectral peak period for waves coming from that sector.

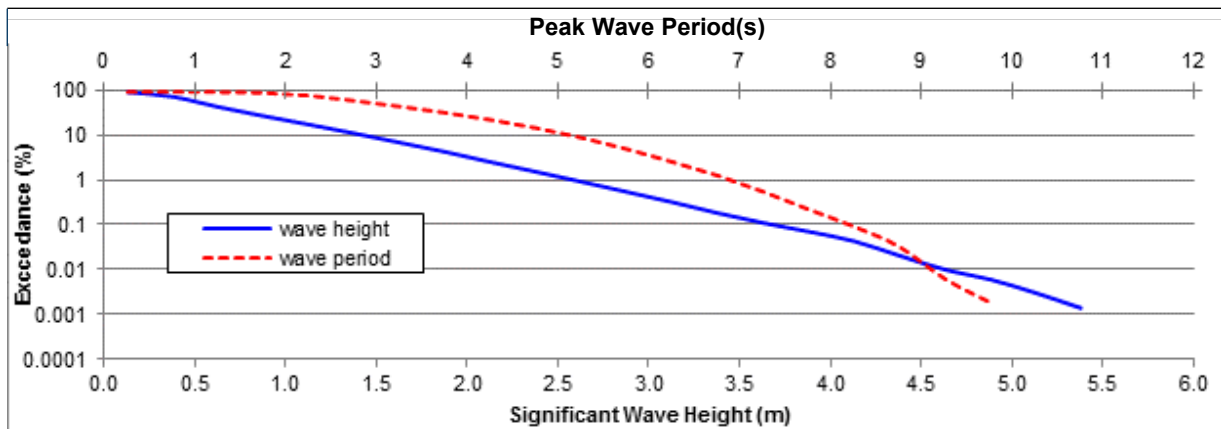


Figure 5-6: All-Directions Wave Height and Period Exceedance Diagram

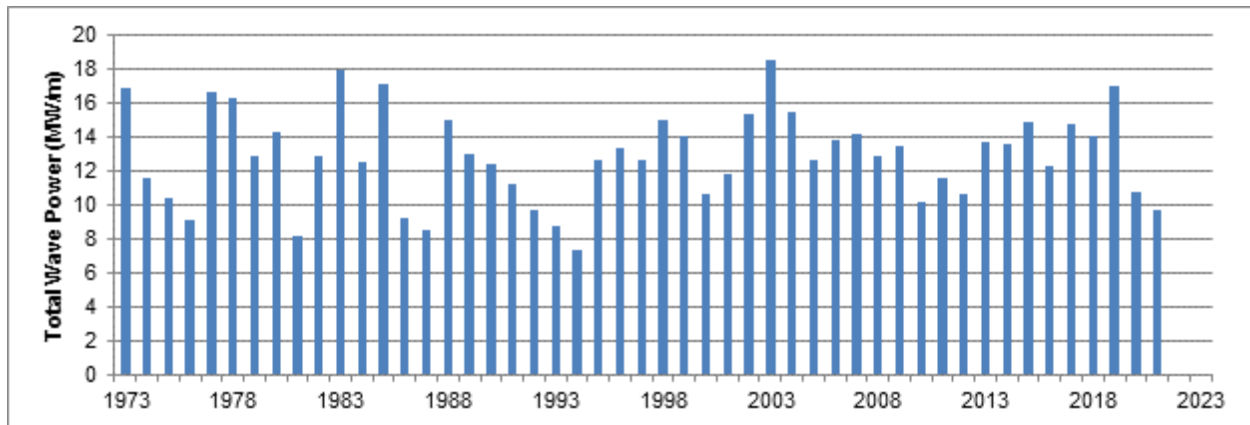


Figure 5-7: Annual Variation of Wave Power

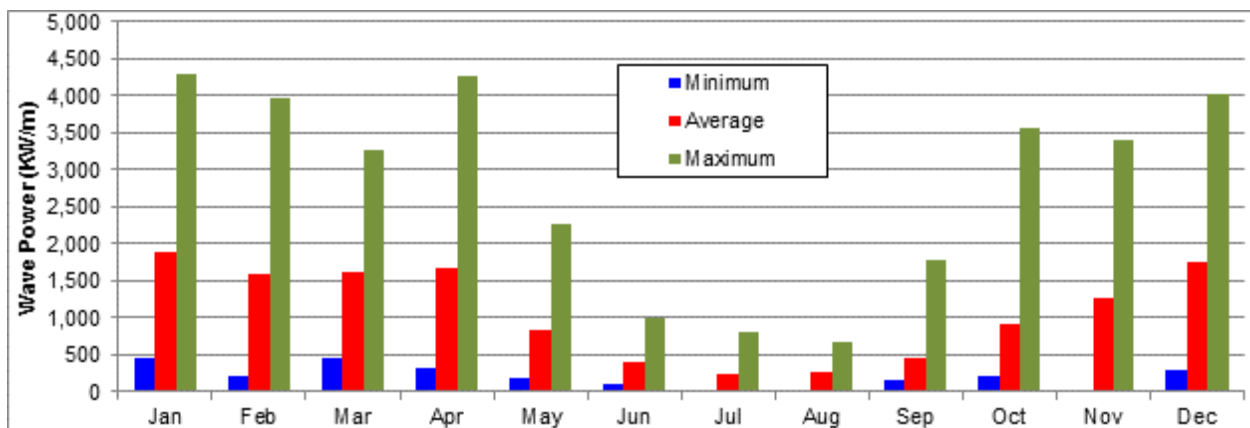


Figure 5-8: Monthly Variation in Wave Power

5.1.10 Nearshore Waves

Nearshore design wave heights were determined by transferring the 100-year offshore wave conditions into the site using the Swan numerical model. Nearshore bathymetry in the wave model was derived from the composite bathymetry data set described in Section 5.1.8.

Design nearshore waves were determined by transferring the easterly and southwesterly 100-year offshore wave conditions at the 100-year instantaneous water level of 76.20 m.

Figure 5-9 and Figure 5-10 are wave height contour and plots showing the Swan model results for the transfer of the easterly and southwesterly 100-year wave conditions. The easterly wave heights govern the nearshore zone of the Project Study Area.

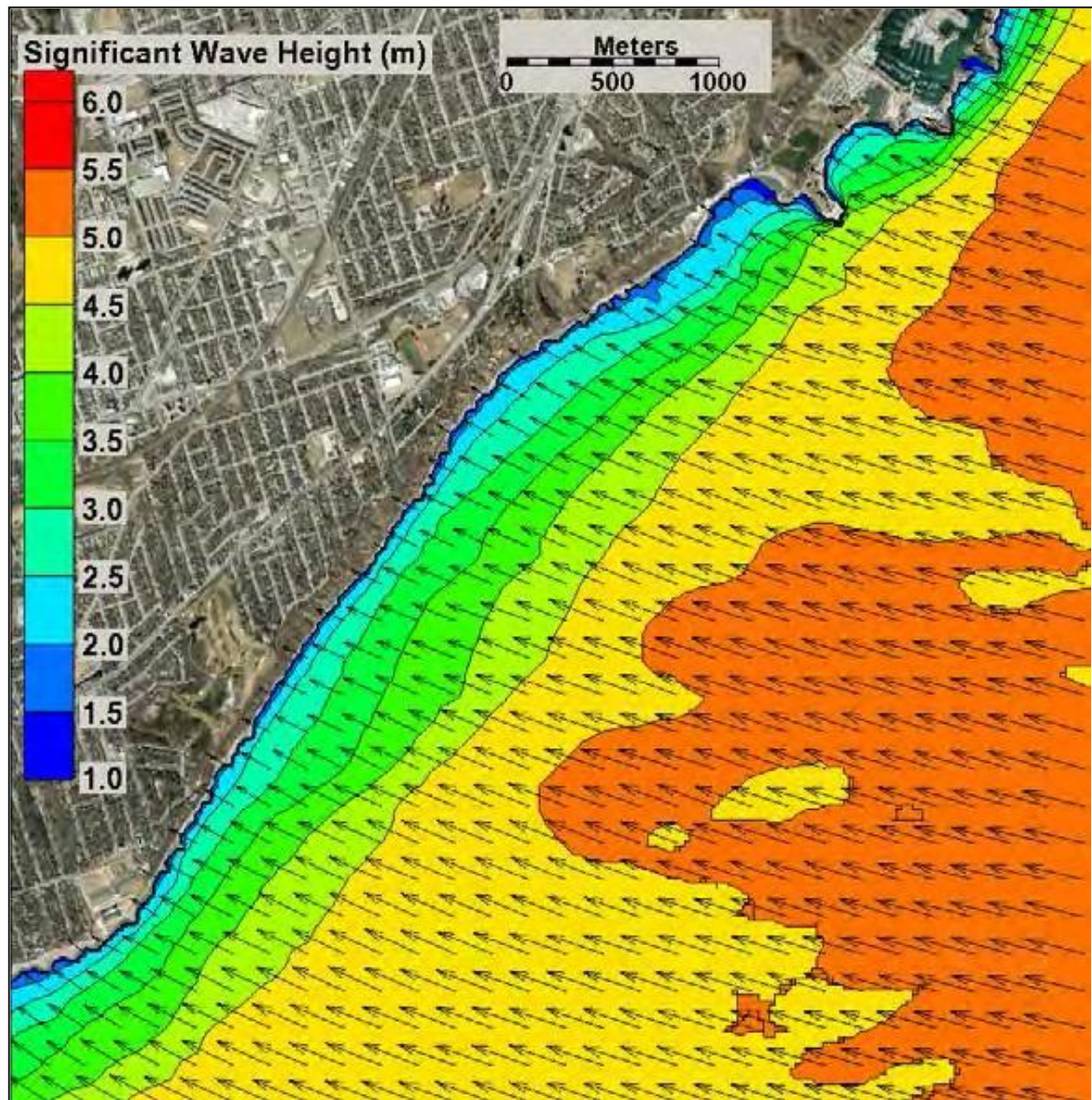


Figure 5-9: Transformation of Easterly 100-Year Wave Condition

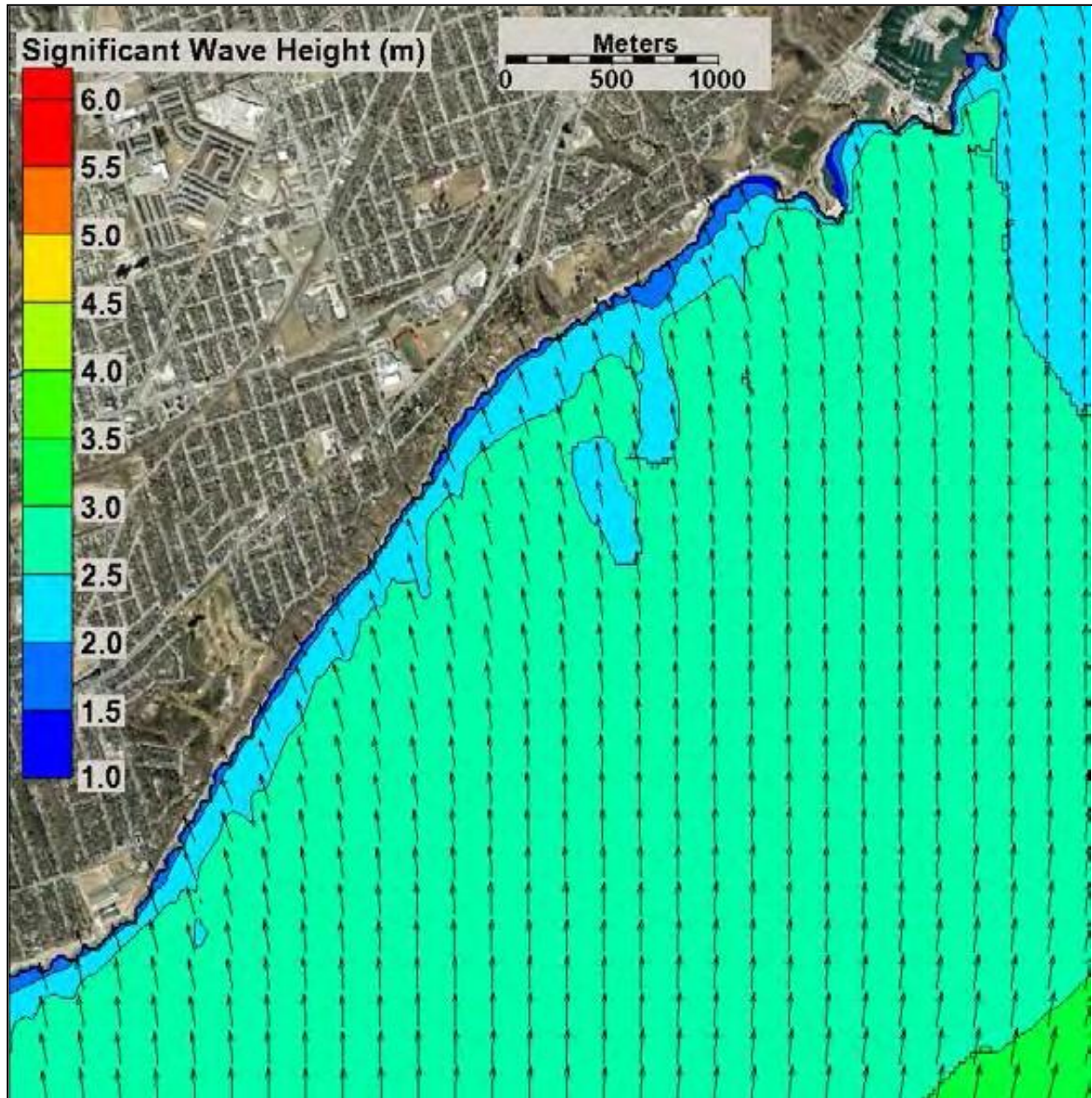


Figure 5-10: Transformation of Southwesterly 100-Year Wave Condition

5.1.11 Littoral Sediment Transport

Littoral sediments are the sediments found within the littoral zone, which is the area between the shoreline and a depth in the order of 6 to 10 m. Littoral sediment transport, also known as littoral drift, is the transport of those littoral sediments by waves and currents. Shorelines can be divided into littoral cells, which are segments of the shoreline where sediment transport is bounded. Each cell has its own sources and sinks and little or no sediment transport takes place between adjacent cells.

