



Wasaga Beach

Park Planning: Background Information



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Opportunity to Comment

Ontario Parks is preparing a new management plan for Wasaga Beach Provincial Park. Once approved, the plan will guide management and development of the provincial park over the coming years. As part of the planning process, I am pleased to approve this background information document for Wasaga Beach Provincial Park. This document consolidates information to support planning through to the completion of a final management plan. Ontario Parks has also developed a management topics and options document that outlines proposed management options and planning topics. The two documents are being released at the same time.

Ontario Parks is seeking input from Indigenous communities, stakeholders and the public on the information contained in this document. To make your submission effective, please list the topic(s) you wish to address and briefly state your reasons for agreeing or disagreeing with the information. You may also provide comments on other subjects important to you.

Written suggestions or comments must be made by July 25, 2019. Comments may be provided through the Environmental Registry at www.ontario.ca/ebr (search for registry notice number 013-4471), or addressed to:

Meghan Pomeroy
Park Planner, Ontario Parks
1350 High Falls Road, Bracebridge ON P1L 1W9
Telephone: (705) 646-5520
Email: meghan.pomeroy@ontario.ca

The next stage of planning will be the development of a preliminary management plan, which will present preferred policies to guide park management, operations and development. The preliminary management plan will be released for comment and review for 45 days. All comments received throughout the planning process will be considered in the development of the final management plan.

Ontario Parks recently approved a beach management secondary plan to provide up-to-date direction for managing the beach in Wasaga Beach Provincial Park while the broader park management plan is being prepared. Comments received during consultation on the secondary plan will be considered in the current planning process.

Thank you in advance for your interest and comments on the future management of Wasaga Beach Provincial Park.

Approved

26/02/2018

Bruce Bateman
Director
Ontario Parks

Date (dd/mm/yyyy)

Ontario Parks is collecting your personal information and comments under the authority of Ontario's *Provincial Parks and Conservation Reserves Act, 2006*. Your comments (not including personal information) will become part of the record of consultation and may be shared with the general public. Your personal information may be used by Ontario Parks to follow-up with you upon request or when required. It will also be used to send you information about future Ontario Parks initiatives involving this provincial park. Please indicate in your response if you do not wish to be notified of new initiatives. If you have questions about the use of your personal information, please contact the park planner noted above.

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Résumé

Le parc provincial Wasaga Beach est un parc de loisirs de 1 844,3 hectares situé sur les rives de la baie Nottawasaga dans le sud de la baie Georgienne. Créé en 1959 en application de la *Loi sur les parcs provinciaux*, il est maintenant soumis à la *Loi sur les parcs provinciaux et les réserves de conservation*. Le parc provincial Wasaga Beach se trouve entièrement dans les limites municipales de la Ville de Wasaga Beach.

Le parc est une destination touristique prisée, surtout en été; chaque année, il accueille plus d'un million de visiteurs en provenance de partout dans la province, d'ailleurs au pays et de l'étranger. En plus d'attirer des touristes, le parc provincial Wasaga Beach qui se trouve dans une collectivité est utilisé toute l'année durant par des résidents locaux et des environs. Le parc offre un vaste réseau de sentiers accessibles à l'année, un centre d'interprétation axé sur la riche histoire culturelle de la région, 14 kilomètres de plages d'eau douce et d'aires de pique-nique ainsi qu'un accès public à la baie Georgienne. La plage constitue un atout récréatif et culturel très apprécié; elle est considérée comme l'une des dix plus belles plages du Canada et contribue fortement à la culture, à l'identité et à l'économie de la Ville de Wasaga Beach.

Outre ses importantes ressources récréatives et culturelles, le parc présente des caractéristiques provinciales, régionales et locales représentatives des sciences de la Terre et de la vie comme les dunes paraboliques les plus vastes et les moins perturbées en Ontario, des milieux humides, une partie de la rivière Nottawasaga, un système actif de plage d'eau douce et de dunes, des crêtes de plages anciennes, des communautés végétales distinctes et un certain nombre d'espèces en péril¹.

Le parc gère une diversité de valeurs naturelles, culturelles et récréatives d'importance dans un secteur marqué par un fort accroissement démographique et une expansion urbaine soutenue. Ce contexte soulève des défis administratifs et opérationnels en plus d'ouvrir des possibilités. Le plan directeur du parc, lequel a été approuvé en 1978, ne répond plus à ses besoins; il doit être remplacé. Parcs Ontario a donc entamé un processus de planification dans le but de concevoir un nouveau plan de gestion et de fournir au parc une orientation de la gestion qui soit pertinente, actuelle et efficace.

Le présent document a pour objectif de présenter des renseignements pertinents qui seront pris en compte dans l'élaboration du nouveau plan de gestion du parc provincial Wasaga Beach. Parcs Ontario a également conçu un document dans lequel sont décrites les options de gestion et les questions de planification proposées. Les deux documents sont publiés en même temps afin de recueillir l'avis des collectivités autochtones, des intervenants et du public.

Pour de plus amples renseignements en français, veuillez contacter le Centre d'information sur les ressources naturelles au 1-800-667-1940.

1 Introduction

Wasaga Beach Provincial Park is a 1844.3 hectare (ha) recreational class provincial park located on the shores of Nottawasaga Bay in southern Georgian Bay (appendix B, figure 1). It was established under the *Provincial Parks Act* in 1959 and is now regulated under the *Provincial Parks and Conservation Reserves Act* (PPCRA). Wasaga Beach Provincial Park is situated entirely within the municipal boundaries of the Town of Wasaga Beach (appendix B, figure 2).

The park is a popular tourist destination, especially in the summer, and welcomes over one million visitors each year from across the province and national or international destinations. In addition to drawing tourists, Wasaga Beach Provincial Park is located within a community and is used year round by local and nearby residents. The park offers an extensive year-round trail network, an interpretive centre focused on the rich cultural history of the area, 14 kilometres (km) of freshwater beach and picnic areas, and public access to Georgian Bay. The beach is a strongly valued recreational and cultural feature; it is recognized as one of the top ten beaches in Canada, and contributes significantly to the culture, identity and economy of the Town of Wasaga Beach.

In addition to having important recreational and cultural resources, the park contains provincially, regionally and locally significant earth and life science features such as the largest and least disturbed parabolic dunes in Ontario, wetlands, a portion of the Nottawasaga River, an active freshwater beach and dune system, ancient beach ridges, distinct vegetation communities, and a number of species at risk¹.

The park manages a diverse range of significant natural, cultural and recreational values within an area of intense population growth and urban development. This setting creates administrative and operational challenges as well as opportunities. The Park Master Plan, approved in 1978, no longer meets the needs of the park and needs to be replaced. As a result, Ontario Parks has started a planning process to develop a new management plan to provide the park with relevant, current and effective management direction.

The purpose of this document is to present pertinent background information which will be considered in the development of a new management plan for Wasaga Beach Provincial Park. Ontario Parks has also developed a management topics and options document that outlines proposed management options and planning topics. The two documents are being released at the same time for input from Indigenous communities, stakeholders and the public.

2 Historical perspective and past planning

The exceptional natural, cultural and recreational values of the Wasaga Beach area have been recognized by local residents and visitors to the region for many years. The area became popular as a recreation destination in the 1930s and 1940s, with increased visitation following the Second World War. During this time, the Village of Wasaga Beach and the townships of Sunnidale, Flos and Nottawasaga began to develop facilities and services to support the increasing demand from summer visitors.

Tourism became an economic driver for the area; resorts, cottages and businesses focused on providing recreational opportunities associated with the long stretch of sand beach and the shallow waters of Georgian Bay. The resulting mix of relatively unplanned commercial, recreational and residential development created land use conflicts and tension between short term visitors, seasonal residents, and permanent residents.

In the mid-1950s, the Village of Wasaga Beach and the townships of Sunnidale and Nottawasaga approached the province for assistance in managing the beach and recreational use in the area. As a result of this request, and in recognition of the area's significant recreational and natural values, Wasaga Beach Provincial Park was established as a provincial park under the *Provincial Parks Act* by an Order-in-Council made August 27, 1959 (Ontario Regulation 195/59).

Multiple planning processes have been undertaken over the years to provide direction for managing the provincial park; individual management plans were approved in 1963, 1967, 1971 and 1978. Planning for Wasaga Beach Provincial Park has always considered the context within which the provincial park exists; close to large population centres, within an area of rapidly growing population, and in a community based almost entirely on tourism and recreation.

Differing views on park objectives and methods of management have led to disagreement at times. Controversy occurred when additional land was acquired for park purposes in the 1960s and 1970s, but measurable benefits to the local community were not immediately apparent. In particular, concern arose from the loss of lands available for residential and commercial development within the community. Additionally, there are conflicting views regarding beach management practices, permitted use policies, land ownership, and facility and infrastructure maintenance. The root of some disagreements may stem from the fact that the province and local community occasionally have divergent goals with regards to the purpose or operation of Wasaga Beach Provincial Park.

The history of the provincial park, including the long-standing relationship with the local community, as well as past planning and land acquisition initiatives, continues to influence and shape the planning, operation and development of Wasaga Beach Provincial Park.

3 Planning area

3.1 Regional setting

Wasaga Beach Provincial Park is located in Simcoe County, on Nottawasaga Bay at the southern end of Georgian Bay (appendix B, figure 1). The park is situated entirely within the Town of Wasaga Beach, in the geographic townships of Flos, Nottawasaga and Sunnidale (appendix B, figure 2).

The park is located within Treaty 18, 1818 and the traditional territory of the Chippewa and Huron-Wendat. Additionally, the park falls within the Georgian Bay asserted Métis harvesting territory and the asserted traditional territory of the Saugeen Ojibway Nation.

Simcoe County has a mixed landscape of urban, rural, agricultural, forested and wetland areas. It is bordered to the north by the rugged bedrock outcrops of the Canadian Shield, and extends to the south through rolling hills, forests, pasture and agricultural lands. In the 2016 census, Simcoe County had a population of approximately 479,600, and contains 16 member municipalities, including the Town of Wasaga Beach. Other larger communities in Simcoe County in the vicinity of Wasaga Beach Provincial Park include Collingwood, Midland and Barrie.

Ontario is divided into 71 ecodistricts (formerly known as ecological site districts) based on landforms and biological productivity. Wasaga Beach Provincial Park is located in ecodistrict 6E-6. This ecodistrict extends between the eastern edge of the Niagara Escarpment and the southern edge of the Canadian Shield, and includes Alliston and the east side of Lake Simcoe. It is characterized by a series of high sand and till islands, bordered by shore cliffs, beaches, dunes, and terraces.

Wasaga Beach Provincial Park is located within the southwest administrative zone of Ontario Parks.

3.2 Access

A network of provincial highways, county and municipal roads provides access to Wasaga Beach Provincial Park (see Appendix B, figure 2). In the park, vehicle parking is available at Beach Areas 1 through 6, New Wasaga and Allenwood, as well as at the Trail Centre, Welcome Centre, Oakview Woods and Schooner Town. Many residents and visitors park vehicles outside Wasaga Beach Provincial Park in municipal or private parking lots, on municipal roadways, or at their residences, and walk into the park. The Town of Wasaga Beach operates a public transportation system with several routes and stops near the provincial park.

Pedestrian access to the shoreline areas of the park is generally uncontrolled, except where restrictions are in place for operational or resource management purposes. In the Dunes Area, pedestrian access is restricted in some places by fences, although access points for authorized trails exist at multiple locations around the perimeter of the park.

The Trail Centre provides access to the all-season trail network, which includes a portion of the Ganaraska Trail. Additionally, the Town of Wasaga Beach has developed a network of trails connecting different locations within the municipality and the provincial park. For example, the Harold Culham Memorial Bicycle Trail travels through the municipality, and enters the Dunes Area of the park near Schooner Town.

Along the shore of Georgian Bay, boats are able to pull up on the beach in numerous locations; the only exceptions to this are within the designated swimming area at Beach Area 1 and on the point during shorebird nesting season. A boat launch providing access to the Nottawasaga River is located at Beach Area 1. Along the river, paddlers and boaters are able to enter the park where the shoreline is conducive to pulling boats up (e.g., Schooner Town, Fisherman's Road, and Jack's Lake).

In the winter, snowmobile trails travel through the Dunes Area of the park, but no parking or stopping areas are provided. Snowmobile access to Wasaga Beach

Provincial Park also occurs along the Georgian Bay shoreline although this access is not part of a formalized trail.

3.3 Park boundary and land tenure

Wasaga Beach Provincial Park is made up of many non-contiguous blocks of land (see appendix B, figures 2 - 11). The largest block of land is known as the Dunes Area, which is located inland from the shore of Georgian Bay. This area contains the provincially significant parabolic dunes and ancient beach ridges. It is relatively intact and protects a variety of habitats, vegetation communities, landform features, and cultural and archaeological values. The Trail Centre and majority of the park's all-season trails are located in this area. Another large block of land is located along Georgian Bay; the park boundary follows the curve of the shoreline and extends 402 metres out from shore. This area contains provincially significant earth and life science features, including a coastal freshwater relict beach and dune system and the mouth of the Nottawasaga River. It protects the most popular and important recreational features within the park (beach, playgrounds, picnic areas, etc.). Smaller blocks of land include the Welcome Centre, Nancy and Tower islands, Oakview Woods, Ross' Woods, Schooner Town, as well as other small parcels of land near Shore Lane and throughout the municipality.