The net alongshore sediment transport direction along the Scarborough shoreline is from east to west. East Point and Tommy Thompson Park (Leslie Street Spit) are generally recognized to form the practical

limits of the littoral cell containing the Project Study Area. The headland structures at Bluffer's Park have trapped a significant volume of sand on the updrift (east) side and the structures once formed a near complete barrier to alongshore littoral sediment transport. Fine sand has been bypassing those headlands for a number of years, and it is likely that most medium and coarse sand is also now passing. A planned expansion of the Bluffer's Park headland, as approved as part of SWP, will cause that headland to once again form a major barrier to alongshore littoral sediment transport.

Littoral sediment transport rates can be estimated through numerical modelling and sediment budgets and are summarized below.

The annual volume of sediments moving through the Project Study Area is so small that they can be practically ignored. Offshore sand deposits are expected to play some role in the long-term stability of the beaches within the Project Study Area, but that role has not been quantified in any past studies. The sediment transport rates during a composite storm event (top five storm events in the 50-year hindcast) were modelled and showed that sediment transport throughout the Project Study Area was mostly unidirectional (east to west) transport.

5.1.12 Ice

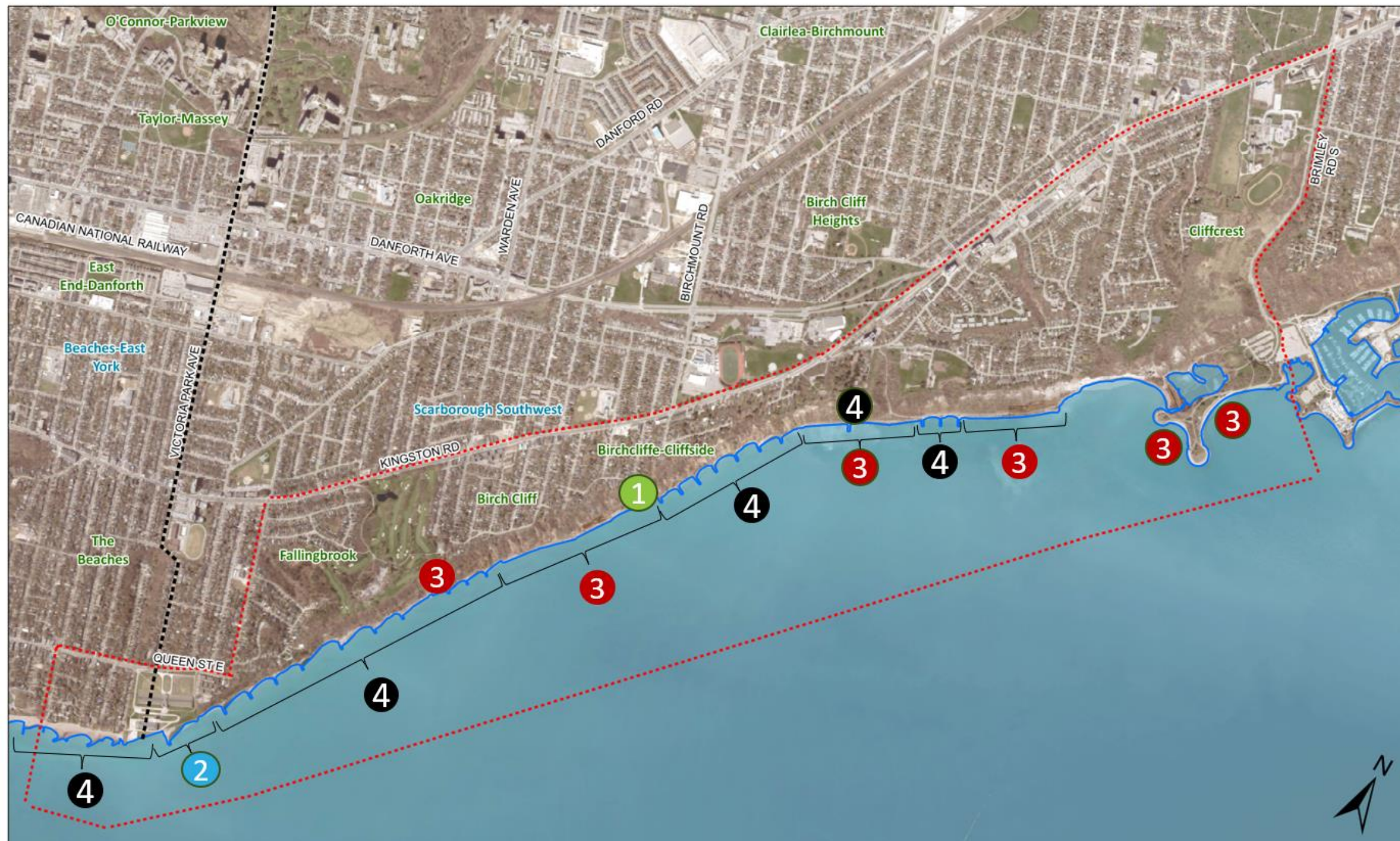
Under typical conditions Lake Ontario is considered to remain ice free overall, allowing wave generation throughout the year. Shore ice, which is ice that forms around the perimeter of the lake, can both protect and damage shorelines depending upon local conditions. There is no consistent timing of when shore ice forms or melts, so the conservative approach is to ignore its potential impacts on littoral processes. This is consistent with the expectation that lake ice cover may be reduced due to the effects of climate change.

5.1.13 Existing Shoreline Protection

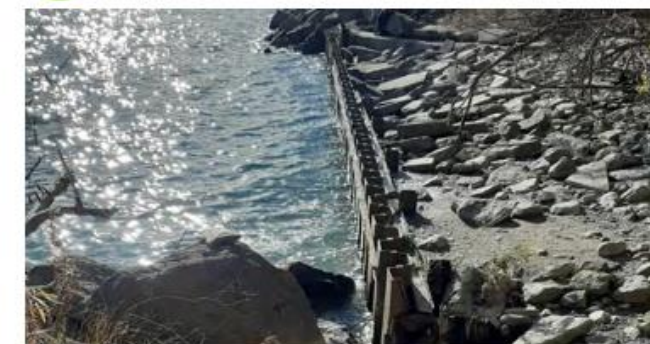
Due to the historical removal of larger stone, gravel, and boulder substrates from the Project Study Area shoreline through the act of *stonehooking*, and the subsequent development of the *tablelands*, engineered shoreline protection works became a necessity to stop shoreline *erosion* along the *toe of the Bluffs* and reduce the risk to those *tablelands* from *crest migration* (see Section 2.5.3.1). These existing shoreline protection works have been implemented over the last several decades and have been generally effective in protection against wave *erosion*. Figure 5-11 illustrates the types of shoreline protection structures within the Project Study Area, which include a steel sheet pile wall, a concrete seawall, armourstone revetments, and headland-beaches anchored by groynes (beach and groyne systems). Although most features show some level of deterioration and damage, they are all functional, stable and provide a high level of protection during average and low water level periods. Based on the review of all the shorelines in the Project Study Area, none of the shorelines are at high risk of consequential *erosion* at this time or within 10 to 15 years of the EA completion, assuming normal coastal conditions over that time. High water level conditions may result in localized damage to the *revetment* and some exposure of the toe of bank in the headland-beach areas. All the structures were designed using a lower design high water level than is considered during today's design and will ultimately require upgrading and maintenance.

Additional modelling was used to assess the beach profile changes during severe storm conditions at a higher design high water level. This modelling shows the vulnerability of the Bluff toe during those conditions and indicates that the bank is susceptible to *erosion* from a major storm at design high water levels.

The beach profiles may change during storm events and high-water events as this is a normal coastal process along the shoreline. Except for the western beach at Bluffer's Park, none of the sand and/or cobble headland-beaches along the SBW Project Area shoreline are considered to be a *dynamic beach* as they are engineered together with the groynes (beach and groyne systems) to form integral parts of the works that protect the shoreline and the Bluffs. While the western beach at Bluffer's Park formed because of the constructed headland, it accumulated naturally and is not a component of any protection design.



1 Sheet Pile Wall



2 Concrete Seawall



3 Armourstone Revetment



4 Beach & Groyne System



Figure 5-11: Shoreline Protection Features

5.2 Natural Environment

This section provides an overview of the existing natural environment in the Project Study Area, largely based on work undertaken by TRCA between 2017 and 2020.

5.2.1 Vegetation Communities

In the late 1990s, TRCA developed their own ranking and scoring system for all species and vegetation communities found within the Toronto region. The ranking and scoring system is based on NatureServe's Natural Heritage Methodology (Ontario, 2021) to describe what species exist in a particular area and how these species are doing. Vegetation community designations are based on field surveys (undertaken in 2011 and 2016) using TRCA's modified version of the Ecological Land Classification (ELC) for Southern Ontario (Lee *et al.* 1998). The Local Ranking System assigns an L-rank (L1 to L5) based partly on the ecological sensitivity and partly on the population status within TRCA jurisdiction (TRCA, 2017a). The L-rank is assigned to all species and vegetation communities to indicate the degree of which various species or community need protection. The scoring informs conservation actions that are needed to enhance the prospects for success. It should be noted that the full spectrum of vegetation communities is included in the L ranks, in particular those that are human made and those that are non-native communities such as 'exotic forb meadow'.

Vegetation communities in the TRCA jurisdiction are scored and given a local rank from L1 to L5 based on two criteria: local occurrence and the number of geophysical requirements or factors on which they depend. Vegetation communities with a rank of L1 to L3 are considered of regional concern in the jurisdiction while L4 communities are considered of concern in the urban portion of the jurisdiction. The Scarborough shoreline lies within the urban landscape and so L1 to L4 communities are of conservation concern. An L5 ranking indicates the community is generally secure. Those communities dominated by exotic species are ranked L+ and represent a large portion of the Project Study Area. A total of 69 vegetation types occur in the Project Study Area including mature forest of oak and hemlock, treed swamp, bluff, beach, and meadow, as well as more disturbed types including as those dominated by exotic species (L+). Refer to Table 5-2 for the areas and TRCA rankings of each community within the Project Study Area. Refer to **APPENDIX AD** for the locations of ELC communities.

Table 5-2: Ecological Land Classification Vegetation Communities within the Regional Study Area

ELC Code	ELC Community Name	TRCA L Rank (2022)	Area (ha)
BBO1-1	Sea Rocket Open Sand Beach	L2	2.98
BBO1-2	Wormwood Open Gravel Beach	L2	0.05
BBO2-A	Rubble Open Shoreline	L5	3.37
BBS1-2A	Willow Shrub Beach	L2	0.52
BBT2-A	Rubble Treed Shoreline	L5	0.55
BLO1	Mineral Open Bluff	L3	4.04
BLS1-A	Sumac – Willow – Cherry Shrub Bluff	L3	3.82
BLT1-B	Deciduous Treed Bluff	L3	1.21

ELC Code	ELC Community Name	TRCA L Rank (2022)	Area (ha)
BLT1-c	Exotic Treed Bluff	L+	4.06
CUH1-A	Treed Hedgerow	L5	0.44
CUM1-A	Native Forb Meadow	L5	0.27
CUM1-b	Exotic Cool-Season Grass Graminoid Meadow	L+	1.89
CUM1-c	Exotic Forb Meadow	L+	6.59
CUP1-c	Locust Deciduous Plantation	L+	8.49
CUP2-A	Restoration Mixed Plantation	L5	0.53
CUP2-c	Norway Maple – Conifer Mixed Plantation	L+	0.22
CUP2-h	Horticultural Mixed Plantation	L+	0.55
CUP3-6	European Larch Coniferous Plantation	L+	0.13
CUP3-e	Norway Spruce Coniferous Plantation	L+	0.24
CUP3-H	Mixed Conifer Coniferous Plantation	L5	0.23
CUS1-3	Red Oak Non-Tallgrass Savannah	L3	0.20
CUS1-A1	Native Deciduous Successional Savannah	L5	0.76
CUS1-b	Exotic Successional Savannah	L+	0.02
CUS2-A	Rubble Successional Savannah	L4	0.38
CUT1-1	Sumac Deciduous Thicket	L5	1.26
CUT1-A1	Native Deciduous Sapling Regeneration Thicket	L5	0.37
CUT1-c	Exotic Deciduous Thicket	L+	0.14
CUT1-E	Red Osier Dogwood Deciduous Thicket	L4	1.40
CUT1-G	Willow Deciduous Thicket	L4	0.87
CUW1-2	Red Oak Non-tallgrass Woodland	L3	0.17
CUW1-A3	Native Deciduous Successional Woodland	L3	0.46
CUW1-A4	Fresh-Moist Cottonwood Tall Treed Woodland	L3	1.12
CUW1-b	Exotic Successional Woodland	L+	5.87
CUW1-D	Hawthorn Successional Woodland	L5	1.25
FOC3-1	Fresh-Moist Hemlock Coniferous Forest	L3	0.90
FOD1-1	Dry-Fresh Red Oak Deciduous Forest	L2	1.04
FOD2-4	Dry-Fresh Oak – Hardwood Deciduous Forest	L4	0.26
FOD3-1	Dry-Fresh Poplar Deciduous Forest	L3	0.40
FOD4-b	Dry-Fresh Manitoba Maple Deciduous Forest	L+	1.89
FOD4-d	Dry-Fresh Norway Maple Deciduous Forest	L+	1.02

ELC Code	ELC Community Name	TRCA L Rank (2022)	Area (ha)
FOD5-3	Dry-Fresh Sugar Maple – Oak Deciduous Forest	L4	0.66
FOD5-8	Dry-Fresh Sugar Maple – White Ash Deciduous Forest	L5	0.52
FOD6-5	Fresh-Moist Sugar Maple – Hardwood Deciduous Forest	L5	1.53
FOD7-3	Fresh-Moist Willow Lowland Deciduous Forest	L5	3.03
FOD7-4	Fresh-Moist Black Walnut Lowland Deciduous Forest	L+	1.92
FOD7-a	Fresh-Moist Manitoba Maple Lowland Deciduous Forest	L+	0.38
FOD7-b	Fresh-Moist Norway Maple Deciduous Forest	L+	1.02
FOD7-c	Fresh-Moist Exotic Deciduous Forest	L+	0.46
FOD8-1	Fresh-Moist Poplar Deciduous Forest	L5	1.11
FOD9-A	Fresh-Moist Oak – Beech Deciduous Forest	L3	1.54
FOM2-1	Dry-Fresh White Pine – Oak Mixed Forest	L2	0.35
FOM3-1	Dry-Fresh Hardwood – Hemlock Mixed Forest	L3	3.06
FOM3-2	Dry-Fresh Hemlock – Sugar Maple Mixed Forest	L4	0.33
FOM4-1	Dry-Fresh White Cedar – Paper Birch Mixed Forest	L3	0.28
FOM6-1	Fresh-Moist Sugar Maple – Hemlock Mixed Forest	L4	0.72
MAM2-10	Forb Mineral Meadow Marsh	L4	0.08
MAM2-7	Horsetail Mineral Meadow Marsh	L3	0.04
MAM2-9	Jewelweed Mineral Meadow Marsh	L4	0.05
MAM2-a	Common Reed Mineral Meadow Marsh	L+	5.34
MAS2-1b	Narrow-leaved Cattail Mineral Shallow Marsh	L+	0.05
MAS2-a	Common Reed Mineral Shallow Marsh	L+	0.23
OA01-T	Turbid Open Aquatic (unvegetated)	L+	2.20
SAM1-4	Pondweed Mixed Shallow Aquatic	L3	0.28
SAM1-A	Water Lily – Bullhead Lily Mixed Shallow Aquatic	L4	0.26
SDS1-A	Willow Shrub Sand Dune	L2	0.10
SWD4-1	Willow Mineral Deciduous Swamp	L4	1.08
SWD4-3	Paper Birch – Poplar Mineral Deciduous Swamp	L4	0.21
SWD4-4	Yellow Birch Mineral Deciduous Swamp	L3	0.73
SWT2-2	Willow Mineral Thicket Swamp	L4	0.69

5.2.1.1 Vegetation Communities of Concern

Based on TRCA's 2022 Vegetation Community Ranks and Scores, a total of 21 vegetation types within the Project Study Area are of regional concern (L1 to L3) and 13 are of urban concern (L4). Refer to Table 5-2

for a list of communities and the associated community ranks and to **APPENDIX D** for the locations of communities of concern. The more intact natural communities include mature forests, *dynamic communities* (e.g., bluff and beach), and small areas of wetland that have not yet been colonized by common reed (*Phalaris arundinacea*).

5.2.1.2 Flora Species of Concern

A total of 502 vascular plant species were identified by TRCA between 2011 and 2016, 445 of which are naturally occurring (i.e., not exotic or introduced; TRCA, 2017b). Of these, 35 vascular plant species of regional conservation concern (rank L1 to L3) and 66 species of urban concern (L4) were documented. Notable species include red pine (*Pinus resinosa*), northern short-husk (*Brachyelytrum aristosum*), thin-leaved sunflower (*Helianthus decapetalus*), russet buffaloberry (*Shepherdia canadensis*), northern water-milfoil (*Myriophyllum sibiricum*), Oakes' evening-primrose (*Oenothera oakesiana*), smaller evening-primrose (*Oenothera parviflora*), and bushy cinquefoil (*Potentilla supina* ssp. *Paradoxa*) (TRCA, 2017b). It is noted by TRCA that some red pine trees found in dry, sandy upland forest at the Toronto Hunt Club seem to be planted and it is plausible (but not certain) that some are naturally occurring (TRCA, 2017b). The EA Report will include a full list of species known to exist in the Project Study Area.

5.2.2 Wildlife Habitat and Wildlife

Overall, the Project Study Area accommodates fauna that are largely generalist in habitat requirements. Within the regional context, which is primarily heavily urbanized, the natural cover on site provides foraging and shelter opportunities for large numbers of grounded migrant songbirds in the spring and fall.

The fauna survey undertaken by TRCA in 2016 documented a total of 48 bird species, 11 mammals, and four herpetofauna species (TRCA, 2017b). Surveys were also completed at the Scarborough Bluffs in 2011 and included only the easternmost sixth of the 2016 study area as documented in TRCA's biological inventory (TRCA, 2017b). Species identified in 2011 included six additional bird species and three additional herpetofauna species. Thus, a total of 72 potentially breeding vertebrate fauna species were documented in the Project Study Area in 2011 and 2016, almost half of which are considered common and widespread in the Toronto region (TRCA, 2017b). The EA Report will include a full list of species known to exist in the Project Study Area. Species of Concern are discussed in the following section below.

5.2.3 Wildlife Species of Concern

Wildlife species documented within the Project Study Area included 37 species of regional and urban concern (ranked L1 to L4) (TRCA, 2017b). Habitat for SAR also exists as evidenced by presence of bank swallow (*Riparia riparia*, Threatened in Ontario), eastern wood-pewee (*Contopus virens*, Special Concern in Ontario), and chimney swift (*Chaetura pelagica*, Threatened in Ontario). The stretch of Scarborough shoreline extending to the east as far as East Point Park, holds considerable regional significance for nesting bank swallows, with at least 450 pairs observed along the west Scarborough Shoreline in 2016 (TRCA, 2017b). The EA Report will include a full list of species known to exist in the Project Study Area.

Five bird species of regional concern (L1-L3) recorded in the Project Study Area included brown thrasher (*Toxostoma rufum*), winter wren (*Troglodytes hiemalis*), bank swallow, American redstart (*Setophaga ruticilla*), and eastern screech-owl (*Megascops asio*). Twenty bird species of urban concern (L4) have been documented (TRCA, 2017b).

Three herpetofauna species of regional concern (L1-L3) documented in the Project Study Area include milksnake (*Lampropeltis triangulum triangulum*), midland painted turtle (*Chrysemys picta marginata*), and eastern red-backed salamander (*Plethodon cinereus*). Three herpetofauna species of urban concern (L4) have been documented (TRCA, 2017b).

While no mammal species of regional concern are known to occur in the Project Study Area, six mammal species of urban concern have been observed, including eastern chipmunk (*Tamias striatus*), eastern cottontail (*Sylvilagus floridanus*), mink (*Mustela vison*), red fox (*Vulpes vulpes*), red squirrel (*Tamiasciurus hudsonicus*), and white-tailed deer (*Odocoileus virginianus*) (TRCA, 2017b).

5.2.4 Fish and Fish Habitat

The Project Study Area shoreline provides a variety of coastal fish habitat. TRCA has conducted yearly fish surveys from 2016 to 2023. Fish surveys were conducted via two methods: boat electrofishing along the shoreline at six different locations and seine netting the nearshore also at six different locations. See **APPENDIX AD** for a map of the sampling locations. Within the 2016 to 2023 surveys, 31 fish species were captured including Chinook salmon (*Oncorhynchus tshawytscha*), lake whitefish (*Coregonus clupeaformis*), northern pike (*Esox lucius*), rainbow trout (*Oncorhynchus mykiss*), and the formally extirpated Atlantic salmon (*Salmo salar*), among others. Atlantic salmon have been extirpated from Lake Ontario since 1898; however, Lake Ontario water quality and habitat improvements over the past four decades have been successful and habitat restoration and stocking programs are aiming for a self-sustaining population of Atlantic salmon by 2025.

American eel (*Anguilla rostrata*) were not captured within these targeted surveys by TRCA; however, the species have been captured nearby along the Scarborough shoreline and American eel habitat have a high likelihood of existing within the Project Study Area due to the diverse habitat preferences of the species. American eel are Endangered, and the species and their habitat are afforded protection under the provincial ESA. They currently do not have any status under Schedule 1 of the federal SARA.

5.2.5 Significant Natural Areas

Significant natural areas in the Project Study Area include Areas of Natural and Scientific Interest (ANSI) and Environmentally Significant Areas (ESA).

5.2.5.1 Areas of Natural and Scientific Interest (ANSI)

ANSIs represent areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study, or education (OMNR, 2010). Portions of the Scarborough Bluffs Provincially Significant Life Science ANSI and Scarborough Bluffs Provincially Significant Earth Science ANSI occur within the Project Study Area. Key features include vegetation communities associated with the Bluffs, remnant forest communities, and geological features. Refer to **APPENDIX AD** for the locations and to Table 5-3 for total areas of ANSIs within the Project Study Area.

Table 5-3: Total Areas of ANSIs within the Project Study Area

Areas of Natural and Scientific Interest	Total Area of Feature (ha)	Area of Feature Within the Project Study Area (ha)
Scarborough Bluffs Provincially Significant Life Science ANSI	161.7	32.1
Scarborough Bluffs Provincially Significant Earth Science ANSI	94.6	2.0

5.2.5.2 Environmentally Significant Areas (ESA)

ESAs are spaces within Toronto’s natural heritage system that require special protection to preserve their environmentally significant qualities. Most ESAs are found in Toronto’s ravines, river valleys, and along the waterfront and contain forests, meadows, wetlands, and landforms, and support a variety of flora and fauna (City of Toronto, 2023). The Toronto Hunt Club Forest ESA and a portion of the Scarborough Bluffs Sequence ESA are located within the Project Study Area. Significant ecological functions of the Toronto Hunt Club Forest ESA include substantial seepage areas that support additional vegetation community diversity. In addition to habitat for bank swallows, the Scarborough Bluffs Sequence ESA contains swamps and marshes that provide 4.5 ha of water storage (City of Toronto, 2012). Refer to **APPENDIX AD** for the locations and to Table 5-4 for total areas of ESAs within the Project Study Area.

Table 5-4: Total Areas of ESAs within the Project Study Area

Environmentally Significant Area (ESA)	Total Area of Feature (ha)	Area of Feature Within the Project Study Area (ha)
Toronto Hunt Club Forest ESA	9.1	9.1
Scarborough Bluffs Sequence	73.6	10.4

5.3 Socio-Economic Environment

The Project Study Area is in two Wards of the City of Toronto. Ward 20 (Scarborough Southwest) is located from Victoria Park Avenue in the west and extends to Markham Road in the east, encompassing the Project Study Area east of Victoria Park Avenue to Brimley Road. The second ward, Ward 19 (Beaches-East York) is located from Lower Coxwell Avenue in the west and extends to Victoria Park Avenue in the east. The Project Study Area is in a small portion of Ward 19, between Victoria Park Avenue in the east and Silver Birch Avenue in the west.

An Environics study from 2023 commissioned by TRCA examined a range of demographic trends in Scarborough between Lake Ontario, Highway 401, Woodbine Avenue, and McCowan Road, which includes the Project Study Area. This larger area has a population of over 240,000, with a median age of 53. Nearly 42% of residents within this larger area identify as immigrants and over 51% belong to a visible minority group (Environics Analytics, 2023). Nearly two-thirds of residents within this area are employed, with 23% of residents travelling to work by car and over 20% travelling by public transit. Over half (56%) of residents within this area reside in apartments, with the remainder residing in primarily single-family houses. Nearly half (46%) of households in this area have children at home (Environics Analytics, 2023).

Over two-thirds of residents within this area participated in outdoor activities in the past year. The most popular activities were walking (51% of residents), cycling (over 20%), jogging/running/rollerblading (nearly 9%), hiking (nearly 8%), water sports and going to a park or playground (both over 6%). A majority of residents (over 87%) also placed considerable value in having parks and public greenspace close to home, with over 77% visiting parks and public greenspaces (Environics Analytics, 2023). Within the Project Study Area, there are pockets of higher average income households and pockets of low average income households including pockets of vulnerable populations. In general, income disparity is present with higher average household income present west of Fallingbrook Road and south of Kingston Road (Statistics Canada, 2016) and lower average income pockets along parts of Kingston Road.

5.3.1 Land Use

5.3.1.1 *Planned Land Use*

Planned Land Uses are based on existing planning documents (such as Official Plans) that identify the intended plan for development within the city.

The City of Toronto Official Plan (2002, consolidated 2024) generally identifies the Project Study Area as consisting of a mixture of *Neighbourhoods, Mixed-Use Areas, Parks, Natural Areas, and Open Spaces* (Figure 5-12).