The boundary of Wasaga Beach Provincial Park has changed nine times since the park was first established in 1959 under the *Provincial Parks Act*. Changes have resulted from the acquisition of land for park purposes or disposal of land for municipal purposes (e.g., facilities or infrastructure). Most of the land that makes up Wasaga Beach Provincial Park is acquired, patented land, with the exception of the Crown lake bed, a limited portion of the river bed near the mouth of the Nottawasaga River, and some areas of the beach. Most of the acquired land has been purchased at fair market value, although some properties were expropriated for provincial park purposes.

A review of land tenure information related to the provincial park is underway. The purpose of this review is to ensure title information is up to date, and to ensure appropriate tenure instruments are in place. Information collected in this review, as well as through the management planning process, will inform future proposals related to the park boundary (additions or removal of park land). Due to the complex nature of the land tenure review, a new park boundary will be completed later than the new park management plan. The park management plan will, however, provide broad direction to guide decision making for adding or removing land from the provincial park.

A portion of land (lakebed) regulated as Wasaga Beach Provincial Park is subject to a land claim by the Saugeen Ojibway Nation.

4 Values

Ontario's Protected Areas Planning Manual describes a park value as a specific attribute or feature, or ecological function, which may require additional or special consideration during a planning process and subsequent management. A value of conservation interest is a particularly significant value; it is often associated with why the park was established and/or how the park contributes to the provincial park system and

maintenance of ecological integrity. A value can be tangible, meaning it is able to be physically described or defined on the ground (e.g., an important species or habitat, a park trail or trail network, or an archaeological site). A value can also be intangible, meaning it can be described but not easily defined on the ground (e.g., a scenic lookout, a visitor experience, or an ecosystem function). A description of Wasaga Beach Provincial Park's values is provided in the following sections, including identification of values of conservation interest.

4.1 Natural heritage values and processes

4.1.1 Life science values

Wasaga Beach Provincial Park encompasses a wide variety of complex and diverse habitats and natural heritage features. These habitats and features support provincially, regionally and locally significant species and vegetation communities, as well as contribute to the life science feature representation targets within Ontario's provincial park system. Most of the significant communities and species are associated with the modern, active beach and dune system along the park's shoreline, as well as the ancient dunes and interior forest habitat. Significant features listed here will be considered values of conservation interest for the purposes of park planning. Much of the park lands have also been designated as the provincially significant Wasaga Beach Provincial Park and Wasaga Backlands Park Reserve Life Science Area of Natural and Scientific Interest (ANSI).

An overview of life science values is provided below; for more information, refer to the 2005 Detailed Life Science Inventory for Wasaga Beach Provincial Park (North-South Environmental Inc.).

4.1.1.1 Flora

Thirty-two distinct vegetation communities have been identified using the province's Ecological Land Classification (ELC) system. Vegetation communities are generally of very high quality; these include coniferous and mixed forest, mineral meadow marsh, tallgrass woodland, tallgrass prairie, mixed and deciduous swamp, deciduous forest, and cultural meadow (due to high diversity of species and presence of prairie species). The Nottawasaga River meanders through the park, supporting a robust riparian forest environment with a variety of rare and unique meadow and forest species.

There are 774 plant species within Wasaga Beach Provincial Park. Of this total, 10 are classified as provincially significant, and 58 are regionally significant. Notable examples of rare plants found in the park include butternut trees, ram's head lady slipper, pitcher's thistle, carolina puccoon, and Hill's thistle. The distribution of the park's significant plant species is highest in the cultural meadow habitat (21 significant species), followed by the coniferous forest (17 significant species), and the sand barren habitat (15 significant species) as noted in the life science inventory undertaken by North-South Environmental Inc. in 2005.

A brief summary of significant vegetation communities or habitats is included below.

Oak woodland, tallgrass prairie, and hay sedge sand barren (all S1ⁱⁱ)

Oak woodland, oak savannah, tallgrass prairie and sand barren are provincially significant and related plant communities in Ontario (North-South Environmental Inc.). These communities exist in warmer-than-usual areas within the dunes where past disturbance (such as fire or erosion), dune shape, and soil type has kept the plant communities relatively open and slowed natural succession.

The predominant community in Wasaga Beach Provincial Park is oak woodland, which consists of open-grown red oaks with sun-loving ground vegetation and prairie species. Forest species are also present in shadier areas. Wasaga Beach Provincial Park woodlands are unusual as the community is dominated by red oak, whereas many other oak communities in Ontario are dominated by black and bur oak (North South Environmental Inc., 2005). Plant communities that have colonized areas disturbed by blowouts (blowouts result from destabilization of vegetation and sediments due to disturbance) are characteristic of provincially significant sand barren and prairie communities. Historically, there has been significant representation of prairie habitat within the park although, due to natural succession, these communities have been in decline. Prairie communities within Wasaga Beach Provincial Park can be found on dune crests or areas within the foredunes.

Tallgrass prairie/cultural meadow (S1/no status)

The former agricultural fields located in the Dunes Area, on the former Nipissing Lagoon, have succeeded into a tallgrass prairie/cultural meadow community. It is different from the prairie communities found in the higher dunes due to the difference in soil substrate. Although it has been degraded by natural succession, tallgrass prairie species such as little bluestem are abundant. This community is provincially significant and is unusual as it exhibits a transition from largely non-native dominated plants to an area that is largely dominated by native species.

Coastal meadow marsh (S1)

This type of community is globally and provincially imperilled. It occurs on calcareous sandy shorelines of the lower Great Lakes and has affinities to other significant communities such as fens and prairies. A small fragment of this community was found near Ross' Woods; however, in 2005, it was noted that this specialized habitat was drying out and was threatened by an access path and nearby development.

Great Lakes, open and shrubby sand dunes (S2)

Great Lakes shoreline dunes are considered provincially significant. Component plant communities vary from sparsely vegetated, active dunes to communities dominated by grasses, shrubs, and trees, depending on the degree of sand deposition, sand erosion, and distance from the lake (P. Comer, NatureServe Explorer). Vegetation can consist of various beach grasses (e.g., American beach grass, little bluestem) as well as willows and cherry where vegetation has been established for some time.

Old growth hemlock in Oakview Woods

There is evidence that the hemlock trees in Oakview Woods could be considered old growth, as defined by ecological characteristics (North-South Environmental Inc., 2005).

Hemlock trees in this area are very large and have begun to die. A forest could be considered old growth when the canopy that grew following initial disturbance begins to die; this forms openings in the canopy cover and allows younger, pioneering tree species to fill in the gaps. The resulting forest is more diverse and complex.

4.1.1.2 Fauna

Wasaga Beach Provincial Park provides a multitude of diverse habitats for many wildlife species, including numerous species at risk. Three hundred and eleven species have been reported in and near the park. Of this total, there are 44 mammal species, 15 reptiles, 15 amphibians and 237 bird species. Some of the most common wildlife in the park include white-tailed deer and porcupines, which are attracted to the coniferous, deciduous and mixed forest habitats.

The Georgian Bay shoreline is an important landscape feature used by many bird species as both a habitat for carrying out life processes, but also as a navigational aid and stopover site. The piping plover, an endangered bird species, can be found nesting on the shoreline of the park during the spring and summer months. Other bird species attracted to the shoreline and larger forested area include the special concern wood thrush and red headed woodpecker, as well as the threatened eastern meadowlark, barn swallow, and bank swallow.

Wasaga Beach Provincial Park is also home to the eastern hog-nosed snake, which is threatened in the province of Ontario. This non-venomous, thick bodied snake prefers well-drained habitats, such as beaches and dry forests, which are found in abundance within the park.

Several bat species are located within the park. Bat species in Ontario are declining, with several listed on the species at risk in Ontario list as endangered. During the 2015 Bioblitz, eight species of bats were recorded within the park, including four species at risk bats (tri-colored bat, northern myotis, little brown myotis and the eastern small-footed myotis). Wasaga Beach Provincial Park provides good habitat for all eight species of bats because of the excellent foraging opportunities in the forest and along the Nottawasaga River. Most bat species tend to use trees along hillsides and ridges for foraging rather than riparian areas (LeVal and Clawson, 1977; Amelon and Burhans, 2006).

Monarch butterflies, which are a species of special concern, can be found along the shoreline during migration, as well as in areas where native milkweed plants are found.

4.1.1.3 Fish

The Nottawasaga River supports a diverse fish population and is a popular sport fishing destination for many anglers. The Nottawasaga River meanders adjacent to and through the park, before passing through the Town of Wasaga Beach and into Georgian Bay. This stretch of the river is a significant warm water fishery, as well as a major coldwater fish migratory route for species such as rainbow trout, brown trout, lake whitefish, and Chinook salmon.

The Wasaga Beach Provincial Park shoreline provides 14 kilometres of habitat for many warm and cold water species, including the threatened Great Lakes-Upper St.

Lawrence River population of lake sturgeon. The lake sturgeon is Canada's largest fresh water fish, and has ancestral ties dating back two million years. The Nottawasaga River is extremely important for the lake sturgeon's critical life processes, such as spawning, staging, feeding and migrating.

4.1.1.4 Ecological functions and processes

From a landscape perspective, Wasaga Beach Provincial Park functions partially as a wilderness area within what is a relatively urban or agricultural region due to its size and minimal disturbance in some parts of the park. The park protects natural linkages along the Nottawasaga River and Georgian Bay shoreline, which contribute to natural connectivity across the landscape and the corridor extending to the Minesing Wetlands.

From a more local perspective, Wasaga Beach Provincial Park protects a variety of habitats for rare or specialized plant and animal species that rely on sand dunes or extremely dry conditions (see sections 4.1.1.1 and 4.1.1.2). The park also protects core or interior forested areas in the northwest portion of the Dunes Area and south of Veteran's Way. Core areas are important habitat for specialized species that are negatively affected by edge effects; edge effects consist of the light, moisture, disturbance and other conditions in areas within 100 m of a forest edge.

Natural succession is able to occur unimpeded in some areas in the park where minimal resource management or recreation activities occur. Natural succession is occurring in some significant plant communities (described above) resulting in a change of ecosystem dynamics.

Generally, fire has been suppressed in the park; however, fire is one of the most critical factors in maintaining some of the province's most significant vegetation communities such as tallgrass woodlands, prairies and savannahs. Prescribed burns have been undertaken in the park to reintroduce natural disturbance and improve the ecological integrity of vegetation communities that are reliant on fire. Evidence of past fires exists throughout the park in the form of burnt stumps, and anecdotal information indicates that several fires have occurred since the 1970s.

Some natural ecological functions and processes occur along the Georgian Bay shoreline, including dune formation and erosion as part of the sediment cycle. These processes are often interrupted as a result of maintenance that occurs in support of recreation (i.e., beach raking, vegetation removal). Refer to the Beach Management Secondary Plan for further information.

4.1.1.5 Wetlands

Wetlands are lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. Wetland soils are waterlogged, and favour water-tolerant or water-dependent species. They range in size and shape and are often transitional habitats that connect aquatic and terrestrial ecosystems. Wetlands provide important ecological services by protecting biodiversity and breeding habitat, as well as protecting functions associated with ground water recharge, filtration (water quality improvement), flood attenuation, climate change mitigation, and erosion control. Ontario's Wetland Conservation Strategy (2017) notes

that wetlands act as natural infrastructure in Southern Ontario; for example, a 2017 study by Moudrak, Hutter and Feltmate examined the financial cost of a major flood event in urban and rural areas, and found that leaving wetlands intact on the landscape can reduce the financial costs of floods by up to 38%.

Over 310 ha of wetlands are present within the park. Most have not been evaluated under Ontario's Wetland Evaluation System (OWES) to determine their significance; however, six of the wetlands contained completely or partially in the park have been evaluated and found to be provincially significant. It is presumed that the remainder of the wetlands within the park would also be designated as provincially significant if they were evaluated using the current wetland evaluation system.

4.1.2 Earth science values

Wasaga Beach Provincial Park's geomorphological history has influenced the park's micro-climates, ecosystem function and composition, and recreational opportunities.

There is no bedrock exposed within Wasaga Beach Provincial Park. Bedrock occurs at depths of over 50 metres (m) below the surface; as such, it played no major role in the development of the park's landscape topography. The park occupies a generally low plain of sand and fine gravel. The sediments and landforms in the park represent the development of a barrier bar and spit system during the Nipissing and post-Nipissing lake stages (approximately 6000 to 2500 years ago). This system consisted of beaches, foredunes, transverse dunes, parabolic dunes, and an enclosed lagoon.

Soils and sediments within the Wasaga Beach area are generally fragile and prone to erosion. This is especially true where slope or disturbance has increased exposure to wind or reduced vegetation cover. Soils in most areas of the park are thin, poorly-developed, less than 1 m deep, and generally immature. In the former lagoon area near Jack's and Marl lakes, surficial sediments are thicker, poorly drained and relatively stable clay, silt and sand.