The Official Plan designates residential and commercial areas in most of the Project Study Area. Residential and mixed-use neighbourhoods, including detached houses, rental apartments, and condominiums, dominate the area south of Kingston Road and mixed-use areas including commercial development is concentrated along Kingston Road at the northern Project Study Area, and at Queen Street East in the western Project Study Area limits. The Beach neighbourhood, located on the western tip of the Project Study Area, is designated as a Business Improvement Area (BIA). BIA Boards are made up of commercial and industrial property owners and their non-residential tenants to carry out improvements and promote the area as a business, employment, tourist, or shopping area. The Beach BIA represents approximately 400 businesses and property owners between Coxwell Avenue and Neville Park Boulevard on Queen Street East, and it extends into the western limit of the Project Study Area. The majority of the shoreline, besides the portion of Bluffer's Park, is designated as a natural area. The Scarborough Bluffs Park in the east of the Project Study Area is designated as park land.

Section 2.3 of the Official Plan sets out important direction for development along the Toronto Waterfront, particularly as it relates to multi-use trails and park spaces. This includes policy relating to increasing and improving public access to the waterfront, improving public spaces in the waterfront, and enhancing the physical and visual continuity of the waterfront corridor.

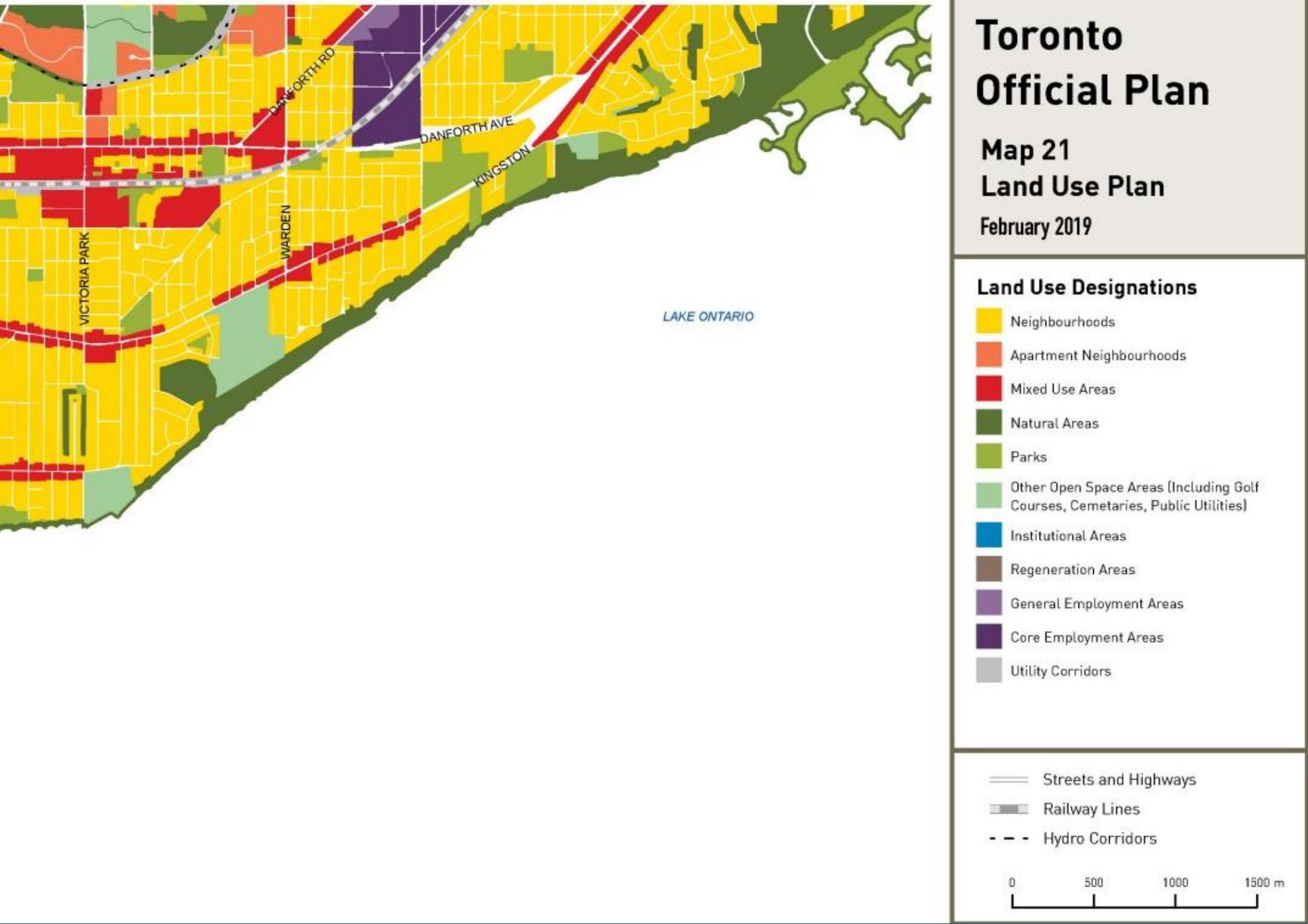


Figure 5-12: City of Toronto Land Use Designations

5.3.1.2 *Existing Land Use*

Existing land use is what exists today.

Land use is predominantly residential (approximately 60%), with some commercial/industrial areas (approximately 10%) and some open spaces. The main neighbourhoods located in the Project Study Area, from west to east, include the Beaches, Fallingbrook, Birch Cliff – Cliffside, and Cliffcrest. Commercial areas are concentrated along Kingston Road at the north end of the Project Study Area and at Queen Street East, west of the R.C. Harris Water Treatment Plant. There are open space areas and infrastructure uses located in the west end and in the centre of the Project Study Area including the Toronto Hunt Club golf course, the R.C. Harris Water Treatment Plant, and the Scarborough Pumping Station. The majority of the shoreline, besides the portion of Bluffer's Park, is designated as natural area.

In addition to the large regional parks of Bluffer's Park and Scarborough Heights Park, there are also several smaller parks located in residential areas including Crescentwood Park, Harding Parkette, Lyndale Parkette, the Rosetta McClain Gardens, Harrison Properties, Cliffside Ravine Park, and Midland Ravine Park. Kew-Balmy Beach is a recreational beach located on the western tip of the Project Study Area.

5.3.1.3 *Future Land Use*

Future land uses reflect a change in land use policy beyond existing planned land use. This includes plans that have been released subsequent to planned land uses or based on direction from higher levels of government which have not yet been included in planned land uses documents.

The City of Toronto, like many other large urban centres across the country, continues to face an increasingly growing and complex housing crisis. The HousingTO 2020-2030 Action Plan (2019) aims to improve housing outcomes for current and future Toronto residents, including the revitalization of neighbourhoods, through leveraging opportunities to add new community spaces and other City building opportunities, and enhanced access to transit. This policy aligns with provincial priorities to building strong healthy communities, as stated in the Provincial Policy Statement (2020) and as indicated by the provincial government's passage of the More Homes Built Faster Act (Bill 23), which aims to support the goal of adding 1.5 million homes by 2031. These policies include direction on promoting transit-supportive development, intensification, and infrastructure within communities.

A number of redevelopment plans have been proposed within the Project Study Area. There are proposals for several new residential units and new commercial spaces on existing lots. These developments are predominantly along the Kingston Road corridor or to the north and many are for condominium type developments which will create more density. Many of these proposals are in areas that are undergoing change, and this change is likely to continue and evolve over the life of the SBW Project. These plans are consistent with the City's policies for increasing density and mainstreeting along major corridors and will increase the population density within the Project Study Area, which will in turn create greater demand for parks and recreational spaces. These proposals are also consistent with Provincial objectives to build more housing.

The revitalization of Kingston Road is supported by Area Specific Official Plan policies and as-of-right zoning conditions to implement a vibrant, intensified, and walkable mixed-use corridor within the Project Study Area. The Official Plan also provides for land to be dedicated to the City for right-of-way widenings (streets, lanes and identified midblock connections) to enable improvements to transit and active

transportation facilities encouraging residents to explore choices in mobility beyond private automobiles. This is reflected in initiatives such as the Toronto Cycling network Plan. The goal of the plan is to connect gaps in the City's existing cycling network, grow the cycling network into new parts of the City, and to renew the existing cycling network routes to improve their quality. The City of Toronto Transportation Services Division recently brought forward to City Council the Cycling Network 2025-2027 Implementation Program for the candidate *bikeways* and bike projects under consideration.

5.3.1.4 *Land Ownership*

A significant portion of the shoreline within the Project Study Area is owned by TRCA or the City of Toronto. However, there are a few private shoreline owners within the Project Study Area, including the Toronto Hunt Club, as shown in Figure 5-13.

5.3.2 Infrastructure, Community Services and Recreation

5.3.2.1 *Infrastructure*

-The Project Study Area contains a variety of existing infrastructure typical of urban areas, including public roads (residential streets, minor/major arterial roads, and collector roads), natural gas pipelines, municipal servicing infrastructure (e.g., water and wastewater utilities and storm sewer), and low voltage transmission lines. Located on the west end of the Project Study Area is the R.C Harris Water Treatment Plant, which produces approximately 30% of Toronto's drinking water and is the largest water treatment plant in Toronto. This water treatment plant is a national historic civil engineering site that contains the largest collection of Art Deco buildings in Toronto. Located directly north of Scarborough Heights Park, west of Bluffer's Park, is the Scarborough Pumping Station on Fishleigh Drive. Other municipal servicing infrastructure located within the Project Study Area includes several stormwater and combined sewer outfalls, as shown in Figure 5-14.

Conditions assessments have been performed on both stormwater outfalls and shoreline protection infrastructure. These assessments are summarized in Section 5.3.2.2.

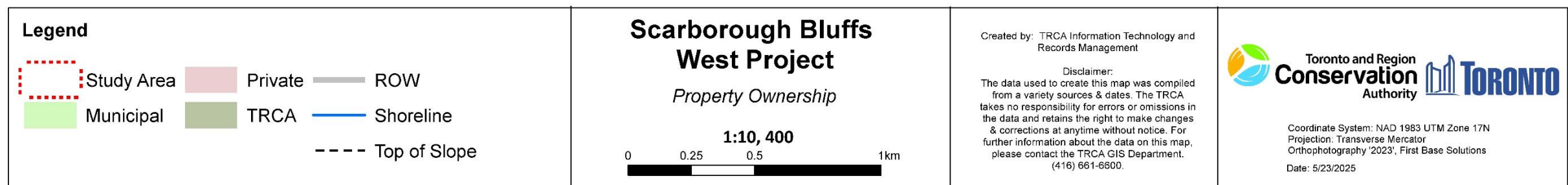


Figure 5-13: Property Ownership within the Project Study Area

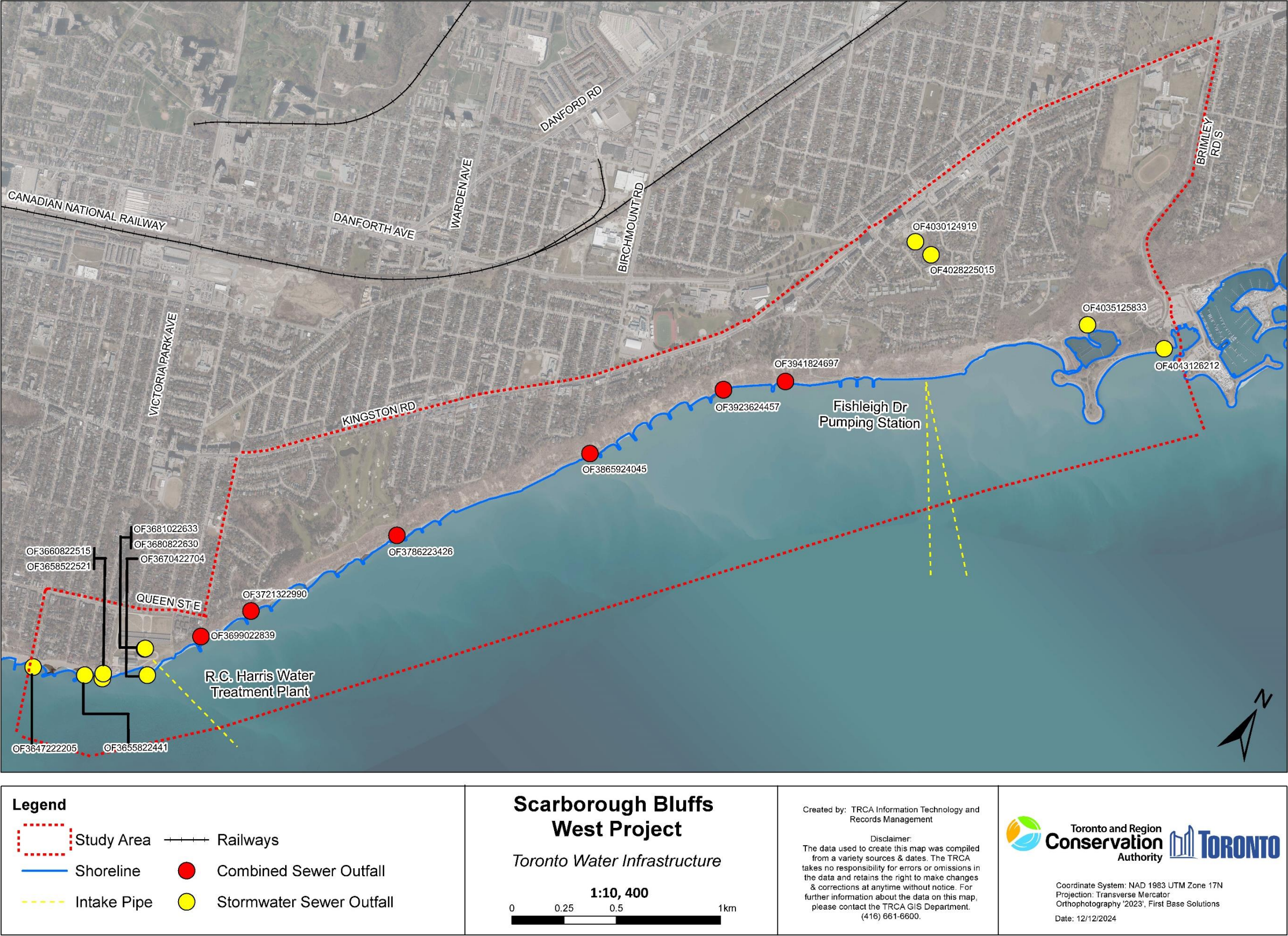


Figure 5-14: Toronto Water Infrastructure within the Project Study Area

5.3.2.2 *Infrastructure Condition Assessments*

Stormwater and Combined Sewer Outfalls

Most of the surface runoff within the *watershed* is discharged to Lake Ontario by storm sewers along the Project Study Area. Fourteen outfalls were identified and inspected by Grounded following a rain event on November 7 and 8, 2023 to observe wet weather flow conditions.

Water samples were obtained from the outfalls where possible and submitted for laboratory analysis. Each sample was analyzed with respect to the Provincial Water Quality Objectives (PWQO). Observations pertaining to the conditions of outfalls and the water quality results are summarized in Table 5-5. Location of outfalls are found in Figure 5-13.

Table 5-5: Stormwater and Combined Sewer Outfall Inspection and Water Quality Analysis Results

Outfall Location	Observation of the Outfall			PWQO Exceedances
	Construction	Measured Flow Velocity	Erosion and Slope Stability	
Munro Park Avenue Outfall (located within a concrete pier on the public beach, directly south of Munro Park Road) Between west end of the Project Study Area and section 1A	Rectangular concrete outfall located within the concrete pier. The concrete on top of the pier was replaced by steel grates on the southern portion. This area was barricaded.	N/A – Filled with lake water.	No visible signs of current or future <i>erosion</i> . Outfall located below the water level, filled with lake water.	N/A*
Neville Park Outfall (located within a concrete pier on the public beach, directly south of Neville Park Boulevard) Between sections 1B & 1	66 cm diameter concrete outfall within concrete pier, reinforced with a steel frame. Pier is surrounded by <i>armourstone</i> .	N/A – trickling water, unable to measure	No visible signs of <i>erosion</i> . Concrete spalling observed on top of the pier. Rust on the steel frame.	N/A*
Nursewood Road Outfall (located within a concrete pier on the public beach, directly south of Nursewood Road) Between sections 1B & 1	88 cm diameter concrete outfall within concrete pier, reinforced with a steel frame. Pier is surrounded by <i>armourstone</i> .	Approx. 0.27 m/s (water level of the lake intermittently reaches the outfall, potential to influence measured flow)	No visible signs of current <i>erosion</i> . Concrete spalling observed on top of the pier. Rust on the steel frame.	Exceeds Phosphorus
Victoria Park Avenue Outfall (located on a concrete pier at the south end of R.C. Harris Water Treatment Plant) Between sections 1B & 1	Rectangular concrete outfall located at the end of steel framed concrete pier. A gated ramp is located at the end of the ramp extending to the lake, below the water surface. Pier surrounded by <i>armourstone</i> .	N/A – Unable to access, outfall flooded by lake water.	No signs of current <i>erosion</i> observed. Shoreline covered with <i>armourstone</i> and shoring wall on the north side to help prevent future <i>erosion</i> . Sloughing of concrete and rusting on the metal frame observed on the ramp.	N/A*

Outfall Location	Observation of the Outfall			PWQO Exceedances
	Construction	Measured Flow Velocity	Erosion and Slope Stability	
Fallingbrook Road Outfall (located at the slope toe, directly south of Fallingbrook Road) Between sections 1 & 2	183 cm wide, 112 cm tall rectangular concrete outfall with concrete baffles at the outlet and concrete headwall, metal fence and <i>armourstone</i> reinforcement.	Approx. 0.02 m/s	Minor sloughing and <i>erosion</i> of soil along with fallen trees around the culvert. Minor <i>erosion</i> likely to continue, however major <i>erosion</i> prevented by vegetation cover and riprap.	Exceeds Phosphorus, Copper, Sulphide, Phenols
Fallingbrook Drive Outfall (located at the slope toe, directly south of Fallingbrook Drive) Between sections 3 & 4	120 cm diameter corrugated steel pipe within concrete culvert. <i>Armourstone</i> on east and west sides of the culvert.	Approx. 0.13 m/s	Minor sloughing and <i>erosion</i> of soil above and below the culvert. Minor <i>erosion</i> is likely to continue, but major future <i>erosion</i> prevented by heavy vegetation up-slope and <i>armourstone</i> blocks supporting the culvert.	Exceeds Phosphorus, Zinc
Warden Avenue Outfall (located at the slope toe, southeast of The Toronto Hunt golf course and south of Warden Avenue) Between sections 5 & 6	150 cm wide concrete rectangular outfall with a semi-circular top and a concrete headwall, supported by <i>armourstone</i> . Discharge from the outfall is carried by 12 m long, open, rectangular, concrete channel.	Approx. 0.01 m/s	Cracks and spalling along the walls and floor of the channel were observed. Evidence of seepage from the upgradient soils through the walls was noted. Future major <i>erosion</i> prevented by <i>armourstone</i> and up-slope vegetation.	Exceeds Phosphorus, Copper, Iron
Birchmount Road Outfall (located within a concrete shoring wall at the slope toe) Between sections 11 & 12	140 cm diameter corrugated metal pipe within concrete shoring wall. Surrounded by <i>armourstone</i> riprap. The metal pipe was corroded at the bottom. Appears damaged upgradient, discharged water appeared to have found alternative routes along the riprap and retaining wall.	N/A – No flow from the pipe.	No flow inside the outfall. Flow observed at the slope toe before the outfall due to apparent clogging and burst of pipe. <i>Erosion</i> is prevented by <i>armourstone</i> and concrete shoring wall. However, corrosion, rust and consequent spalling of shoring wall elements is possible in the future.	Exceeds Phosphorus, Iron
Lakehurst Drive Outfall (located on the slope toe within a concrete	150 cm diameter concrete outfall within concrete culvert. Covered by <i>armourstone</i> to the sides and vegetation	Approx 0.19 m/s	Minor <i>erosion</i> observed to the west and at the discharge point. Effluent was pooling at the discharge point, resulting	Exceeds Phosphorus

Outfall Location	Observation of the Outfall			PWQO Exceedances
	Construction	Measured Flow Velocity	Erosion and Slope Stability	
culvert on the beach, directly south of Lakehurst Drive) Between sections 15	above. Ramp at the outfall exit at an approximately 60-degree angle.		in the <i>erosion</i> of the shoreline. <i>Erosion</i> likely to continue in the future if additional <i>erosion control</i> measures are not taken.	
Wynnview Court Outfall (located on the slope toe within a concrete culvert on the beach, southeast of Scarborough Pumping Station. directly south of Wynnview Court) Between sections 16	140 cm diameter concrete outfall within concrete culvert. Covered by <i>armourstone</i> to the sides and vegetation above. Ramp at the outfall exit at an approximately 60-degree angle. Riprap in front of the outfall to the lake.	Approx. 0.14 m/s	Minor <i>erosion</i> observed on top of the culvert from west to east. Concrete sloughing and crack along the headwall visible	Exceeds Phosphorus, Iron
Dunker's Facility Outfall (near toe of slope, 400 m west of Brimley Road South) Between sections 24	Two approximate 150 cm wide quadrilateral concrete storm sewer outfalls with concrete headwall and wing walls.	Approx 0.06 m/s	No visible signs of current <i>erosion</i> noted. Area surrounding outfall heavily vegetated. Watercourse in front of wall lined with <i>armourstone</i> to help prevent future <i>erosion</i> .	Exceeds Phosphorus
Bluffer's Park Outfall (located within shoring wall at the southeast corner of Bluffer's Park, facing Lake Ontario) Between sections 25	2 m diameter outfall within concrete shoring wall. Riprap and <i>armourstone</i> around the outfall. Metal fence on top of the shoring wall.	Approx. 0.44 m/s	Minor <i>erosion</i> observed around the riprap. Watercourse in front of wall lined with <i>armourstone</i> to help prevent future <i>erosion</i> .	Exceeds Phosphorus, Iron, Zinc
Cliffside Ravine Outfall (located approximately at the middle of Cliffside Ravine, Southeast of Cliffside Public School)	70 cm diameter corrugated metal pipe within concrete culvert, supported by concrete bricks and metal fence. Secondary concrete pipe approximately 2 m east.	N/A— Trickling flow, unable to measure.	<i>Erosion</i> observed at the bottom of the ravine. Metal fences and bricks were damaged from fallen vegetation. A stream was observed along the ravine. Future <i>erosion</i> expected from the slopes and along the stream within the ravine.	N/A*

Outfall Location	Observation of the Outfall			PWQO Exceedances
	Construction	Measured Flow Velocity	<i>Erosion</i> and Slope Stability	
Cliffside Ravine Outfall (located on slope toe at the northeast end of Cliffside Ravine, west of Cliffside Public School)	90 cm diameter corrugated steel pipe.	N/A— Trickling flow, unable to measure	<i>Erosion</i> observed around the outfall. Vegetation cover around the outfall. Corrosion observed inside the pipe.	N/A*

N/A*: Not sampled due to insufficient water.

5.3.2.3 Community Facilities and Services

Community facilities and services in and around the Project Study Area include schools, places of worship, emergency management services (such as police and fire), community centres and recreational facilities. The community facilities and services within or adjacent to the Project Study Area are listed below:

- **Places of Worship:**
 - Fallingbrook Presbyterian Church: 31 Wood Glen Road
 - Immaculate Heart of Mary Church: 131 Birchmount Road
 - St. Nicholas Birch Cliff Anglican Church: 1512 Kingston Road
 - Scarborough Baptist Church: 1597 Kingston Road
 - St. Theresa Parish: 2559 Kingston Road
- **Emergency Management Services:**
 - Ambulance Station 42: 1535 Kingston Road
- **Community Centres and Recreational Facilities:**
 - Birchmount Community Centre: 93 Birchmount Road
 - Taylor Memorial Library: 1440 Kingston Road
 - Scarborough Bluffs Tennis Club: 2 Cecil Crescent
 - Variety Village: 3701 Danforth Avenue
 - Balmy Beach Club: 360 Lake Front
 - Toronto Hunt Club: 1355 Kingston Road
 - Silver Birch Boathouse: Balmy Beach Park
- **Social Services:**
 - Feed Scarborough Cliffside Food Bank: 2259 Kingston Road
- **Senior Services:**
 - Abbeyfield House Lakeside Avenue: 38 Lakeside Avenue
 - Retirement Suites by the Lake: 2121 Kingston Road
 - Leisureworld Caregiving Centre: 130 Midland Avenue
 - Midland Gardens Seniors Apartments Retires Residence: 130 Midland Avenue
- **Youth and Childcare Centres:**
 - Lullaboo Nursery and Childcare Centre: 2316 Queen Street East
 - Boys and Girls Club of West Scarborough: 100 Fallingbrook Road
 - Better Beginnings Nursery School and Kindergarten: 1208 Kingston Road
 - Broad View French Montessori School 2 Limited: 1236 Kingston Road
 - Little Bugs Nursery Corporation: 1448 Kingston Road
 - Mon Petit Univers: 1578 Kingston Road
 - Aspiring Academics Preschool: 2372 Kingston Road
- **Schools:**
 - Courcellette Public School: 100 Fallingbrook Road
 - Birch Cliff Public School: 1650 Kingston Road

- Birchmount Park Collegiate Institute: 3663 Danforth Avenue
- Cliffside Public School: 27 East Haven Drive
- Chine Drive Public School: 51 Chine Drive
- Immaculate Heart of Mary Catholic School: 101 Birchmount Road
- Neil McNeil High School: 127 Victoria Park Avenue
- St. Augustine's Seminary of Toronto: 2661 Kingston Road
- St. Theresa Shrine Catholic Elementary School: 2665 Kingston Road
- St. John Henry Newman Catholic High School: 100 Brimley Road South

5.3.2.4 *Parks and Recreation*

Several waterfront parks and open space areas are identified in the Project Study Area at the *top and toe of the Bluffs*, as well as within residential areas. These areas are used by residents for leisurely pastimes such as dog walking, bird watching, sports, and enjoying the view of the Bluffs. Parks identified within the Project Study Area include Balmy Beach Park, Scarborough Heights Park, the Rosetta McClain Gardens, Harrison Properties, Scarboro Crescent Park, and smaller residential parks including Crescentwood Park, Harding Parkette, Lyndale Parkette, Cliffside Ravine Park, and Midland Ravine Park. Connections between parks and along the *top and toe of the Bluffs* are limited. There is informal access to the shoreline scattered throughout the Project Study Area. These accesses are not officially managed by the city but indicate a desire for access to the shoreline.

Parks that will be influenced by the SBW Project are discussed below and shown in Figure 5-15.

Bluffer's Park

Bluffer's Park is in the east end of the Project Study Area at the *toe of the Bluffs*. The park is well known with excellent views up to the Bluffs and along the shoreline from the beach and other areas of the park. The park also provides a scenic drive down to the shoreline and offers a *Blue Flag Beach* that is well used. The Blue Flag is flown at beaches that meet high standards for water quality, environmental management, environmental education, and safety.