The park protects one of the most comprehensive sediment records of the history of post-glacial Lake Algonquin along the Great Lakes coastline. The beach and dune complex described above is significant due to its size and setting, degree of preservation, habitat for flora and fauna, and interpretive value. The complex is one of the most massive and complete in the province, and, in particular, the parabolic dunes are the largest and least disturbed in the province. The modern beach, foredunes, raised beaches and parabolic dunes are considered, in combination, to be provincially significant earth science values and values of conservation interest. They contribute to Ontario's provincial park representation targets for earth science features as described in *Ontario Provincial Parks: Planning and Management Policies* (1992).

The 1997 inventory of Wasaga Beach Provincial Park's earth science features divided the park into six physiographic units, which are roughly parallel to water's edge, beginning at present shoreline. A brief description of these units is included below; for additional information, refer to the Wasaga Beach Provincial Park Earth Science Inventory (Kor, 1997).

4.1.2.1 Modern, active off-shore shelf, beach and dunes

This section encompasses the modern, active beach and dune system. The width of the beach fluctuates naturally with the changing water levels of Georgian Bay. The flat beach is backed by irregular, low, indistinct to transverse dunes (foredunes), and includes the long spit between the bay and Nottawasaga River. The off-shore shelf is a wide, shallow shelf with seven to nine off-shore bars extending underwater and parallel to the shoreline. These are the youngest sediments in the park, representing modern processes of beach and foredune development. Sediment sources include the Nottawasaga River, and the near-shore lakebed.

4.1.2.2 Nipissing and post-Nipissing raised beaches

This section slopes up gently from the modern, active beach. Oakview and Ross' Woods, as well as the northwest portion of the Dunes Area are included in this physiographic unit. It contains up to 40 ancient, raised beaches (also called abandoned beaches). The raised beaches represent old shorelines formed by receding lake levels. They consist of long, narrow, low ridges of sand and fine gravel interspersed with similarly proportioned, poorly-drained, shallow swales, commonly holding standing water and wetland vegetation; relief between the ridges and swales is generally less than 1 m. Based on the number of ridges, it is estimated that the ridges were produced over a period of approximately 2000 years.

4.1.2.3 Nipissing foredunes

Located in the middle of the Dunes Area further inland from the modern, active beach and Nipissing raised beaches, this physiographic unit consists of higher indistinct to segmented transverse dunes and minor blowouts where relief is generally less than 5 m. The foredunes are now stabilized by vegetation cover; however, soils are thin and generally susceptible to disturbance and erosion. These are the oldest sediments in the park as they made up the barrier bar island that formed during the Nipissing stage.

4.1.2.4 Parabolic dunes

This unit consists of a relatively narrow, curved area of very high and distinct parabolic dunes, composed of fine-grained, aeolian sediments. Dunes are up to 30 m high in this area. The distinct U-shaped dune ridges were formed during periods of intense wind erosion during the drop in lake levels from glacial lakes Nipissing to Algoma. They represent ancient blowouts of Nipissing transverse dunes. During this time, moisture within the sediments provided the necessary cohesion of sand particles for the formation of parabolic dunes. The steep slopes of the parabolic dunes face away from the present lake and are well stabilized by forest cover. Due to the forest cover and minimal development, the parabolic dunes have not been subject to significant alteration. Blowouts have formed where vegetation has been disturbed, such as at the highest dune, known locally as Monument Hill. Most of the parabolic dunes are preserved within the east portion of the Dunes Area, however, a portion of relatively intact parabolic dunes exists outside the park to the northeast, close to Marl Lake.

4.1.2.5 Nipissing / post-Nipissing lagoon

As Nipissing Lake levels dropped, a lagoon formed inland from the foredunes and beach ridges. In this unit, sand and fine gravel sediments are layered with marl and peat, which is typical of a lagoon environment adjacent to an active beach. The flat plain in this unit represents the lagoon once enclosed by the Nipissing / post-Nipissing barrier island system; Jacks and Marl lakes are remnants of this lagoon. Within the park, this unit is represented in the flat plains adjacent to the parabolic dunes, and by deposits of marl, peat and sand buried under the dunes. These sediment layers can be seen in naturally eroded sections of the Nottawasaga River.

4.1.2.6 Nottawasaga River and its flood plain

Only small portions of the floodplain and river bed are within the regulated park boundary. Modern processes of erosion and deposition occur in this area. The river's course within the Town of Wasaga Beach has been largely confined by bank and erosion control structures where housing and other development has occurred. Upstream from developed areas, several sections of natural river bank have been identified as particularly important for their record of sediments, which represent different stages and types of deposition since the last glaciation. A portion of the most important of these sites is within the park on the south side of the Nottawasaga River where Lamont Creek joins the river. This small section of natural river bank constitutes a complete record of sediments in the area, from the oldest sediments of the Newmarket Till to recent deposits.

4.1.3 Watersheds

4.3.3.1 Nottawasaga Valley Watershed

A watershed is an area where water, rivers or streams drain to the same place. Wasaga Beach Provincial Park is located within the Nottawasaga Valley Watershed. This watershed covers approximately 3700 km² and includes 35 km of shoreline on Georgian Bay. It is bordered by higher land of the Niagara Escarpment to the west, the Oak Ridges Moraine to the south, and the Simcoe Uplands and Oro Moraine to the north and east. Land use in this largely rural watershed is primarily agricultural, however, significant natural forested and wetland areas continue to exist.

Activities in Wasaga Beach Provincial Park contribute to the overall health of the watershed, and activities within the watershed can have direct and indirect impacts on Wasaga Beach Provincial Park. The Nottawasaga Valley Conservation Authority (NVCA) undertakes an assessment of the overall health of the watershed every five years. Two sets of watershed reports are produced: Watershed Health Checksⁱⁱⁱ and a Watershed Report Card^{iv}. The following information from the most recent available assessments (2013) provides a landscape view of conditions within the watershed in which Wasaga Beach Provincial Park is located.

Generally, the Nottawasaga Valley watershed's forest conditions are good; however, the overall trend is that forest conditions are declining. Forest cover loss is primarily associated with development. Forest cover assists in maintaining ecological connectivity, and contributes to an area's resiliency when adapting to climate change.

Riparian forest cover (the forested area along streams and rivers) is important for its role in filtering pollutants, and providing fish and wildlife habitat.

The Nottawasaga Valley's wetland conditions were also determined to be good but declining. Wetlands play a critical role in flood protection, pollution filtering, stream and river flow moderation, adaptation to climate change, and the overall ecological health of the watershed.

Stream health in the Nottawasaga Valley watershed was determined to be poor, with no trend of decline or improvement over previous assessments. Most of the rivers in the watershed flow to the Nottawasaga River, which passes through Wasaga Beach Provincial Park. Streams that flow through areas with forest and wetland cover are generally healthy whereas streams that drain urbanized or agricultural areas, such as Innisfil Creek, are generally unhealthy. High nutrient loading, specifically phosphorus, was noted by the NVCA as the most significant water quality issue within the watershed. Streams and rivers in the watershed have variable bacteria (E. Coli) levels, with some exceeding the recommended safe levels for swimming.

The status of groundwater within the watershed was noted in 2013 as very good. Groundwater serves to sustain stream flow and wetland levels. It also provides water for human uses, such as drinking water and other municipal, industrial and agricultural uses. More than 130 municipal wells, and over 10 000 private wells, exist within the watershed. Active groundwater monitoring by the NVCA, in partnership with the Ministry of the Environment, Conservation and Parks, occurs in many areas throughout the watershed.

Several subwatersheds exist within the Nottawasaga Valley Watershed. A subwatershed is an area that drains a distinct river or stream system within the watershed. Wasaga Beach Provincial Park is made up of portions of the Lower Nottawasaga River and Blue Mountain subwatersheds.

4.1.3.2 Lower Nottawasaga River Subwatershed

The Lower Nottawasaga River Subwatershed includes the Dunes area of Wasaga Beach Provincial Park, Schooner Town, as well as Beach Areas 1, 2, New Wasaga and Allenwood.

Forest cover in the Lower Nottawasaga River Subwatershed has been rated as fair and declining. Forest cover is variable across the subwatershed, with large blocks of interior forest interspersed with large areas of agricultural land with minimal tree cover. Forested Georgian Bay shoreline in this subwatershed is limited.

Wetland conditions within the Lower Nottawasaga River Subwatershed were considered good but declining in 2013. Several large blocks of provincially significant wetlands occur within this subwatershed, including portions of the internationally and nationally significant Minesing Wetlands. The Minesing Wetlands provide critical flood protection for the Town of Wasaga Beach and Wasaga Beach Provincial Park as this wetland holds back water and regulates flow towards Georgian Bay. Within the Town of Wasaga Beach and Wasaga Beach Provincial Park, blocks of provincially significant wetlands exist near Jack's and Marl lakes, in the Dunes area of the park near the Trail Centre, and inland from New Wasaga and Allenwood beach areas.

The Lower Nottawasaga River Subwatershed has poor stream health, with no change from previous assessments. The main river in this subwatershed is the Nottawasaga River; several creeks and rivers flow into the main river. With the exception of a small portion of Marl Creek near Anten Mills, evaluated rivers and creeks in this subwatershed are below potential (e.g., Nottawasaga River, McIntyre Creek) or impaired (e.g., Lamont and Sturgeon creeks). The Nottawasaga River borders on impaired conditions due to high nutrient and turbidity levels. The NVCA notes that water clarity improves in the section of river cutting through the provincial park, but that algae growth and dense aquatic plant growth exist within urban Wasaga Beach. Retaining walls along the river's shoreline, as well as nutrient input from wastewater discharge near the Schooner Town Bridge, are noted as contributing to below potential/impaired conditions of this stretch of the Nottawasaga River. In general, streams surrounded by a higher proportion of forest cover, including riparian forest cover, are less impaired than streams where forest cover has been reduced or eliminated. Streams and headwaters in agricultural areas are generally below potential or impaired due to stream alterations, minimal vegetation cover and nutrient inputs.

4.1.3.3 Blue Mountain Subwatersheds

Beach areas 3, 4, 5 and 6, as well as Oakview and Ross' woods, are included in the Blue Mountain Subwatersheds. The main creeks draining this subwatershed are not located near Wasaga Beach Provincial Park, but instead enter Georgian Bay in or near Collingwood.

The Blue Mountain Subwatersheds' forest conditions are listed as good, but declining. This loss is mostly associated with development activities. Several larger areas of forest lost during this time were located in the west end of the Town of Wasaga Beach. Some of this subwatershed remains forested within the park, with small patches of interior habitat in Oakview and Ross' woods. Interior habitat is considered to be the area of forest that is 100 m or greater from the edge of the forest.

Wetland conditions in the Blue Mountain Subwatersheds are listed as fair and declining. Wetlands may never have been particularly abundant in this subwatershed due to its steep escarpment slopes and generally well-drained soils. Existing wetlands in this subwatershed serve critical roles in the overall health of the region; any loss of the already small amount of wetland area should be viewed with concern. Wetland loss has occurred along the shoreline of Georgian Bay, and a large block has been lost to the south of Ross' Woods within the Town of Wasaga Beach. These losses are due to urban development. The NVCA's Health Check notes that data from Ducks Unlimited Canada suggests that over 55% of historical wetlands within the former Nottawasaga Township have been lost; this area includes the west end of Wasaga Beach Provincial Park.

The Blue Mountain Subwatersheds' stream health has not changed since the 2007 assessment, and is characterized overall as good. There are variations, however, within the subwatershed. Most evaluated streams are considered healthy in the spring-fed headwaters area of the escarpment. The health of most streams then declines to be rated as below potential as the water flows to the lowlands, and, eventually, declines to a rating of impaired as the streams enter Georgian Bay. The NVCA notes that the

impaired rating of streams located in the west end of Wasaga Beach is primarily due to rural/agricultural influences, as well as alterations that have occurred associated with roads and urban development.

Beach areas in the west end of Wasaga Beach Provincial Park are part of this subwatershed. A map of natural stream flows and drainage in this area shows a distinct lack of natural surface flow in the west end of the Town of Wasaga Beach. This area is generally flat, with some remaining wetlands.

4.1.4 Climate and climate change

The climate for the Wasaga Beach Provincial Park area is moderated by its proximity to Georgian Bay and Lake Huron. Summer temperatures average approximately 20 degrees Celsius (°C), while winter temperatures average approximately -7 °C. There is generally a significant amount of precipitation throughout the year, with an annual average of approximately 870 millimetres (mm).

The effects of climate change will generally result in warmer weather with variable precipitation changes across Ontario. While the greatest effects of climate change are projected to be felt in the far north of the province, the area surrounding Lake Huron and Georgian Bay will also be affected. The MNRF has summarized climate projections from the Intergovernmental Panel on Climate Change for the three main drainage basins in the province in *Climate change projections for Ontario: An updated synthesis for policymakers and planners* (2015). In this report, projected temperature and precipitation changes are measured against 1971-2000 baseline levels. Wasaga Beach Provincial Park is located in the Great Lakes Basin, in the Lake Huron Sub-basin. According to the 2015 report, by the 2080s, the Lake Huron Sub-basin is projected to experience increased mean annual air temperatures (3.1 to 7.9 °C above baseline levels) and precipitation (105-125 mm above baseline levels). However, the increases are not consistent throughout the seasons: the greatest temperature and precipitation increases are expected to occur in the winter. Summers may experience mean air temperatures similar to baseline levels, and may be drier than baseline levels.

The Lake Huron Centre for Coastal Conservation issued a bulletin in 2016 outlining potential effects of climate change on beaches and dunes based on information from 2009 from the U.S. Global Change Research Program. The bulletin describes changes or effects that can be anticipated as a result of climate change, such as increased wind and precipitation intensity, resulting in higher levels of erosion, flooding and nutrient loading, and stronger alongshore currents. The bulletin also highlights the potential for warmer temperatures to provide improved growing conditions for invasive species, such as phragmites.

Beach and dune systems are constantly being shaped by natural forces such as wind, waves and precipitation. As these forces change with the changing climate, the recreational, cultural and natural features within Wasaga Beach Provincial Park will be affected. The fact that Wasaga Beach is a relict beach contributes to the complexity of the situation as sand resources are finite. The changing climate will need to be considered in planning and managing Wasaga Beach Provincial Park as it will affect the types or duration of activities able to be offered (e.g., winter programs), as well as

infrastructure maintenance and development. Changes may be required to park maintenance or management actions for the protection of natural, cultural and recreational values. For example, warmer winter temperatures could result in less ice cover or ice cover occurring later in the season and more frost-free days. The lack of protective ice cover and frost could in turn affect the rate or quantity of sand susceptible to the forces of wind or wave erosion, resulting in the need for increased sand retention measures (e.g., restoring dunes or installing fences to trap blowing sand).

4.1.5 Lake Huron water levels

Water levels on the Great Lakes have been monitored for decades, and have been highly variable over the years. The government of Canada's Department of Fisheries and Oceans provides graphical and tabular data of monthly and yearly mean water levels from 1918 to 2016 for the Great Lakes. This data is derived from gauging stations located at multiple points around the Great Lakes shorelines in both Canada and the United States of America. Lakes Huron and Michigan water levels are presented together with data collected from gauging stations at Thessalon and Tobermory in Ontario; Milwaukee, Wisconsin; and Ludington, Mackinaw City and Harbor Beach in Michigan. Since 1918, the highest lake levels recorded for lakes Huron and Michigan were in 1986, while the lowest lake levels occurred in 2013. From 2000 to 2013, yearly mean average water levels were relatively stable and consistently lower than during the previous 35 years.

Lake levels have risen dramatically since the low in 2013; however, for comparison, 2016 lake levels remained over 0.5m below 1986 levels. It can therefore be understood that current higher water levels are not unusual, but they stand in sharp contrast to the lowest levels experienced in 2013.

The changing climate is expected to result in lake levels that continue to shift between the historical recorded range of highs and lows, but possibly with greater frequency and more dramatic shifts.

4.2 Recreation values

Wasaga Beach Provincial Park offers exceptional recreational opportunities based primarily on the distinct natural and cultural features within the park. These values, which are described in more detail in the following sections, contribute to the recreation targets for Ontario's provincial park system as outlined in *Ontario Provincial Parks: Planning and Management Policies* (1992), and contribute to meeting PPCRA objectives (see appendix A, section I). Uses and activities that occur within the park are described in the resource uses section (section 5), below.

4.2.1 Beach

The most well-known recreation value in the park is the beach, which curves along the shoreline from 71st Street North to Archer Road. The beach has been described and promoted as the longest freshwater beach in the world, and has been awarded the internationally recognized Blue Flag eco-certification. The Blue Flag Program is operated under the Foundation for Environmental Education, headquartered in Denmark. In order for a beach to be awarded the Blue Flag, strict environmental,

educational, safety-related, and access-related criteria must be met and maintained. Wasaga Beach is generally viewed as a highly desirable beach destination within Ontario and is considered one of the top beaches in Canada. In this planning process, the beach will be considered a value of conservation interest. The shoreline is divided into eight beach areas for management purposes (see appendix B, figures 3-10). Additional information about the beach can be found in the Beach Management Secondary Plan.

The flat sand beach where most recreation activities occur varies in width and slope along the 14 km of shoreline within the park, and from wetland to dry beach. Beach access pathways exist along the entire length of shoreline, with a small number of accessibility mats providing access directly to hard packed sand at the water's edge. Accessibility mats are sturdy, flat, removable mats installed perpendicular to the water's edge in the spring and removed in the fall. They provide a firm access path across the soft sand.

The beach areas share some common characteristics and features, but can be distinguished by physical features, infrastructure, or types of uses that occur. The following table outlines features of the different beach areas.

Feature	Beach Area							
	6	5	4	3	2	1	New Wasaga	Allenwood
Parking	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Park office	No	No	No	Yes	No	No	No	No
Gate house	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Comfort Station	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Vault Privy	No	No	No	No	No	No	Yes	Yes
Boat Launch	No	No	No	No	No	Yes	No	No
Boardwalk	No	No	No	No	Yes	Yes	No	No
Drainage outlets (continuous or intermittent)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Playgrounds	No	Yes	Yes	No	Yes	No	No	No
Picnic areas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Picnic tables	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Feature	Beach Area							
	6	5	4	3	2	1	New Wasaga	Allenwood
Bike trail	No	Yes	Yes	Yes	Yes	Yes	No	No
Accessibility mat (2017)	No	Yes	No	Yes	Yes	No	No	No
Designated swim area	No	No	No	No	No	Yes	No	No
Dog beach	No	No	No	Yes	No	No	No	No
Kiteboard Launch Zone	No	Yes	No	No	No	No	No	Yes
Fishing platform	No	No	No	No	No	Yes	No	No
Dry, open sand	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dunes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wet beach sections	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Native vegetation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Invasive species	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Piping Plover habitat (2017)	No	No	No	No	No	Yes	Yes	Yes

Table 1: Beach area features

Water levels have a significant impact on the flat sand areas available for beach activities. High water levels result in a narrow strip of land between the water's edge and adjacent private or developed areas, or natural features such as dunes or vegetation. In the 1980s, when water levels were very high, some areas of the park's shoreline were completely covered by water, leaving no land between the water's edge and adjacent private or developed property. High water levels result in park visitors having to use a smaller space for beach activities. This can lead to conflicting or differing views between park visitors or adjacent landowners as to appropriate activities or uses, and present management challenges associated with providing space for recreation while protecting natural features, such as native vegetation. Conversely, low water levels result in a wide span of land between the water's edge and adjacent private or developed areas. When a wide span of beach is available for recreational activities, park visitors are able to spread out, which reduces the potential for conflict. Wide beaches, however, present operational challenges due to the increased amount of dry land requiring litter pick-up, hazard removal, or other management activities.

From a recreational perspective, some portions of the beach are often wetter than desired. This wetness is due in part to current and past management practices inside and outside the park, as well as the height of the water table. This is especially true in the west beach areas, in some sections of New Wasaga Beach Area, and near municipal storm water outflows. In some wet beach areas, iron staining from ground water affects the aesthetic quality of the beach.

The park boundary extends offshore into the bay along the entire stretch of shoreline by 402 m. The beach's offshore shelf and shallow waters provide excellent water sport opportunities such as swimming and wading.

4.2.2 Picnic and play areas

Picnic and play areas are important recreational features and contribute significantly to the character of individual beach or park areas. They are used by a variety of park visitors and groups for a range of activities from passive enjoyment to active play. Picnic or play areas exist in multiple locations throughout the park, such as at Schooner Town, Nancy Island, the Trail Centre, and along the shoreline. In most cases, picnic tables, parking, lawns or open play areas, and washroom facilities are offered at picnic and play areas. In addition, beach areas 2, 4 and 5 offer playgrounds.

4.2.3 Trails

Wasaga Beach Provincial Park offers a variety of trails in different areas of the park throughout the seasons. The trail network in the park is considered a value of conservation interest for the purposes of planning.

In the Dunes Area, the natural variation in topography due to the earth science features described in section 4.1.2 results in a range of trail experiences for hikers, cross country skiers or those on snowshoes. The easiest trails are provided in the area where raised beaches are present, while more difficult trails incorporate higher elevations in the section of the park where the Nipissing foredunes are present. The most challenging trails incorporate areas where parabolic dunes are present, which include the highest elevations and most dramatic slopes in the park. Approximately 30 km of hiking, ski or snowshoe trails are offered in the Dunes Area.

Authorized snowmobile trails in the Dunes Area are maintained by the Wasaga Snowmobile Club, which is affiliated with Mid Ontario Snowmobile Trails, and the Ontario Federation of Snowmobile Clubs. One trail is located along the northeast edge of the Dunes Area, and another is a loop into the park off Veteran's Way in the southwest area of the Dunes. There are no parking areas or other facilities within the park associated with snowmobile use.

In addition to the land-based trails described above, the Nottawasaga River is considered a water trail, and is part of a longer paddling route extending upstream through the Nottawasaga Valley watershed. For information about the recreational values of the Nottawasaga River, refer section 4.2.5 below.

Some provincial park trails contribute to the Town of Wasaga Beach's trail network, such as the Shore Lane Trail and Harold Culham Memorial Bicycle Trail, or broader trail

networks such as the Ganaraska Trail, which travels through the community and Dunes Area of the provincial park.

4.2.4 Infrastructure

To provide high quality, diverse and attractive recreational opportunities that support tourism, Wasaga Beach Provincial Park maintains a variety of infrastructure throughout the seasons. Infrastructure that directly supports the park's recreational and heritage appreciation mandates consists of parking areas and roads, boardwalk and beach access paths, washrooms, gate houses, playgrounds, picnic shelters, boat launch and water access points, trails, the Trail Centre, Schooner Town, Welcome Centre and Nancy Island Historic Site. Given the high visitation and importance of providing high quality recreational and educational experiences at Wasaga Beach Provincial Park, infrastructure is considered to be a value of conservation interest.

Parking lots and associated roads are located at each beach area, Schooner Town, the Trail Centre, Nancy Island Historic Site and Welcome Centre, and in the north east corner of the Dunes Area (known locally as Sage's Farm). Washroom facilities are provided at each beach area, however comfort stations with flush toilets and running water are only provided at Beach Areas 1 through 6, Welcome Centre and in the Trail Centre; Allenwood and New Wasaga beach areas have vault privies. Gate houses are located at Beach Areas 1 through 6. Self-serve fee collection stations are located in all beach areas and at the Welcome Centre for use during shoulder seasons and non-peak hours, or where staffed gate houses are not provided. Stretches of boardwalk extend along the foredunes parallel to the shoreline in portions of beach areas 1 and 2.

The Trail Centre and associated storage building support both winter and summer operations through equipment rental and maintenance services, and a small amount of merchandise (e.g., hot and cold beverages, ski gloves). The Welcome Centre includes interpretative displays relating to local ecology and species at risk, the HMS Nancy and War of 1812, and the recreational and tourism history of the Town of Wasaga Beach. The Welcome Centre also provides tourist information, washrooms, a gift shop, staff offices, a portion of the park's reference library, and storage for historical and cultural artifacts (some of which are over 200 years old). Nancy Island Historic Site is linked to the Welcome Centre by a bridge that crosses a portion of the Nottawasaga River. A theatre, a museum, pathways, maintained lawns, educational displays and artifacts (e.g., batteau, anchor, buoys), native plant and pollinator gardens, and picnic areas are located on Nancy Island. A lighthouse is located on Tower Island, which is a small island located south west of Nancy Island; Nancy and Tower islands are linked by a pedestrian bridge. Information about park trails, boat launch/access points, playgrounds and picnic shelters is found in other sections within this document.

The park office and maintenance yard are located on 22nd Street North and serve as administrative, enforcement and maintenance coordination centres for park operations. The park office is open to the public throughout the year and includes an administration counter, staff offices and meeting space. Maintenance activities are based out of the park's maintenance yard. Maintenance facilities includes a fenced vehicle compound, cold and warm storage buildings, staff parking lots, covered vehicle and equipment storage, and staff offices.

Other infrastructure necessary for park operations include utilities such as water, sewer and electrical lines, which connect park buildings to municipal water, sewer, and electrical distribution systems.

Nineteen municipal storm water drainage outflows are present along the shoreline; these outflows discharge storm water collected from some residential, commercial and other developed areas within the Town of Wasaga Beach. Generally, the discharge of storm water onto the beach results in negative impacts to both recreational and natural values. Several municipal drainage ditches, which are part of the Town of Wasaga Beach's storm water drainage system, are located within the park at Ross' and Oakview woods in the west end of the park.

The Oakview Woods Recreation Complex is located within the provincial park but is managed and operated by the Town of Wasaga Beach under an agreement with the province (see section 5.2). Infrastructure at Oakview Woods includes a fenced dog park, skating rink area, parking area, tennis courts, information centre, gazebo, picnicking area, gardens, skate park, and a playground.

4.2.5 Nottawasaga River

The Nottawasaga River is a significant feature within the Town of Wasaga Beach. Only a small portion of the river bed is within the park boundary (see appendix B, figure 5). There are, however, access points for the river, and longer stretches of undeveloped river shoreline, within the park. The access point at Schooner Town provides an opportunity for launching canoes, kayaks, paddleboards and other forms of non-motorized boats. A formal boat launch on the Nottawasaga River is provided at Beach Area 1; however, due to the shallow nature of the launch, only smaller vessels can safely use this launch. Boat rentals and additional launching facilities are available within the Town of Wasaga Beach.