A portion of the approved SWP has completed the detailed design phase and includes the Brimley Road South Multi-Use Trail Project that provides pedestrian and cyclist access to Bluffer's Park along Brimley Road from Barkdene Hills to the Bluffs which is expected to commence construction in fall 2025. Detailed design has also been completed for the West Segment Shoreline and Multi-use Trail Project, which includes expansion of the headlands to the west and east of Bluffer's Park Beach. Funding for implementation has been secured, and this work will expand the beach area over time and permit trail connections behind the beach and to the east.

Bluffer's Park is well used, particularly on summer weekends. The majority of park complaints include conflicts with off leash dogs (City of Toronto, 2022). Significant traffic issues and parking conflicts occur throughout the day as users become frustrated by their inability to access the parking lots and are forced to find parking elsewhere and walk down Brimley Road to the park. This is confirmed by parking complaints. Changes have been made to the local road network to address these challenges and area neighbours indicate that noise, use of neighbourhoods by those seeking access, litter and congestion are on-going issues (TRCA, 2018).

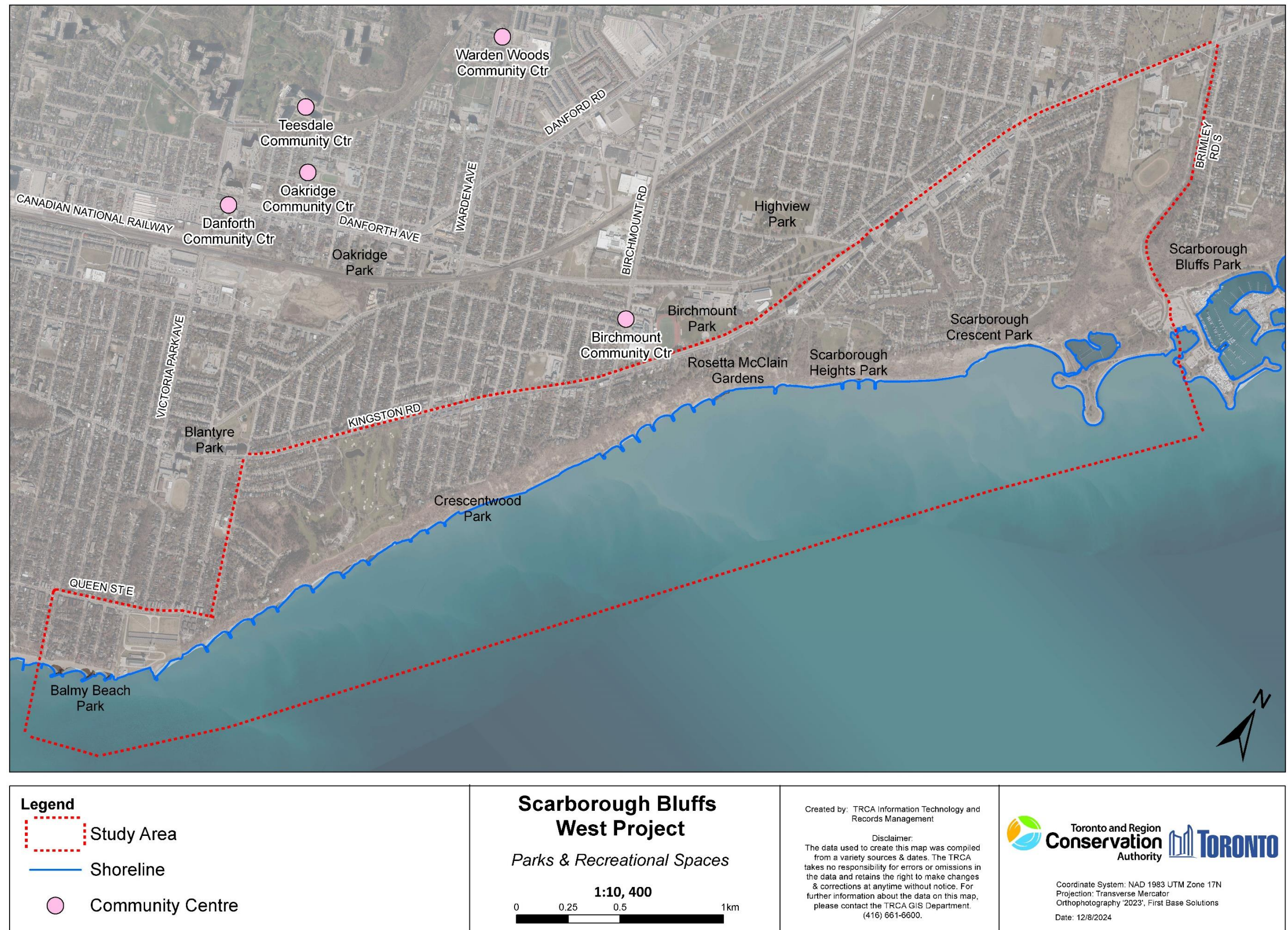


Figure 5-15: Parks and Recreational Spaces within the Project Study Area

Scarboro Crescent Park

Scarboro Crescent Park is located directly west of Bluffer's Park and sits atop the Bluffs providing views of Lake Ontario and overlooking Bluffer's Park. The park also features four tennis courts, a playground, and trails connecting to Bluffer's Park.

Scarborough Heights Park

Scarborough Heights Park is located directly west of Scarboro Crescent Park on the *tablelands*. The park offers a large community garden on the west side called Wynnview Public Gardens, a large dogs-off leash area, and a construction access point down to the shoreline and the *toe of the Bluffs*. The construction access route from the road to the shoreline stretches approximately one kilometre. The trail leading down to the shoreline is steep and may not be accessible for those with mobility issues.

Park users can access the park through Fishleigh Road. A parking lot area for the park is located behind the Toronto Water Scarborough Pumping Station.

Rosetta McClain Gardens

The Rosetta McClain Gardens is in the centre of the Project Study Area on the table lands. There is a small parking lot and public washroom located at the entrance to the park. The fully accessible garden park features braille signage, raised planters, rose gardens, and a rock fountain surrounded by a pergola. The park contains views of Lake Ontario from the top of Scarborough Bluffs and is a popular spot for wedding photos.

Harrison Properties

Harrison Properties Park is located on the *tablelands* in the centre of the Project Study Area. The park is a 2.9-hectare forested park on *top of the Bluffs* overlooking Lake Ontario.

Balmy Beach Park

Balmy Beach Park is in the western limits of the Project Study Area on the shoreline. The Beaches boardwalk terminates at Balmy Beach Park at Silver Birch Avenue. The park contains a small parking area, public washroom, private beach club, private lawn bowling clubhouse, public beach volleyball courts, and a public off leash dog park and kids' playground. Kew Balmy Beach is a recreational beach located south of the park, which extends from the park to the R.C. Harris Water Treatment Plant. The majority of park complaints within the area include off leash dogs and amplified noise in the park (City of Toronto, 2022).

5.3.2.5 Regional and Local Trails

The Waterfront Trail, as shown in Figure 5-16 and defined by the Waterfront Regeneration Trust, is located within the Project Study Area, and extends along the Lake Ontario waterfront from the Niagara River to the Ontario-Quebec border. Within the City of Toronto, the Waterfront Trail provides a recreational amenity and active transportation corridor that connects waterfront parks, destinations, and communities. The Martin Goodman Trail, a well-used portion of the Waterfront Trail, extends from the Humber Bridge in the west, terminating at the western extent of the Project Study Area (approximately Silver Birch Avenue).

Throughout its length, the Waterfront Trail includes a combination of “off-road” multi-use trails and “on-road” routes along both residential streets and major arterial roads. Within the Project Study Area, the Waterfront Trail is located inland and away from the shoreline and mainly along residential streets and some major arterials (Queen Street East and Kingston Road). The steep terrain (the Bluffs) and lack of shoreline continuity limit the ability to extend the Trail along the shoreline in the Project Study Area.

Other formal and informal trails were identified in the Project Study Area including connections between Bluffer’s Park, Scarborough Heights Park, Scarboro Crescent Park, and Harrison Properties. Informal trails to the shoreline and at the *top of the Bluffs* pose significant risks to user safety, as well as to the environment. Informal trails at the *top of the Bluffs* may put users at increased risk of landslides and create hazards for users at the *toe of the Bluffs*. Informal access to the shoreline sometimes requires individuals to trespass through private land and may pose slipping hazards due to the steep and rocky areas that users must descend to reach the waterfront. Informal access to the water is provided at the Fishleigh construction access road, however, the route is very steep.

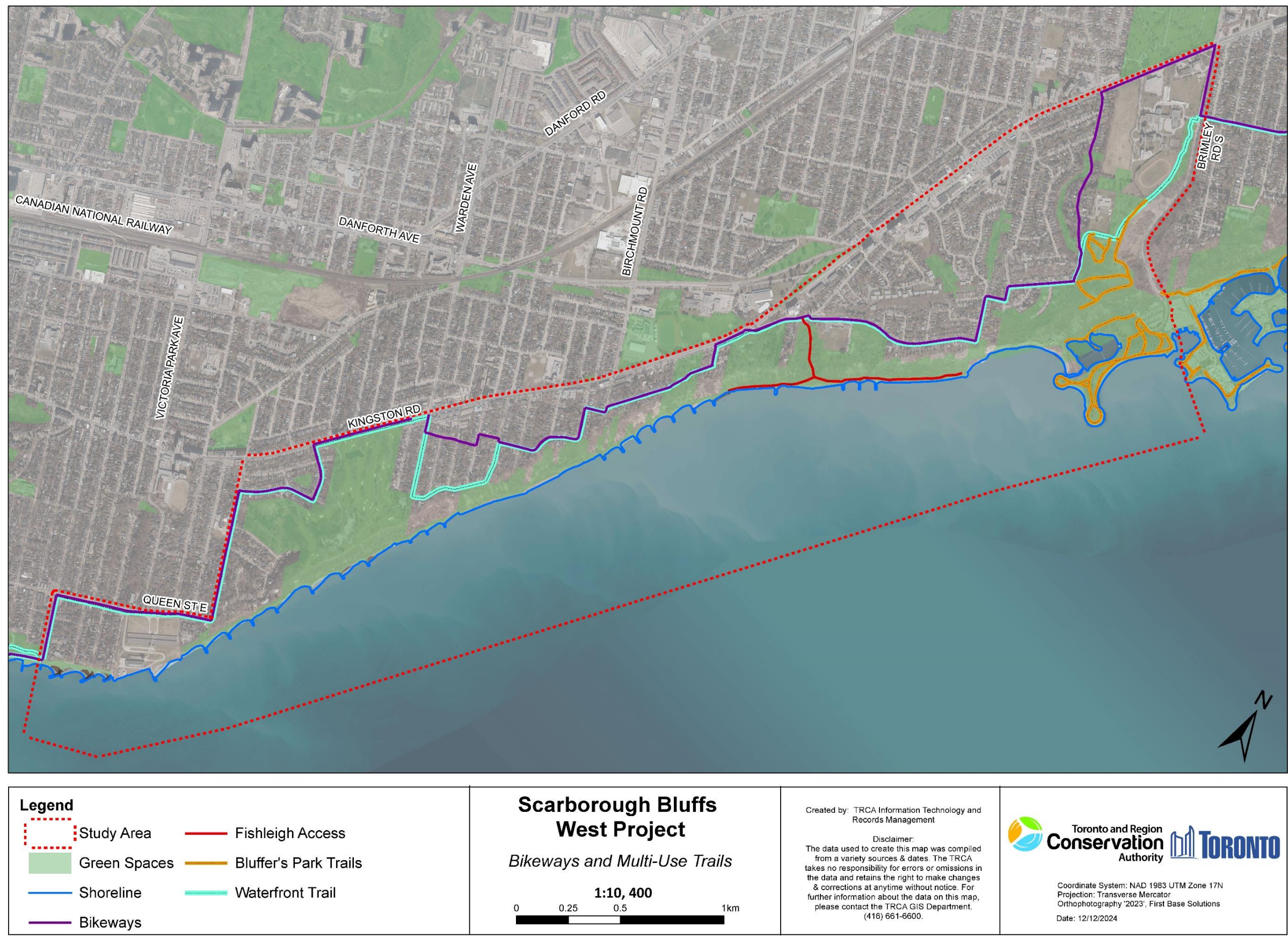


Figure 5-16: Existing Bike and Multi-Use Trails within the Project Study Area

5.3.2.6 Online Exercise Tracking Apps

One indication for the usage of the Project Study Area for active transportation, exercise, and an interest in accessing the waterfront is user data available on various online apps/platforms. The app data are likely an underestimate of the actual use of the Project Study Area by cyclists and pedestrians.

Online exercise tracking apps such as Strava show usage by some cyclists and runners throughout the Project Study Area. Strava allows users to record their trails and share them with other app users, allowing athletes to explore new trails, further expanding the usage of recorded trails by other users. Several of these routes utilize existing trails and residential roads, as well as informal trails. Within the Project Study Area, popular Strava segments run primarily east to west, following the shoreline, with some segments showing nearly 10,000 users (or more) tracking their usage along a particular segment, an example is shown in Figure 5-17.