Sediments within the river are dynamic and constantly shifting, which results in fluctuating water depths throughout the season. In order to maintain navigability, as well as minimize potentials risks related to ice jams and associated upstream flooding, the river mouth has been dredged in the past. The Town of Wasaga Beach, in association with the MNRF and Ontario Parks, is undertaking an environmental assessment to address navigability and minimizing risks associated with ice jams.

4.2.6 Scenic areas, lookouts and soundscapes

While the entire provincial park provides areas to enjoy and appreciate the outdoors, there are several locations within Wasaga Beach Provincial Park that offer lookouts or areas of distinct scenery and sounds that allow visitors to appreciate the setting and character of the park throughout the seasons.

The sites known locally as The Oxbow and Monument Hill, located in the Dunes Area of the park, provide panoramic views of a bend in the Nottawasaga River and Georgian Bay, respectively, as well as the views of the impressive parabolic dune landforms and natural forests in the park. A former agricultural property known locally as Sage's Farm, located in the northeast corner of the Dunes Area, provides park visitors with the opportunity to see and visit a landscape that is in the process of succeeding from a

prairie to forests, with distinct prairie vegetation, birds and butterflies. A picturesque and comparatively undisturbed section of the river's shoreline is accessible by the road known as Fisherman's Road, which leads from The Oxbow through the parabolic dunes to the river.

Nancy and Tower islands, and in particular the lighthouse on Tower Island, offer views of a busy section of the Nottawasaga River, including the Main Street bridge, long stretches of developed shoreline, and the boating channel leading upstream from Georgian Bay.

Trails through Oakview Woods offer access to an area of distinctive scenery where the ancient Nipissing raised beach ridges (see section 4.1.2.2) are more obvious than in other locations. The raised beach ridges are apparent in the gentle slope changes and distinct vegetation communities that are present in Oakview Woods.

The most obvious and well visited scenic area or lookout in the park is the Georgian Bay shoreline. There are undisturbed views of the lake and sunsets, with the escarpment visible in the distance to the west. The scenery along the shoreline varies offering different beach views of groomed and managed sand in some locations, and relatively undisturbed sand, dunes, native vegetation and habitats in other locations.

The term soundscape describes the sounds heard in a particular location considered together as a whole. In other words, a soundscape is the collection of sounds that come from a particular landscape. The soundscapes of Wasaga Beach Provincial Park vary greatly throughout the park according to the biological (biophony), geophysical (geophony), and human-produced (anthrophony) sounds that occur in different places and in different seasons. Examples of biological sounds would be a chorus of frogs or insects, geophysical sounds are created by non-living natural elements such as wind, rain or a river, and examples of human-produced sounds would be voices, music or vehicles. The sound of the beach, with waves washing the shoreline, wind through the dunes, and people enjoying beach activities is a powerful sensory experience. The sounds experienced on park trails or near the Nottawasaga River are different from those of the beach, and can be equally powerful.

4.3 Cultural heritage values

Wasaga Beach has a rich cultural history that continues to influence the present day area. This section provides a brief overview of cultural values and history within the provincial park. It should be noted that this is not an exhaustive review of local history or list of cultural heritage values within the broader Wasaga Beach area.

4.3.1 Nancy Island Historic Site: HMS Nancy and War of 1812

The remains of the HMS Nancy and other artifacts and history of the War of 1812 are the most significant cultural heritage values in Wasaga Beach Provincial Park. The artifacts, history and infrastructure associated with Nancy Island Historic Site are values of conservation interest for the purposes of park planning and management.

The schooner Nancy was constructed and launched in 1789 under the supervision of John Richardson of Richardson, Forsyth & Co. of Detroit. The Nancy had an estimated length of 80 feet, width of 22 feet, and depth of hold of eight feet. The ship was used in

the fur trade on lakes Erie, Huron and Michigan until the United States of America declared war against Britain in 1812, at which point, the HMS Nancy was put into service as a British supply ship.

In August, 1814, the schooner was located by American forces where it had been moved into hiding on the Nottawasaga River a few kilometres upstream from the river's confluence with Georgian Bay. The small British force, which included Ojibway and French Canadian fighters, was no match for the three American ships, their 500 men, and significant firepower. The Nancy was set ablaze and sunk in the Nottawasaga River; the British forces fled into the woods until the American ships sailed away. Once the coast was clear, the crew of the Nancy rowed approximately 580 km to Fort Mackinac, where they gathered reinforcements and eventually captured two of the American vessels that attacked the Nancy. The charred remains of the hull of the HMS Nancy remained in the river to be eventually covered by silt and sediment deposits, which may have helped form an island in the river. After being located by C.J.H. Snider in 1911, Dr. F.J. Conboy took an interest in uncovering the ship's remains in the mid-1920s. The hull of the HMS Nancy was uncovered, raised, and placed on Nancy Island in 1928 to commemorate its contributions during the War of 1812. The hull of the HMS Nancy, along with other artifacts of the era, is preserved and displayed at Nancy Island Historic Site.

The historic events surrounding the HMS Nancy were recognized in 1923 by the Historic Sites and Monuments Board of Canada through the *Historic Sites and Monuments Act*, and continue to be celebrated at the park through interpretive programs, panels and events.

Nancy Island Historic Site consists of two islands in the Nottawasaga River (Nancy and Tower islands), which are connected by pedestrian bridges to the mainland at the Wasaga Beach Welcome Centre. The site features a theatre and grassy areas for educational programming and events, a museum and a replica of a Great Lakes lighthouse.

4.3.2 Trail of the Caribou

An historic event of national significance occurred within what is now Wasaga Beach Provincial Park: the first successful non-stop flight from mainland Canada to England took off from the beach in August, 1934. The aircraft was a twin-engine biplane made by De Havilland named Trail of the Caribou. Pilots James Ayling and Leonard Reid successfully travelled nearly 6000 km in 30 hours and 55 minutes to safely land at the Heston Airfield, London, England. The original goal of the flight had been to complete the longest non-stop flight in history by flying from Wasaga Beach to Baghdad, Iraq, however, due to inclement weather, engine icing, and higher than anticipated fuel consumption, the pilots opted to land in England. Despite failing to reach Baghdad, the Historic Sites and Monuments Board of Canada officially recognized the first non-stop flight from mainland Canada to England, known as the Ayling and Reid Flight, through the *Historic Sites and Monuments Act* in 1949. A stone cairn commemorating this significant achievement was erected at the entrance to Nancy Island Historic Site in 1958.

4.3.3 Schooner Town

Schooner Town (also sometimes referred to as Schoonertown) is recognized as a provincial historic site by the Ontario Heritage Trust, and is a value of conservation interest for the purposes of park planning and management. It is located within the park on the southeast bank of the Nottawasaga River, approximately six and a half kilometre upstream from the river mouth, and extends beyond the park boundaries to cover approximately 137 metres along the river bank adjacent to the river. In 1815, the site became a temporary British naval establishment to build, repair and maintain boats. However, after only two years, the site was deemed unsuitable as a naval establishment due to the shallow and dynamic river environment and unsheltered bay for anchorage; it was abandoned in 1817. Operations were transferred to Penetanguishene, which afforded a better natural harbour. The Schooner Town parkette, a commemorative plaque and interpretive signs at the intersection of River Road West and Oxbow Park Drive remain at the site.

4.3.4 Wasaga Beach Welcome Centre

The Wasaga Beach Welcome Centre opened in 2012 in celebration of the bicentennial anniversary of the War of 1812. The Welcome Centre is located at the entrance to Nancy Island Historic Site; it is a value of conservation interest for the purposes of park planning and management. It promotes local tourism opportunities and helps visitors learn about the natural and cultural heritage features found within the park and surrounding area. The Welcome Centre provides offices, a meeting room and reference library for park staff, artifact storage, as well as a gift shop, public washrooms and interpretive displays relating to natural heritage features, Nancy Island Historic Site, the War of 1812, and Wasaga Beach area.

4.3.5 Beach activities and tourism

While not necessarily a tangible or physical value, beach activities and tourism have been and continue to be significant cultural values within the park; as such, they will be considered values of conservation interest in this planning process. A brief historical outline of beach activities and tourism is provided below.

The turn of the 20th century brought the first great increase in demand for recreational activities and recreational land uses in Ontario. During this period Wasaga Beach was just beginning its growth, and depended on people from nearby towns for its vacation industry. The First World War slowed growth and reduced the importance of vacation destinations in Ontario, but interest in the Wasaga Beach area was renewed following the war. Beginning in the 1920s, stimulated by highway building, population growth, increases in disposable income, and the growing popularity of the automobile, Wasaga Beach gained a reputation as a tourism destination. Commercial activities supporting tourism, such as hotels and resorts, began to enhance or replace private recreation at the mouth of the river, on the beach, and on the river itself.

Development and uses in the 1930s and 1940s continued to shape the character and layout of what is now the Town of Wasaga Beach. Hotels, tourist cabins, and beach cottages gained in popularity, and began to appear in greater numbers along the beach, river, and side streets. The proximity of the beach to Camp Borden, now known as

Canadian Forces Base Borden, resulted in soldiers traveling to the area to enjoy their free time. Many activities and events took place on the beach to provide residents and visitors with much to see and do. Motorcycle racing was popular in the 1930s and 1940s, with internationally recognized races held on the sand along the shoreline. Horseback riding, indoor and outdoor bowling, dance halls and amusement park rides also drew people to the area during the summer months, while snowmobile races were popular in the winter. The character of Wasaga Beach was established as a place for outdoor enjoyment.

Until the mid-1970s, vehicles were able to drive along the beach. In the summer, hundreds of vehicles would drive and park on the sand. Gas stations along the shoreline and in the area were built to provide services and fuel, including a gas station where the provincial park's office is now located. To protect beach goers and the natural values of the beach, vehicles were removed from the beach and parking areas established away from the shoreline in the 1970s.

Not all tourism events occurred along the shoreline; two historical oval race tracks are located in the Dunes Area near the Oxbow. One track is a half mile dirt track formerly used for horses. The other is a more recent quarter mile paved track formerly used for cars (located inside the dirt track). According to Canadian Racer, which maintains a database of historic tracks in Canada, the dirt oval was in use until the 1950s, and the paved oval in use from approximately the mid-1950s to 1970. Both tracks are still visible from the air, but have been slowly naturalizing since racing stopped.

While changes have occurred, such as barring vehicles from driving along the shoreline, in some ways, the types of uses and activities at the beach have changed very little over the years. Locally owned cottage rental businesses, small hotels and restaurants continue to provide accommodation and services for visitors. Events, concerts, motorcycle rallies, snowmobile races, and most importantly, the enjoyment of spending time on the beach attract visitors and residents alike. These activities continue to contribute significantly to the culture of the park and local community.

4.3.6 Nottawasaga River transportation route

The Nottawasaga River itself is a significant cultural, recreational and natural value in the region; however, only a small portion is within the provincial park. The river has provided a natural transportation route for people, timber and other goods for hundreds of years. While there is little evidence in the archaeological record of substantial, permanent settlements until relatively recently, there is evidence of campsites along the river dating from the early Woodland period, as well as at least one human burial site. Indigenous people and groups traveled in the area for fishing or trading purposes; these types of uses and activities still occur today. Additionally, the river has been used for military supply and transport purposes, logging, and travel during the fur trade. There are records of at least one portage route through the parabolic dunes used to shorten the travel distance to Georgian Bay by eliminating the need to travel along the most circuitous portion of the river.

Proposals for a rail line or canal connecting Toronto (known then as York) on Lake Ontario with Lake Huron were investigated in the early to middle 19th century. This

would have established a commercial and transportation centre at the mouth of the Nottawasaga River in areas that now make up Wasaga Beach Provincial Park and the Town of Wasaga Beach. The canal was never constructed, and, after a shipwreck in 1852 reinforced the difficulties of using the shallow bay and Nottawasaga River as a harbour, the rail line terminus was relocated to Collingwood.

The river is now used primarily for recreational purposes, with boating, paddling and fishing being popular activities. Some commercial enterprises capitalize on the river in the form of guided paddling tours, boat rentals, and marinas.

4.3.7 Logging and the lumber trade

The sandy soils of the Wasaga Beach area were generally unattractive to early settlers looking for fertile soil for farming. Settlers were, however, drawn to the area in the 1830s by the abundance of trees and possibilities associated with the lumber trade. In the late 1860s and early 1870s, a settlement called Van Vlack was established in the area that corresponds with River Road East and New Wasaga Beach Area; it was named after John Van Vlack who founded the community. Mr. Van Vlack operated a general store and shingle mill; he also fished commercially and became the first postmaster for the area. The community's population peaked in the 1890s when 70 people lived in Van Vlack, many of whom were fishermen, mill workers and lumber camp workers and their families. A bridge across the river existed during this time, which connected the point to the mainland. A bunkhouse, known as the Roaring Camp, provided accommodation for those helping in the timber industry or at the mill. This bunkhouse was located along the shore of the river, on the point within what is now Beach Area 1. A small hotel was also part of the Van Vlack settlement, which is some indication of the importance of travel and tourism from the early days of settlement in the Wasaga Beach area. When the timber resources dwindled, the community of Van Vlack also began to fade; the mill continued to operate until 1914. The Van Vlack community helped pave the way for future settlement in the area.

4.3.8 Archaeological sites

There are over 30 known archaeological sites in Wasaga Beach Provincial Park and the immediate vicinity; archaeological sites are considered values of conservation interest. Archaeological finds indicate a long history of use of the area, beginning with Indigenous people and groups, followed by naval and military uses, and extending to more modern industrial development, such as saw or shingle mills. Many of these sites have been negatively affected by disturbance, either through human development or natural movement of the easily-eroded sands and soils in the area.

Some of the earliest sites and artifacts that have been found date to the middle Woodland period. Mid- to late-Woodland period items found through archaeological or other survey work include pottery shards, chert flakes and scrapers, carbonized bones, and human burial remains. Several archaeological reports relating to Wasaga Beach Provincial Park or the Nottawasaga River indicate that human burial sites, or cemetery sites with multiple burials, dating from the middle Woodland period have been found within the provincial park. Furthermore, it has been noted that more thorough or additional archaeological surveys may discover new cemetery sites due to the nature of

the topography (high sand dunes). Items dating from later times (e.g., military or naval occupation, 19th century mills) include glass shards, nails, brick and mortar, wood, bones, and ceramics.

The location and details of individual archaeological sites are not generally shared due to concerns associated with unauthorized disturbance or collection of artifacts. The location of Schooner Town and the Nancy Island Historic Site are obvious exceptions to this practice within Wasaga Beach Provincial Park as the park offers interpretive information or programs associated with these sites for educational purposes. The Ministry of Tourism, Culture and Sport maintains a database of registered archaeological sites, which is referred to during site planning for individual development projects in order to avoid impacts to archaeological values.

5 Resource use

This section provides information about how the park values described above are used.

5.1 Recreational use

Wasaga Beach Provincial Park receives over one million visitors annually. While the opening of facilities (e.g., parking areas, washrooms) and provision of services (e.g., staffed gate houses, maintenance activities) are phased in and out over the course of the year, most of the park is open and accessible for pedestrians year-round. The majority of use occurs in the summer and focuses on the beach and access to Georgian Bay.

As demonstrated in survey results, visitation patterns and comments received at the park, many of Wasaga Beach Provincial Park's visitors are interested in swimming, sunbathing and beach sports; they prefer sandy, dry, flat beach areas, and primarily use the beaches where the most active management occurs. The most recent visitor survey conducted by Ontario Parks was undertaken in 2015. While the number of respondents was small (589), which must be considered when interpreting the results, the survey indicated that 86% of visitors were satisfied with their trip to Wasaga Beach Provincial Park, and 83% of respondents were likely to return. The average travel time to the park was 1 hour and 54 minutes; most visitation occurred on Saturday (33%) and Sunday (20%), followed by Wednesday (12%) and Friday (10%). The most important reasons for choosing to visit the park were that the weather was good (93%), that previous visits to the park were enjoyed (87%), and to be with friends and/or relatives (73%). Features listed as being important in choosing to visit the park were swimming/beaches (96%), scenery (78%), parking (77%), picnic facilities (68%), opportunity to see wildlife and/or appreciate nature (46%), and a special event or festival (19%). Eighty six per cent of respondents did not bring a dog to the park while 14% of respondents brought one or more dogs. Most respondents (65%) visited the park for the first time over 10 years prior to the survey, with 49% indicating the first visit to the park was more than 20 years prior to the survey.

A survey of Town of Wasaga Beach residents was also conducted in 2015. Nine hundred and fifty one responses were received over the course of the summer and fall. Nearly 41% of respondents indicated that, on average, they visit the park on a weekly

basis, 20% visit the park monthly, and 17% visit the park daily. Residents who responded mostly visit Beach Area 1 (52%), Beach Area 5 (39%), Beach Area 6 (33%), Beach Area 2 (27%) and Allenwood Beach Area (26%). The most important features when choosing to visit the park were good swimming/beaches, followed by sunsets, washrooms, and trails. Nearly 55% of respondents arrive at the park by vehicle, over 30% walk to the park, and fewer than 10% arrive by bicycle. Respondents indicated that their favourite thing to do or experience at Wasaga Beach Provincial Park is swimming, followed by relaxing/reading on the beach, using trails, improving health and wellness, and nature viewing. When asked about the importance of Wasaga Beach Provincial Park, respondents indicated that the park is important because it provides recreation opportunities for activities like hiking, swimming, enjoying the beach and viewing nature. Ensuring that the park is available for future generations was also noted as being important.

Some beach areas currently provide space for specific uses, such as the swim only area at Beach Area 1 where boats are prohibited, the dog beach at Beach Area 3 (which is the only area where pets are permitted on the beach), and kiteboard launch areas at Beach Area 5 and Allenwood Beach Area. In general, sections of beach areas 1 and 2 are known to receive high numbers of visitors with a focus on active beach uses and hosting special events. Beach areas 3, 6, Allenwood and New Wasaga have a quieter atmosphere with fewer visitors; Beach areas 4 and 5 are popular with families and those with children due to the playgrounds in this part of the park.

A variety of special events occur within the park, with most events occurring in beach areas 1 and 2. The special events hosted within Wasaga Beach Provincial Park vary greatly in theme, number of participants, and extent. Nancy Island Historic Site has also hosted special events, and in particular, the popular “Wasaga Under Siege”, which is a multi-day, War of 1812 themed event put on by dedicated partners, volunteers, and organizers. The park trail system has been used for special events, including ski, snowshoeing, hiking or running races or activities.

A recreation program operates out of the Trail Centre in the winter. This program offers snowshoe trails, groomed classic and skate ski trails, equipment rentals, a small variety of merchandise, a jackrabbit ski lesson program, warm-up and outback ski shelters, and light refreshments. During the summer, the trail centre functions as a trail head for hiking/walking through the Dunes Area. Park trails are used throughout the year by visitors to the area, and are also used year round and on a regular basis by Town of Wasaga Beach residents. Regular hikes on the Ganaraska Trail organized by the Wasaga Beach Ganaraska Hiking Club have occurred weekly throughout the season.

Only small portions of the Nottawasaga River shoreline and river bed are within the regulated provincial park boundary; however, recreational uses on the river are important. The Nottawasaga River winds its way from higher upstream to the parabolic dunes, and eventually through developed residential areas of the Town of Wasaga Beach to Georgian Bay. This is a popular paddling route for locals as well as visitors to the area. Several points along the shoreline are conducive to launching or pulling canoes, kayaks or paddleboards up on shore. For those interested in sport fishing, both the Nottawasaga River and Georgian Bay offer excellent opportunities to catch a variety of sport fish.

Many different natural and cultural features within the park are used to facilitate and enhance educational programming and outreach. Nancy Island Historic Site, the Welcome Centre, and Schooner Town are all used as settings for guided or self-guided educational experiences. Interest in the park's natural features has been growing over the years; particularly in helping to control and eradicate invasive species, in monitoring and protecting species at risk (piping plover, eastern hog-nosed snake), or in learning about beach management practices through stewardship workshops.

The recreational values described in section 4.2 are mostly physical or solid elements; however, there are intangible values associated with park features that contribute to positive recreational and visitor experiences, such as feelings of contentment, solitude, enjoyment, connecting to nature, improving health and wellness, and connecting with friends or family. Surveys conducted by Ontario Parks of both park visitors and Town of Wasaga Beach residents have indicated that these feelings and experiences are very important to those who use the provincial park.

5.2 Municipal use

While Wasaga Beach Provincial Park is part of Ontario's system of provincial parks by legislation and regulation, it also functions in a similar manner to a municipal park. It is a place for local residents to regularly enjoy natural spaces and outdoor recreational opportunities. Spending time outdoors in nature results in recognized health benefits such as improved physical, mental and social well-being (see section 6.4). The park covers a significant portion of the municipality's land base, and the shape, location and amenities of the park result in it being easily accessible by the residents of the Town of Wasaga Beach and other nearby residents. The recreational opportunities and natural and cultural features in the park are important to the economic prosperity of the municipality as they assist in attracting tourists, businesses and new residents to the area.

While municipal plans, policies and bylaws do not apply to Wasaga Beach Provincial Park, the local municipality actively participates in the operation, maintenance and use of several facilities or sections of the park. For example, the Town of Wasaga Beach has entered into agreements with the province for the operation of the recreational facilities at Oakview Woods, as well as portions of beach areas 1 and 2. Maintenance, events and operations associated with these agreements must be compliant with relevant policies and legislation, and consistent with ministry objectives.

The Welcome Centre is used to promote local tourism opportunities and help visitors learn about the natural, historical and cultural heritage features found within the park and surrounding area. The Town of Wasaga Beach provides staff and resources to help operate this centre.

Use of the provincial park for a variety of purposes, such as hosting special events or active tourism initiatives, is an important part of the local municipality's approach to tourism. A range of special events and active tourism opportunities occur within the park, and make use of the park's natural and recreational values. Municipally supported or organized events or initiatives primarily occur on the beach, but have also taken place on the water or on the trails, in both winter and summer.

Parts of the park are used by the municipality for storm water management. Storm water from some residential, commercial and other developed areas in the Town of Wasaga Beach is collected and drained to nineteen municipal drainage outflows that discharge storm water onto the beach within the park. Storm water then flows across the beach into Georgian Bay. In some cases, municipal drainage ditches bisect or cross provincial park property (e.g., those in Ross' or Oakview woods) as storm water is funnelled to the beach. In the past, maintenance activities associated with municipal storm water drainage outflows have typically been undertaken by the park and, in some circumstances, with assistance from the Town of Wasaga Beach.

In addition to providing recreational opportunities for local residents and tourism opportunities for visitors, the park also contributes to providing ecological services and functions that benefit the municipality and those who live in it. For example, the park protects wetlands, larger blocks of forest, prairie and coastal dune habitats, and natural shorelines along the river. These features contribute to healthy and functioning flood abatement, clean air and water, climate change resiliency, and the overall biodiversity of the area.

6 Social and economic factors

Wasaga Beach Provincial Park has a large social and economic impact locally, regionally and provincially. This is primarily due to tourism connected with the park's recreational opportunities, but also as a result of employment and business requirements associated with the park operation. Local and regional perspectives, tourism, and health considerations associated with the provincial park are addressed below.

6.1 Local perspective

The park is located within the municipal boundaries of the Town of Wasaga Beach. With outstanding natural features favourable to recreation and close proximity to urban population centres, the town has developed into a four-season recreational community attracting both permanent and seasonal residents, and welcoming up to two million visitors each year. According to the 2016 census, the Town of Wasaga Beach had a permanent resident population of approximately 20,600, and has been one of the fastest growing communities in Canada. Between 2011 and 2016, the population of the Town of Wasaga Beach increased by nearly 18%. The average age of the town's population is 50, and the median age is 55.3. Over 33% of the population is 65 years old or older, and nearly 55% of the population is between the ages of 15 to 64 years old. Expansion of the town within its municipal boundaries is occurring in the form of commercial and residential development to keep pace with population growth, and the needs and interests of residents and businesses.

Wasaga Beach Provincial Park employs three full time staff year round and over 85 seasonal staff during the summer months. Most summer staff members are students and youth workers. As there are no staff accommodations within the park, these workers live or stay in the local area. The park maintains vehicles, equipment and infrastructure, and undertakes administrative duties, construction projects, and waste

disposal. These components of regular park operations require services from local businesses such as vehicle repair, construction work, and purchasing supplies, fuel, parts or equipment.

Funds are contributed by the province to the Town of Wasaga Beach directly related to the provincial park. For example, the province provides payment in lieu of taxes for the land within the municipality occupied by the provincial park (over \$435,000 in 2016), as well as for the use of the town's barge to install buoys (approximately \$8500 in 2016), drinking water for park facilities (approximately \$24,500 in 2016), and for disposal of garbage and waste collected in the park (approximately \$44,000 in 2016).

The local municipality also contributes funds to the province related to the operation of Oakview Woods recreational facilities. The amount to be contributed is not finalized at this time as Ontario Parks and the Town of Wasaga Beach are currently developing a new agreement related to this operation.

6.2 Regional and provincial perspective

Wasaga Beach Provincial Park is located in Simcoe County. The 2016 census data indicates a population of 479,650 for Simcoe County, which is an increase of 33,587 or 7.5% from 2011. The average age of the county's population is 41.8, and median age is 43.1. Nearly 55% of the population is between the ages of 15 and 64, while 18% of the population is over the age of 65, and 16.5% of the population is 14 years old or younger. These statistics indicate an overall younger population in the county when compared to that of the Town of Wasaga Beach.

Simcoe County and the Town of Wasaga Beach are located within the Greater Golden Horseshoe area, as defined by the *Places to Grow Act, 2005*. This legislation is the foundation for the Places to Grow Initiative, which strategically plans for growth in Ontario. This initiative describes planning for growth that:

- sustains a robust economy
- builds complete and strong communities that use land, resources and existing infrastructure efficiently, with amenities and community infrastructure to support a good quality of life, and
- promotes a healthy environment and a culture of conservation.