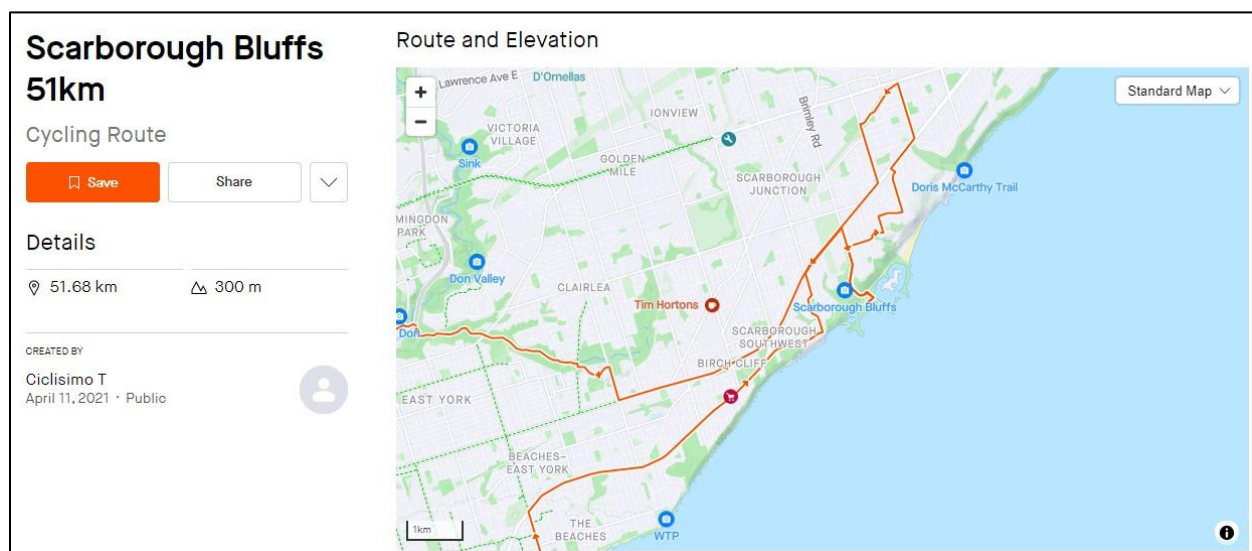


Figure 5-17: Example of Strava Trail Segment

Other commonly used trail recording apps are AllTrails, which follows a similar function to Strava, allowing users to find and create new trails on the app, and OpenStreetMaps, an open data map created by mappers. Throughout the Project Study Area, AllTrails users and OpenStreetMaps mappers have created and posted several routes using the informal and formal accesses along the waterfront. AllTrails users have posted dozens of reviews and hundreds of pictures of these routes to the app.

These recorded routes from Strava, AllTrails, and OpenStreetMaps signify usage within the area and a wider interest in active transportation facilities within and along the shoreline. However, recorded trails on these apps may also lead to an increase in usage of informal trails, which may lead to safety concerns for a larger population and indicate the need for more formalized access to the waterfront and an increase in active transportation routes.

Similar to trail recording apps, Open Water Data is a website for open water swimmers, paddleboarders, surfers, and beachgoers to monitor beach conditions and record their activities. Data available from this source is limited and appears to only show the intensity of in-water use along the waterfront.

5.3.3 Shoreline Access

Silver Birch Avenue to Warden Avenue

Access to the shoreline in this portion of the Project Study Area is through Silver Birch Avenue near Balmy Beach Park, Munro Park Avenue, Neville Park Boulevard, Nursewood Road, and the R.C. Harris Water Treatment Plant grounds. Pedestrians can access the shoreline by following the path at the southern end of the residential street beside Balmy Beach Park at Silver Birch Avenue, and at the stairs located at the southern end of Munro Park Avenue, Neville Park Boulevard, and Nursewood Road. It is noted that the boardwalk terminates at Silver Birch Avenue, and users can continue walking along the sand until Nursewood Road. Vehicles are allowed to park along one side of the residential streets.

Access to the treatment plant grounds is located off Queen Street East or Nursewood Road. No public vehicles are allowed to park in the facility, but pedestrians can access the shoreline by following the path on Nursewood Road, where there are steps leading to the waterfront.

Users have historically accessed the shoreline through informal access directly east of the R.C. Harris Water Treatment Plant through the forested areas, in a portion of the shoreline known as Secret Beach. This access is unsafe, requiring descent through a steep, rocky, and forested area that is not maintained, and involves trespassing through private property. Secret Beach is not monitored by any lifeguards, is a piecemeal of private and public ownership, thus not maintained by the City, leading to potential garbage and broken glass from users of the beach.

Warden Avenue to Birchmount Road

There is no formal access to the shoreline within this central segment of the Project Study Area. Informal access does exist in this segment, such as at the base of Warden Avenue, requiring users to unsafely descend through rocky and forested areas, and sometimes requiring trespass through private property. Fencing has been constructed to restrict access, but there are ongoing problems with fencing continuously being removed.

Birchmount Road to East End of Fishleigh Informal Access

The Scarborough Heights pedestrian trail, as shown in Figure 5-16, is an informal paved trail which leads directly to the waterfront from Glen Everest Road. This access is a construction access road and, while paved, it is quite steep and can be dangerous if accessed during winter or in icy conditions.

The Needles to Bluffer's Park

Access to the shoreline in this portion of the Project Study Area is through Brimley Road, which provides for vehicular, cyclist and pedestrian access. This access will be improved with the construction of the Brimley Road South Multi-Use Trail. The improvements will include a separated multi-use trail with level rest areas, a paved surface and illumination.

5.3.4 Parking

Parking is limited along the waterfront. Bluffer's Park provides two large public parking lots (approximately 280 parking spaces combined) as well as a parking lot that services the boat ramp/launch (approximately 120 spaces). As noted in the SWP EA, the turnover rates are greatest for all three lots

during the weekends in July, particularly on Sundays. The majority of users spend approximately one to three hours parked on any given day in any given month (67% to 73% of users, on average), while a smaller proportion spend between three to six hours parked during the same timeframe (less 20% of users, on average). Typically, none of the lots exceed capacity during the week (some exceptions apply in July). On weekends, capacity is generally reached between 11 am and 12 pm (TRCA, 2018).

About 40 parking spaces are provided at Scarborough Heights Park, behind the Toronto Water Pumping Station and Off-Leash Park. The only vehicular access to the parking lot is through Fishleigh Drive.

Although there is no direct access to the waterfront, Rosetta McClain Gardens contains 37 parking spaces in their parking lot, which can be accessed from Kingston Road or Glen Everest Road.

The R.C. Harris Water Treatment Plant provides access to the shoreline; however, parking is limited to workers at the treatment plant. On-street parking is located along Queen Street East, as well as the several residential streets surrounding the treatment plant. On-street parking is also provided on Silver Birch Avenue, Munro Park Avenue, Neville Park Boulevard, and Nursewood Road, where there is pedestrian access to the shoreline. On-street parking in this area is limited, shared with residents with parking permits, and is often at a premium on weekends and during the summer.

Outside of the Project Study Area, several Green P parking lots are present, including Carpark lot 701 north of Kingston Road, west of Fallingbrook Road. Carpark lot 48, 303, and 170 are located directly west of the Project Study Area along Queen Street.

5.3.5 Transit Services

The Toronto Transit Commission (TTC) provides bus transit services along Kingston Road at the northern portion of the Project Study Area, as well as along Brimley Road on the eastern border of the Project Study Area and streetcar service along Queen Street East at the western limits. The 501 Queen Street streetcar contains two stops within the Project Study Area and terminates at the western end of the Project Study Area at the Neville Park Loop right in front of the R.C. Harris Water Treatment Plant. There is one bus line that offers direct transit access to Bluffer's Park during the summer months on Saturday and Sunday. The transit lines in the area are shown in Figure 5-18.

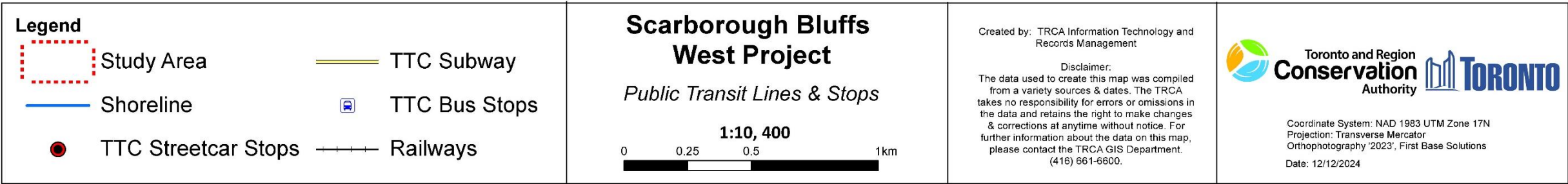


Figure 5-18: Public Transit Lines and Stops

5.3.6 Traditional Uses and Interests

Indigenous Peoples have lived on this land since time immemorial. Archaeological evidence from this area shows that people were living and hunting along the Scarborough Bluffs at least as early as 10,000 years ago. As technologies and agriculture advanced, populations grew, and settlements became larger and were occupied more regularly as the nomadic lifestyle of following resources was no longer necessary. Instead, small, temporary campsites were used during hunting expeditions.

The Project Study Area is located on the traditional territory of many nations including the Anishnabeg, Haudenosaunee and Wendat peoples and is now home to many diverse First Nations, Inuit, and Métis peoples. It is located on lands purportedly “surrendered” as part of the 1787 Johnson-Butler Purchase. In 1794 the Crown acknowledged that the Johnson-Butler Purchase was not valid due to irregularities in the treaty document.

These lands were formally surrendered in 1923 as part of the Williams Treaty, which was signed by seven First Nations, including the Mississaugas of Scugog Island, the Mississaugas of Alderville, Hiawatha, Curve Lake, Chippewa of Rama-Mnjakaning, the Chippewa of Georgina Island, and Beausoleil First Nation. A Settlement Agreement between the Williams Treaties First Nations and the governments of Ontario and Canada was signed in 2018 to address land claims and harvesting rights in the region, although questions regarding Indigenous rights remain (Pind and Hoggarth, 2023).

The Project Study Area is also the subject of a title claim submitted in 2015 by the Mississaugas of the Credit First Nation. The Mississaugas of the Credit First Nation were not a signatory of the Williams Treaty, and their 2015 claim asserts title to lands in the Rouge River Tract (Bennink, 2019).

First Nation and Métis communities may have an interest in the Project related to traditional land and/or treaty rights and land claims. Specifically, Aboriginal and/or treaty rights related to hunting, fishing, harvesting, and waterways may have the potential to be affected by the Project.

5.3.7 Cultural Heritage Resources

Cultural heritage resources include archaeological resources, built heritage resources and cultural heritage landscapes.

5.3.7.1 *Archaeological Resources*

A Stage 1 Archaeological Assessment (Project Information Form P338-0116-2016) was undertaken in 2017 by TRCA Archaeology Resource Management Services. A Stage 1 Archaeological Assessment consists of a review of geographic, land use and historical information for the property and the relevant surrounding area, a property visit to inspect its current condition and contacting the Ministry of Citizenship and Multiculturalism to find out whether, or not, there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g., Stage 2-4) as necessary.

The Stage 1 report indicates that PalaeoIndian groups were most likely to have utilized coastal environments and that groups were hunting and camping near kettle lakes along the Oak Ridges Moraine dating back to the end of the last ice age. Throughout the 18th and 19th Centuries, several treaties were negotiated between European settlers and Indigenous people. The lands that would become present day

Scarborough are believed to have been negotiated between the British and the Mississaugas in 1787, outside of the Toronto Purchase treaty which addressed the lands for the majority of present-day Toronto and York Region.

Archaeological features typically consider items such as human remains, pottery, and tools, while built heritage features consider items such as houses, bridges, and churches. The Project Study Area has a long history of Indigenous presence, land use and interest. Two archaeological sites have been identified within 1 km of the Project Study Area, the Midland Site (AkGt-7) and the Cathedral Bluffs Site (AkGt-212), both of which are associated with Indigenous occupations. The waterfront and surrounding areas would have offered rich resources such as fish, waterfowl, and game that would have been exploited as part of a people's seasonal round, as a result there is potential for encountering PreContact sites within the Project Study Area. A Stage 2 Archaeological Assessment is required in all areas identified as holding potential prior to any ground disturbing activities within the Project Study Area boundaries during future phases of the project.

5.3.7.2 Built Heritage Resources and Cultural Heritage Landscapes

The Project Study Area encompasses known and potential built heritage resources and/or cultural heritage landscapes which may be impacted by the proposed SBW Project. It features a significant historical transportation route (Kingston Road), as well as natural features that may have cultural heritage value, such as the Scarborough Bluffs, the Lake Ontario shoreline, ANSI, and ESA. A number of previously identified heritage properties are included on the City of Toronto's Heritage Register within the Project Study Area. Structures such as the R.C Harris Water Treatment Plant not only hold aesthetic value, but have been previously utilized in popular films and television series. The properties that are included within the City's Register include:

- Ashbridge House (42 Scarboro Cres) (Listed)
- Chateau des Quatres Vents (Part IV)
- Edgemount House (Part IV)
- Fred Coates House (Listed)
- Mann's Coach House (Listed)
- R.C. Harris Waterworks (Part IV)
- Scarborough Bluffs Refreshment Room (Part IV)
- Silver Birch Apartments (Listed)
- St. Augustine's Seminary (Part IV)
- Toronto Hunt Club (Listed)
- 2685 Kingston Road (Part IV)

Further screening to identify potential built heritage resources or cultural heritage landscapes situated in or adjacent to the Study Area will be undertaken during the EA, once Alternatives have been developed, through the completion of a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment.