The Places to Grow Initiative resulted in the development of the Growth Plan for the Greater Golden Horseshoe, which was approved in 2006, and amended in 2012, 2013 and 2017. While the *Places to Grow Act* and associated growth plan do not directly apply to Wasaga Beach Provincial Park, impacts from these initiatives will affect the park and must be considered as management direction for the park is developed.

6.3 Tourism

Tourism is a significant economic driver for the province and local economies. The Ministry of Tourism, Culture and Sport developed a Strategic Framework for Tourism in Ontario and Tourism Action Plan. The Tourism Action Plan (2016) indicates that the tourism industry generates nearly \$29 billion in tourism receipts annually in Ontario. It

supports over 362,000 tourism-related jobs, and more than 160,000 tourism-related businesses. Tourism-related businesses provide goods and services such as accommodation, food and beverages, recreation and entertainment, transportation, retail, tour operators and travel agents. In addition to the economic benefits of tourism, the action plan also outlines cultural and social benefits, such as:

- supporting healthy and prosperous communities,
- fostering a powerful sense of place and pride,
- supporting healthy and active lifestyles through sport and recreation, and
- developing the talents and skills of Ontario's workforce as the largest employer of youth in the province.

The Ministry of Tourism, Culture and Sport takes a regional approach to tourism. The Wasaga Beach area falls within the Regional Tourism Organization 7 (RTO7), which consists of Bruce, Grey and Simcoe counties. Twelve and a half million visitors traveled to the RTO7 area in 2012; this number increased to 12.8 million visitors in 2014. According to the 2014 tourism profile of RTO7, most tourist accommodation occurs in private homes or cottages, with significantly smaller proportions occurring in commercial roofed establishments (e.g., hotels, commercial cottages/cabins), and camping facilities. Most visits are under 3 nights long, with an average of 2.6 nights per visit. Tourists participated in a range of activities, with the highest numbers visiting family or relatives, enjoying outdoor or sports activities (the most popular activities are: hiking, skiing, boating, camping, visiting a national or provincial park, and fishing), and visiting a beach. The average group of tourists is 2.83 people; 88% are groups of adults only, and 12% of groups include children. Visitor spending totaled over \$1.3 billion; the majority of spending was by those whose trip purpose is pleasure or to visit friends and relatives (\$1.16 billion).

Tourism is a significant component of the Town of Wasaga Beach's economy. The town has undertaken or commissioned many studies, reports, and visioning exercises to improve the tourism appeal and opportunities for visitors, as well as improve the overall community for residents. These initiatives have all recognized the distinctive setting and natural features that support tourism or outdoor recreation, and many outlined the importance of the relationship between the Town of Wasaga Beach and Wasaga Beach Provincial Park in providing and protecting the natural and cultural resources that support tourism.

Ontario Parks operates under a business model that reinvests revenue collected from the sale of campsite and vehicle permits, firewood and other merchandise, and seasonal or annual parking passes, into the provincial park system. Approximately 90% of funds used to operate Ontario's provincial parks come from revenue generated by fees collected at gatehouses, through campsite reservations and equipment rentals. From this perspective, visitation by those who purchase a permit or pass from Ontario Parks is important to sustaining the provincial park system. However, park visitation must be balanced with the purpose and objectives of the PPCRA for protection, education, scientific research, and maintaining ecological integrity.

As described in section V of appendix A, tourism is not considered in itself to be a park value or pressure for the purposes of park planning. Rather, sustainable tourism is one of the results of successful and thoughtful management of park values and pressures.

6.4 Public health considerations

Ontario's provincial parks, including Wasaga Beach, play an important role in providing opportunities for Ontarians and visitors to the province to experience the health benefits of spending time in nature. Research indicates that spending time in nature improves physical, mental and social well-being. Contact with nature has been found to lower blood pressure, strengthen the immune system, help prevent disease, and reduce stress levels. Examples of the benefits of spending time in nature include:

- memory and attention can increase by 20% after a walk in nature
- 20 minutes outside can help reduce the effects of attention deficit hyperactivity disorder
- people in regular contact with nature have a 50% lower risk of diabetes and heart attack
- people in regular contact with nature have a 30% lower risk of colon cancer
- people who spend two or more consecutive days in nature can experience a 50% increase of cancer-fighting white blood cells

Ontario Parks is one of many park agencies exploring research and information about the link between nature and human health and wellbeing. Parks Victoria in Australia has been leading research and developing park programs on this theme for years. Parks Victoria commissioned Deacon University to review the evidence of hundreds of studies, resulting in a report released in 2002, which was updated in 2008 and 2015. The 2015 report states that “overall, the evidence connecting parks and health is substantial, offering strong justification for the promotion of, and investment in, parks as settings that enhance the health and wellbeing of community members across their life-span.” (Townsend et al., 2015) Information sources and evidence that support this statement are diverse, and include the following fields of study: ecology, psychology and psychiatry, public health, biomedical sciences, urban planning, leisure and recreation. The evidence suggests that humans are dependent on nature not only for ecological goods and services, but also for psychological, emotional, spiritual and social needs that are difficult to satisfy by any other means.

Park agencies are not the only ones interested in the link between nature and human health. The World Health Organization (WHO) and Secretariat of the Convention on Biological Diversity (SCBD) published a report in 2015 titled: *Connecting Global Priorities: Biodiversity and Human Health: A State of Knowledge Review*. This report states that “biodiversity underpins ecosystem functioning and the provision of goods and services that are essential to human health and well-being. Ecosystems, including our food production systems, depend on a whole host of organisms: primary producers, herbivores, carnivores, decomposers, pollinators, pathogens, natural enemies of pests. Services provided by ecosystems include food, clean air and both the quantity and quality of fresh water, medicines, spiritual and cultural values, climate regulation, pest

and disease regulation, and disaster risk reduction. Biodiversity is a key environmental determinant of human health; the conservation and the sustainable use of biodiversity can benefit human health by maintaining ecosystem services and by maintaining options for the future.” (WHO and SCBD, 2015)

There is also growing evidence that human health benefits vary with the ‘dose’ of nature. A nature-dose framework has been put forward looking at the duration (how long), frequency (how often), and intensity (quality or quantity) of the exposure to nature and how it relates to health benefits. Evidence suggests that exposure to diverse natural habitats with many different species results in more positive human health benefits.

Ontario Parks supports Healthy Parks, Healthy People, a worldwide movement that works to promote and understand the link between a healthy environment and healthy society. Wasaga Beach Provincial Park has hosted events associated with Healthy Parks, Healthy People, such as yoga on the beach, to promote the health benefits of spending time in nature.

Wasaga Beach Provincial Park worked with the South Georgian Bay Community Health Centre, Simcoe Muskoka District Health Unit, Collingwood Environment Network, and Town of Wasaga Beach’s Healthy Community Network, to develop a “Green Prescriptions” pilot project in 2017. This project involved the cooperation of patients, healthcare providers, and the community to incorporate the use of local natural areas, parks and trails as part of overall wellness. The “Green Prescriptions” pilot is intended to facilitate and encourage the prescription of outdoor, physical activity to help prevent or treat physical, mental and emotional health conditions. Results and outcomes from this pilot have not yet been reviewed.

7 Park pressures

A pressure is defined in Ontario’s Protected Areas Planning Manual as any natural disturbance or anthropogenic activity or facility that has an impact on a value or ecological process. In some cases, a value can act as a pressure on another value. For example, park trails in the Dunes Area are considered recreational values but they exert pressure on natural values by increasing disturbance and fragmenting core forested areas. Another example would be piping plovers, a natural value, acting as a pressure on recreational use of the beach by limiting the space available for beach activities during the breeding and nesting season, and influencing the types of maintenance that can occur within their habitat.

There are different kinds of pressures affecting values in Wasaga Beach Provincial Park that must be considered in park planning. Some pressures may be addressed through management plan policies or direction, such as restoring disturbed areas or enabling development to support recreational use. Others will require adapting to or mitigating pressures that originate outside the provincial park that Ontario Parks is not able to control, such as climate change, changing water levels, or municipal storm water outflows that are directed to the beach.

7.1 Pressures on natural heritage values

Pressures affecting natural heritage values include climate change, invasive species, lack of natural disturbance in fire-dependent vegetation communities (i.e., savannah or prairie), municipal storm water outflows and drainage ditches, high visitation numbers, and recreational infrastructure and uses (including trails and access paths through vegetated beach and dunes). Maintenance activities undertaken in support of recreation such as trail maintenance, beach raking, or removing vegetation and detritus from the shoreline also act as pressures on natural values; this can be magnified by the expectations of park visitors, stakeholders and adjacent landowners who sometimes prefer to see a high degree of maintenance of natural features. The shape and connectivity of park land results in pressure on natural heritage values due to fragmented or disjointed habitat (large proportion of edge habitat and small core areas), challenges for wildlife passage, fragmentation through access path creation, as well as increased threat of invasive species and encroachments from adjacent properties. Activities and development that occurs outside the park also affects natural heritage values in the park; habitat loss, wetland loss, surface hardening, landscaping practices, and fragmentation all result in changes on the landscape that impact biodiversity, ecological functions, as well as species and their habitat.

7.2 Pressures on recreational values

Some of the same pressures described above that affect natural heritage values also have an impact on recreational values. These include climate change, invasive species, municipal storm water outflows, as well as the size and shape of the park (connectivity of recreational features and infrastructure). Other pressures on recreational values include fluctuating water levels on Lake Huron (high water levels in particular), siltation on the Nottawasaga River resulting in reduced navigability, wildlife mortality events, and inclement weather. Some maintenance activities for the purpose of resource management or natural heritage value protection exert pressure on recreational values; these activities include restricting access to the point in Beach Area 1, protecting species at risk and their habitat in beach areas 1, New Wasaga and Allenwood, or restricting removal of native vegetation and dunes along the shoreline. Less tangible pressures on recreational values are the changing expectations and interests of visitors and stakeholders which have an effect on the number of people visiting the park, as well as the types of recreational activities that occur or are proposed to occur. Infrastructure that supports recreation is negatively affected by deterioration and aging; negative effects can be magnified with increased visitation or use of individual facilities. For example, comfort stations require upgrades, repairs or replacement over the years and parking areas require grading or resurfacing due to wear from regular use.

7.3 Pressures on cultural heritage values

Cultural heritage values in Wasaga Beach Provincial Park are under pressure from climate change and natural or anthropogenic erosion, which can result in greater exposure to the damaging effects of storms and weather, and can also increase the risk of removal or collection of artifacts. For artifacts that have been excavated, such as the remains of the hull of the HMS Nancy, pressure is exerted due to natural deterioration;

this is magnified if infrastructure and buildings are not adequate to maintain the condition of the artifacts.

7.4 Pressures on park operations

There are circumstances that exert pressure on park operations beyond those identified in the earlier sections. For example, the number and distribution of park visitors in a day or throughout the season can act as a pressure on park operations; high numbers or high concentrations of visitors require more frequent comfort station cleaning, litter and garbage removal, or enforcement patrols. Medical, health, safety or enforcement emergencies or emerging priorities put pressure on park operations, as do special events or other commitments for management (e.g., restoration event, piping plover habitat protection, detritus removal). These circumstances require staff and resources to be directed towards a response to the specific pressure. Weather events and daily weather fluctuations can also act as pressures on park operations. Staffing, resource and equipment availability to address pressures fluctuates throughout the year. The size, shape and connectivity of the park poses challenges for staff travelling between sites. Additionally, the complex land ownership and legislative context within which the park operates creates challenges for park staff from several perspectives. Finally, a noteworthy pressure on park operations is balancing the diverse interests, opinions and expectations about Wasaga Beach Provincial Park's purpose, goals, and management practices.

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Appendix A: Current planning process

Ontario Parks is undertaking a planning process to prepare a new management plan for Wasaga Beach Provincial Park. The following sections provide contextual information about the park planning process.

I Provincial Parks and Conservation Reserves Act, 2006 (PPCRA)

The *Provincial Parks Act* guided the management of Wasaga Beach Provincial Park from the establishment of the park in 1959 until 2007. In 2007, the *Provincial Parks Act* was replaced with the PPCRA. The PPCRA has two principles that guide all aspects of planning and management for Ontario's system of provincial parks, including planning and management of Wasaga Beach Provincial Park:

1. Maintenance of ecological integrity shall be the first priority and the restoration of ecological integrity shall be considered.
2. Opportunities for consultation shall be provided.

The PPCRA defines ecological integrity as referring to a condition in which biotic and abiotic components of ecosystems, and the composition and abundance of native species and biological communities, are characteristic of their natural regions, and rates of change and ecosystem processes are unimpeded. Simply stated, ecosystems have integrity when their lands, waters, native species and natural processes are intact.

The PPCRA also outlines four objectives for establishing and managing provincial parks:

1. To permanently protect representative ecosystems, biodiversity and provincially significant elements of Ontario's natural and cultural heritage and to manage these areas to ensure that ecological integrity is maintained.
2. To provide opportunities for ecologically sustainable recreation opportunities and encourage associated economic benefits.
3. To provide opportunities for residents of Ontario and visitors to increase their knowledge and appreciation of Ontario's natural and cultural heritage.
4. To facilitate scientific research and to provide points of reference to support monitoring of ecological change on the broader landscape.