5.4 Conclusions

Based on the existing conditions described in the previous sections, there are no areas within the Project Study Area for which the existing conditions preclude the development of Alternatives. In other words, there are no habitat features, landforms, species habitat and/or archaeological or heritage resources that preclude the consideration of Alternatives that may alter, either negatively or positively, these features. Alternatives will be evaluated based on impacts to all aspects of the environment during the EA phase. The evaluation of Alternatives will consider mitigation to lessen environmental impacts and will assess trade-offs between the Alternatives and relative advantages and disadvantages. Any unavoidable impacts associated with the Preferred Alternative determined by the EA process will be subject to mitigation measures, permitting, and/or offsetting requirements per appropriate legislation and/or TRCA and City policies.

5.5 Potential Effects of the Project

Based on experience with similar waterfront projects, including SWP, the following environmental effects are anticipated:

- Potential to remove existing aquatic and/or terrestrial habitat; however, opportunities for creation of similar or higher quality habitats will outweigh the removals.
- Potential to increase the diversity of habitats, shoreline types, increase the shoreline length, and increase shoreline substrate diversity.
- Improve access and safety for users to the shoreline, increase opportunities for accessing the water, and provide equitable access to all.
- Potential impacts to existing recreational uses such as surfing.
- Potential for cumulative construction traffic impacts as a result of this project in combination with other projects and development in the area.
- Nuisance impacts from construction (e.g., noise, dust, construction traffic, etc.).
- Potential impacts to private property (i.e., acquisition/easements may be required).

The negative net effects of the SBW Project, most of which would occur during construction and would be temporary/negligible, are anticipated to be offset by the much greater positive contributions of the project. The effects assessment will be undertaken during the EA.

5.6 Investigative Studies

The following applicable studies to inform the description of existing conditions have already been undertaken and will be included in the EA:

- Coastal Conditions Analysis
- Geotechnical Conditions Analysis
- Terrestrial biological inventory
- Aquatic community monitoring
- Stage 1 Archaeological Assessment

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment will be undertaken as part of the EA, following the development of Alternatives, to further screen for potential built heritage resources or cultural heritage landscapes situated in or adjacent to the Study Area.

To support the development of a reasonable range of Alternatives, risk line mapping at the *toe of the Bluffs* and the *top of the Bluffs* will be undertaken based on the results of geotechnical conditions analysis and on technical guidelines (established by MNR).

As part of the evaluation of Alternatives, it is expected that the following additional mapping and studies will be undertaken, with the results documented in the EA:

- GIS-based analysis to identify the overall footprint of each Alternative and extent of impact (i.e., enhancement or diminishment) to various natural, social, technical, and cultural environment features
- GIS-based analysis to measure lengths/areas of features created and/or proximity to various natural, social, technical, and cultural environment features
- Potential CMS circulation modelling to compare water exchange rates for existing versus proposed shoreline configurations, if a new embayment is created as part of a proposed shoreline treatment
- Coastal analysis to assess how each Alternative impacts wave direction and energy for confirmed surfing locations
- Opportunities and constraints mapping to assess how each Alternative positively or negatively impacts various natural, social, technical, and cultural environmental features

Should additional studies be identified, pending the outcome of the Alternatives development and evaluation process, and through further consultation with applicable regulatory agencies, these will be undertaken as necessary and documented in the EA. There is the potential that some of the identified studies or mapping may not be undertaken or reported on in the EA if the outcome yields no meaningful difference between the Alternatives.

6. CONSULTATION

To ensure pro-active, thorough, and inclusive efforts are taken, all communication and engagement mechanisms and activities (outlined within this section) will embrace the following guiding principles:

1. **Transparency and Openness:** Provide clear information to the public, interested, or affected groups, government and regulatory agencies, and Indigenous right holders and Indigenous community members in a timely manner to ensure they have access to the information they need to provide meaningful input. Clearly articulate their role, level of engagement and the outcomes at each step of the process.
2. **Respect and Inclusiveness:** Communication and engagement designed and conducted to be accessible to and inclusive of diverse communities.
3. **Early Involvement:** Involve the public, interested, or affected groups, government and regulatory agencies, and Indigenous communities as early as possible in the engagement process so they have time to learn about the issues and actively participate.

4. **Proactive and Timely Communication:** Consider all who may be affected and use appropriate methods of communication to proactively provide accurate and frequent updates to them.
5. **Forward Looking:** Paint a picture of potential and planned improvements, and restoration and management activities, to the extent possible, so that people understand the potential impacts and benefits.
6. **Simple Language:** Use language that is easy to understand; technical jargon will be minimized, and simplified words and phrases will be used to describe complex issues.
7. **Creative Solutions to Issues:** Keep an open mind to the possibilities for ideas, Alternatives, improvements and mutually beneficial or acceptable solutions.
8. **Evaluation and Continuous Improvement:** Periodic evaluation of communication and engagement processes to ensure mechanisms and activities utilized are appropriate and effective. Make any adjustments as necessary throughout the process.

The International Association for Public Participation's (IAP2) Spectrum of Public Participation was utilized to determine the level of engagement required and which communication and engagement mechanisms would be utilized to achieve the objectives identified (see Figure 6-1). Generally, consultation and communication activities included the 'Inform,' 'Consult' and 'Involve' levels of participation. The following sections identify which part of the spectrum each activity falls under.

IAP2 Spectrum of Public Participation



IAP2's Spectrum of Public Participation was designed to assist with the selection of the level of participation that defines the public's role in any public participation process. The Spectrum is used internationally, and it is found in public participation plans around the world.

INCREASING IMPACT ON THE DECISION 					
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

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Figure 6-1: IAP2 Spectrum of Public Participation

6.1 Consultation on the ToR

The objective of the public, agency, Treaty Holders and Indigenous Community consultation and engagement activities during the development of the ToR was to gain feedback on the contents of the ToR and provide an understanding of the project. ToR consultation mechanisms have included Notices; the formation of and meetings with a Community Advisory Group (CAG); meetings with landowners; virtual and in person information sessions; a project website; and surveys. Consultation with agencies, Treaty Holders, and Indigenous communities has included email and telephone correspondence, meetings as required, and a gathering for the urban Indigenous community.

Prior to project commencement, MECP was contacted for advice and information on Treaty Holders and Indigenous communities that should be consulted throughout the EA process. Additional Indigenous community contact lists were also considered, including ones held by TRCA. The following were engaged based on asserted or establish interest:

- Six Nations of the Grand River
 - Both the elected council and the Haudenosaunee Confederacy Chiefs Council (HCCC)
- Mississaugas of the Credit First Nation
- Williams Treaties First Nations: (NOTE: the 7 communities below make up the Williams Treaties First Nations)
 - Alderville First Nation
 - Beausoleil First Nation
 - Curve Lake First Nation
 - Chippewas of Georgina Island First Nation
 - Hiawatha First Nation
 - Mississaugas of Scugog Island First Nation
 - Chippewas of Rama First Nation
 - CC: Coordinator, Williams Treaties First Nations
- Huron Wendat
- Kawartha Nishnawbe

For a full description of the ToR consultation to date, please refer to the Record of Consultation submitted in conjunction with the ToR.

6.2 Consultation Plan for the EA

The Consultation Plan for the EA will meet the requirements of and best practice for the provincial EA process. TRCA and the City will continue to seek input from all interested parties on the planning and decision-making being undertaken as part of the SBW Project. Through the consultation activities, there will be opportunities for ideas to be raised, for potential concerns to be heard and addressed, and for interested parties to influence SBW Project study planning.

There will be three rounds of consultation during the EA. The first round will focus on identification of *Alternative Methods*, the second on the evaluation of *Alternative Methods*, and the third on the

assessment of the Preferred Alternative. More information on these rounds and the methods of consultation are outlined below.

6.2.1 Public Consultation

6.2.1.1 *Notifications: Inform*

Each phase of consultation will include a notice in accordance with regulatory requirements. In addition, the SBW Project website will be updated with relevant information. Letters/emails will be sent to all identified affected stakeholders, landowners, agencies, and Indigenous right holders and community members, to notify them of the SBW Project and ask if they have questions. Notifications in advance of public consultation events will be sent at least two weeks in advance. Passive signage in area parks may also be used to raise awareness of the SBW Project.

The following Notifications that will be issued during the EA include:

- Notice of Commencement of the EA
- Notices of Public Information Session (three notices)
- Notice of EA Submission

6.2.1.2 *Social Media: Inform*

Social media will continue to be used during the EA, providing relevant information of the project's progress to interested stakeholders and the general public. Social media posts will be derived from the notifications and other materials prepared for consultation events.

6.2.1.3 *Website: Inform and Consult*

The SBW Project website set up for the ToR will remain active during the EA phase. It will continue to be updated and hold all relevant information for the ToR and EA phase of the SBW Project.

6.2.1.4 *Public Consultation and Engagement Events: Consult and Inform*

The EA phase is anticipated to have three public consultation and engagement events that will occur at key decision points of EA planning to provide opportunity for interested parties to discuss issues or concerns directly with members of the project team and provide input to key decisions. Information for each round of consultation will be made available on a virtual platform over a period of four weeks to allow residents to asynchronously participate in the process. In-person events, pop-up events and landowner and stakeholder meetings will also be held.

Precise event formats will be determined once the EA phase kicks off but will include tactics described for the ToR phase.

- **First Event:** Seek input on *Alternative Methods*; criteria to evaluate *Alternative Methods*; incorporation of landscape framework into Alternatives; mitigation measures.
- **Second Event:** Seek input on evaluation of Alternatives and choice of Preferred Alternative method; mitigation measures; refinement of Preferred Alternative.

- **Third Event:** Seek input on refined Preferred Alternative; construction plan; mitigative measures; monitoring and adaptive management; other content of Draft EA report.

Additional engagement mechanisms, such as virtual events, pop-ups, walking and/or boat tours, and workshops will also be considered for each event based on several criteria, including stage of the SBW Project, content to be reviewed, and weather.

6.2.1.5 *Community Advisory Group (CAG): Consult, Involve and Collaborate*

During the EA phase, three CAG meetings are planned to coincide with the three public events planned. The CAG membership will remain unchanged from the ToR phase. Similar to the ToR phase, the CAG will be provided the opportunity to comment on the materials to be presented at the consultation events listed above.

6.2.1.6 *Landowner Meetings: Consult, Involve and Collaborate*

Once the EA is commenced and Alternatives have been identified and are assessed, it will become apparent which properties will be affected by project activities and how. At this stage it will be critical to meet individually with any landowners who may be affected or from whom property may be required to discuss the potential impacts and mitigation. During each round of consultation at least one landowner meeting will be held either virtually or in person to discuss property specific concerns and issues.

6.2.2 Indigenous Community Engagement

During the EA phase, Treaty Holders, and Indigenous Communities (see Section 6.1) will continue to receive notifications at each key milestone and will be invited to participate in each round of consultation activities. Community specific meetings will also be offered and held as requested and advance review of the draft EA report will be offered.

In addition, the City and TRCA will look for opportunities to seek feedback from urban Indigenous people.

6.2.3 Proposed Issues Resolution Strategy

The City and TRCA recognize that there may be issues raised or disputes during preparation of the EA that may be difficult to resolve, but every reasonable effort to respond to concerns and conflicts that may arise during the planning process will be made. As such, a preliminary issues resolution strategy is outlined below. This strategy will benefit all parties involved by providing a documented issues resolution process to ensure that disputes are dealt with effectively and appropriately.

Should an issue or dispute arise during preparation of the EA, the project team will discuss the nature of the issue or dispute with the interested persons and attempt, in good faith, to reach a resolution that is agreeable to the City, TRCA, and the interested persons. A comment disposition table will be used to transparently document comments and responses, and issue resolution meetings will be organized, as appropriate. Depending on the nature of the issue, it is also understood that a mutually agreeable resolution may not be achieved prior to submission of the EA; however, the interested persons will have the opportunity to further provide their issue or concern to MECP as part of the Ministry Review process.

7. COMMITMENTS AND MONITORING

7.1 Commitments

As part of preparing this ToR, a number of commitments have been made that will need to be fulfilled during preparation of the EA. **APPENDIX E** lists these commitments. If approval of the ToR is granted by the Minister, the list of commitments made by TRCA and the City will be finalized and included in the EA, documenting where and how they have been dealt with in the EA document. The EA will also include a comprehensive list of commitments made by TRCA and the City during the preparation of the EA. These will include all commitments related to:

- Impact management measures (mitigation measures).
- Additional works and studies to be carried out.
- Cultural Heritage Resources, including a potential Stage 2 archaeological assessment during detailed design, if required, when the location of ground disturbance activities are confirmed (and further stages, if recommended), and Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment.
- Monitoring.
- Stakeholder consultation.
- Documentation and correspondence.

7.2 Monitoring and Adaptive Management

The development of a monitoring plan will be an important part of the EA. Monitoring is used to verify expected environmental effects, to determine if additional mitigation measures are required, or if design changes are required and to ensure the fulfilment of commitments made in the EA and conditions of approval. A monitoring plan will be developed as part of the EA which will, at a minimum, include the following information:

- The frequency of the proposed monitoring.
- Monitoring methods.
- Submission procedures for the results of monitoring activities.
- The location of monitoring documents.
- Any applicable emergency response plans.

The components of and schedule for the monitoring plan will be developed and included in the EA. The monitoring plan will consider all relevant SBW Project phases: detailed design, construction, establishment, and post-establishment. It will also address the MECP's requirement for compliance and effects monitoring. Compliance monitoring is an assessment of whether a project has been designed, constructed, implemented and/or operated in accordance with the commitments in the EA document and the conditions of approval. Effects monitoring consists of activities carried out by the *proponent* after the approval of the EA to determine the environmental effects of the project.

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