The management of Wasaga Beach Provincial Park contributes to all four provincial park objectives under the PPCRA.

II Park management plan definition and role

A management plan is a document approved by the minister that provides direction for protecting, developing and managing park values and resources over a 20-year time period. It addresses substantial and complex issues or proposals for capital infrastructure or resource management projects at one or more provincial parks. A management plan describes the park's contributions to achieving the objectives and principles in the PPCRA, and identifies site-specific management policies and actions.

A management plan is one component of the framework used by MNRF and Ontario Parks to make decisions. This framework (shown in the following table) has several levels, which result in progressively more detailed and specific decisions.

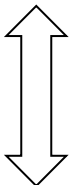
Planning Level	Type of Direction	Scale
Level 1	Legislation, regulations, strategic directions	
Level 2	Protected area system and Crown land use policies; provincial park operating standards and policies	
Level 3	Park management plan	
Level 4	Implementation and operations (including environmental assessments)	

Table 2: MNRF’s planning framework (adapted from Ontario’s Protected Areas Planning Manual)

The new management plan for Wasaga Beach Provincial Park will provide overall direction for park management as described above, as well as provide guidance for further site-specific operational decision making or planning that may be required for implementation. An example of operational planning would be the preparation of construction plans, including an evaluation under *A Class Environmental Assessment for Provincial Parks and Conservation Reserves* (Class EA-PPCR) for an individual project, such as building a comfort station.

III Planning process, consultation and the planning team

Planning for Wasaga Beach Provincial Park will meet the requirements of *Ontario’s Protected Areas Planning Manual: 2014 Edition*, and the associated guidelines. Planning involves collecting and reviewing background information, developing management options, and preparing a preliminary management plan. The planning process will conclude in the development and approval of a final management plan. Once approved, the new plan will guide management and development of the provincial park over the next 20 years.

Indigenous, stakeholder and public involvement is an integral part of the management planning process. Ontario Parks is committed to providing an open and transparent process for the preparation of the new management plan for Wasaga Beach Provincial Park. Opportunities for Indigenous community, stakeholder and public review and comment will be provided at several points during the planning process.

A seven member planning team has been assembled to provide input to the new management plan. The composition of the planning team is important to the success of the process. Planning teams typically consist of internal Ontario Parks staff members; however, in recognition of the complexity and diversity of interests at Wasaga Beach

Provincial Park, the planning team also includes representatives from the local municipality and Ministry of Tourism, Culture and Sport. The team will have input into:

- developing management direction for the park consistent with park policy and legislation;
- preparing, reviewing and distributing planning related documents; and,
- consultation, including ensuring the variety of interests at Wasaga Beach Provincial Park are considered, and responding to public inquiries.

IV Beach Management Secondary Plan

Ontario Parks recently developed a beach management secondary plan to provide up-to-date direction for managing the beach in Wasaga Beach Provincial Park while the broader park management plan is being prepared. The scope of the secondary plan focused on beach management activities such as sand and vegetation management, restoration and beach raking. Comments received during consultation on the secondary plan will be considered in the overall park planning process. Topics that were noted as being outside the scope of the secondary plan, such as zoning, will be addressed in this park management planning process.

Policies and direction from the beach management secondary plan may be incorporated into the overall park management plan.

V Tourism, recreation and park planning

Wasaga Beach Provincial Park provides outstanding recreational and educational opportunities based on the natural and cultural features within the park; some of these features include the sand beach and public access to the shoreline and Georgian Bay, the park's topography, Nancy Island Historic Site, and the Nottawasaga River. These features contribute significantly to the tourism opportunities within the local area, region and province as a whole.

Tourism is not specifically mentioned in the mandate of Ontario's provincial park system (see section appendix A, section I). However, providing ecologically sustainable recreation and heritage appreciation opportunities, and encouraging associated economic benefits, are within the scope of the provincial park system's mandate and contribute to a successful tourism industry. For planning purposes at Wasaga Beach Provincial Park, tourism is considered an outcome or result of providing high quality, diverse, ecologically sustainable recreational and educational opportunities that are attractive to a wide range of people. Through this planning process, policy direction and guidance will be developed to ensure the protection and thoughtful evolution of the park's recreational and heritage appreciation opportunities, including infrastructure to support visitation. The park management plan will support tourism and park visitation that contributes to the economic viability of Wasaga Beach Provincial Park, Ontario's provincial park system, and the local community, region and province, in keeping with the PPCRA.

Appendix B: Maps

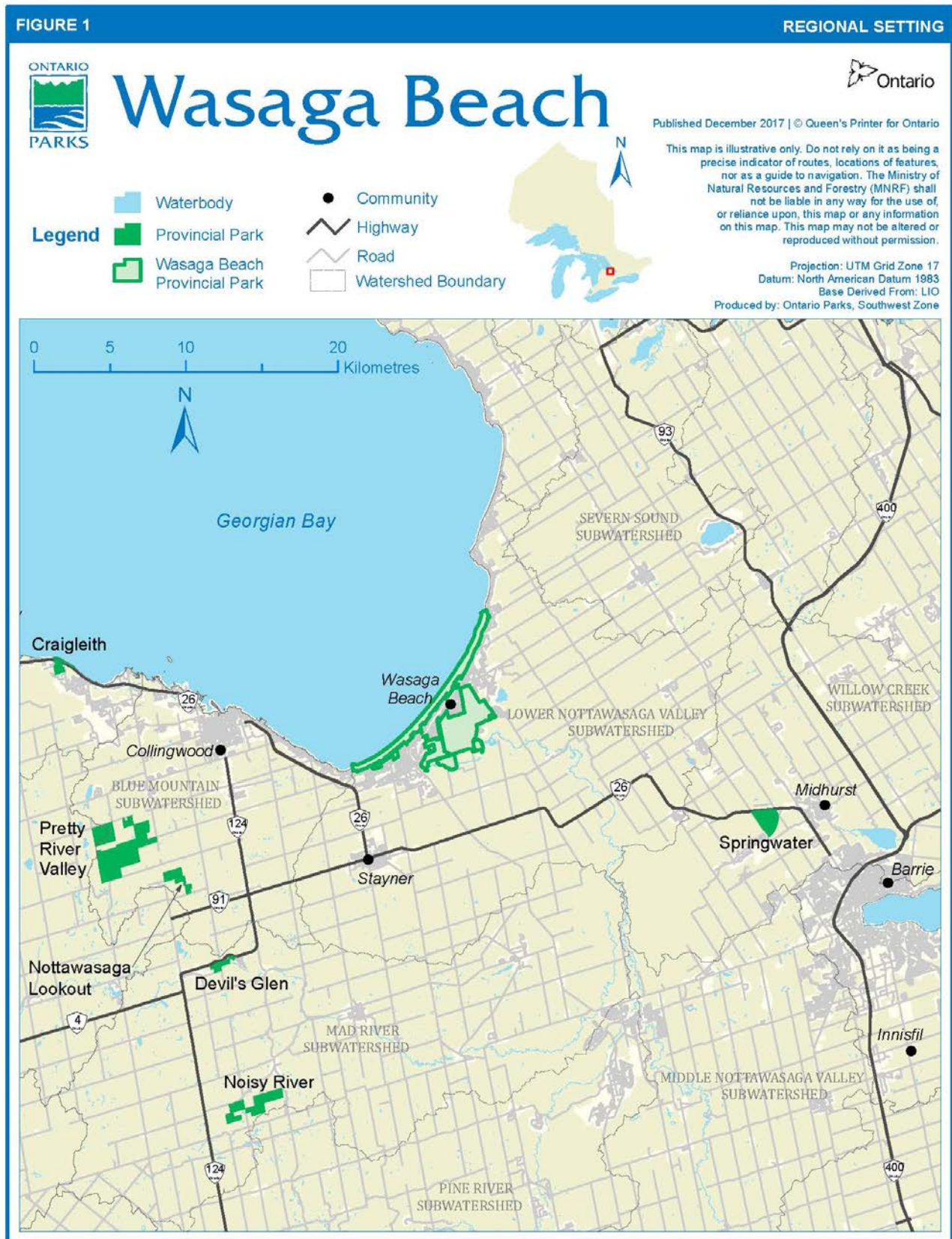


FIGURE 2



Wasaga Beach



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Legend

- | | | | |
|--------------------------|--------------|-------------------------|-------------|
| Provincial Park Boundary | Boat Launch | Picnic Shelter | Washroom |
| Beach Area Boundary | Gatehouse | Playground | Waterbody |
| Parking | Trail Centre | Welcome Centre & Museum | Watercourse |
| | Park Office | | Road |

Projection: UTM Grid Zone 17
Datum: North American Datum 1983
Base Derived From: LIO
Produced by: Ontario Parks, Southwest Zone



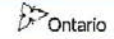
FIGURE 3

Allenwood Beach Area



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



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Base Derived From: LIO
Produced by: Ontario Parks, Southwest Zone

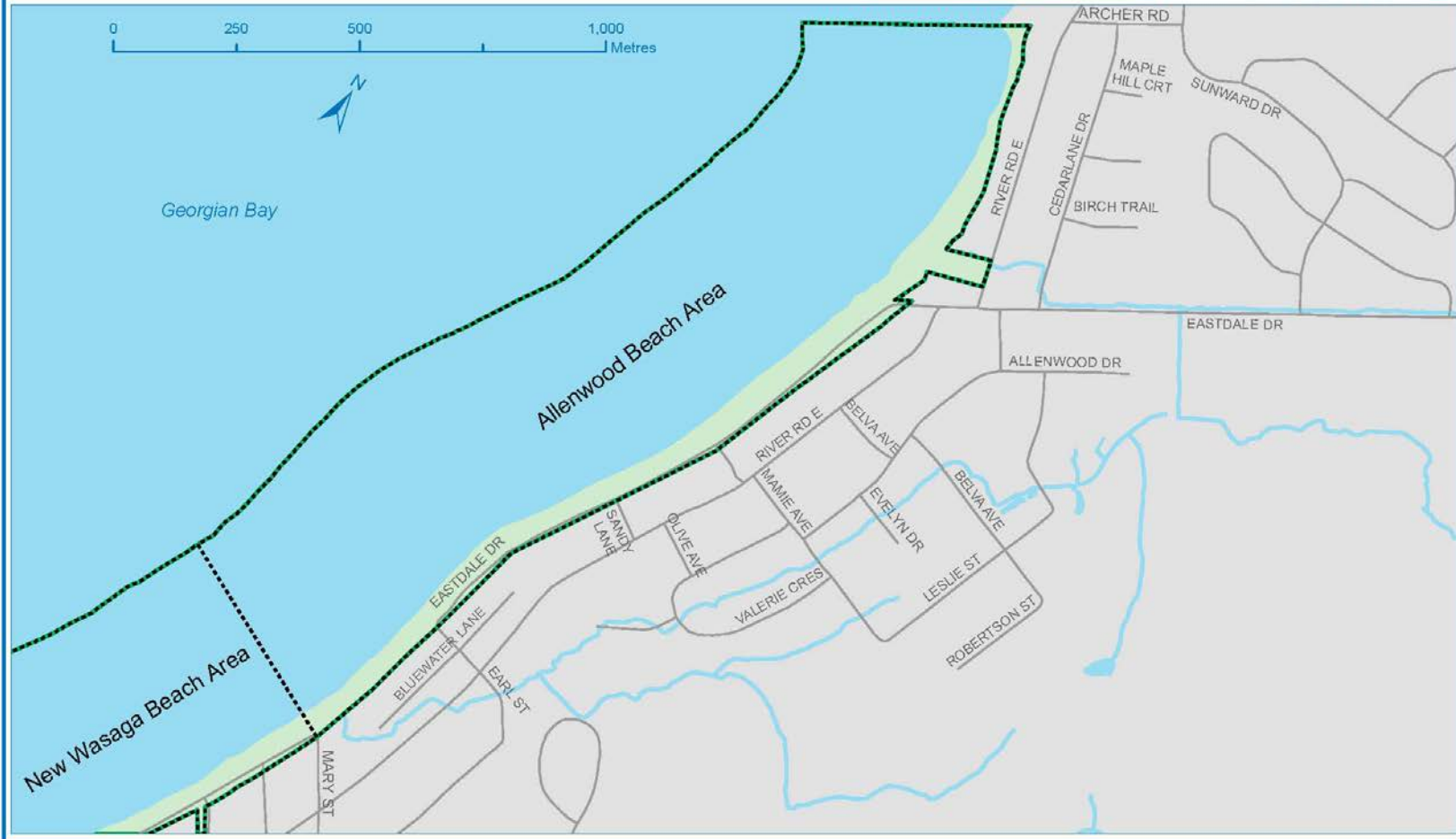


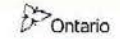
FIGURE 4

New Wasaga Beach Area



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



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Projection: UTM Grid Zone 17
Datum: North American Datum 1983
Base Derived From: LIQ
Produced by: Ontario Parks, Southwest Zone

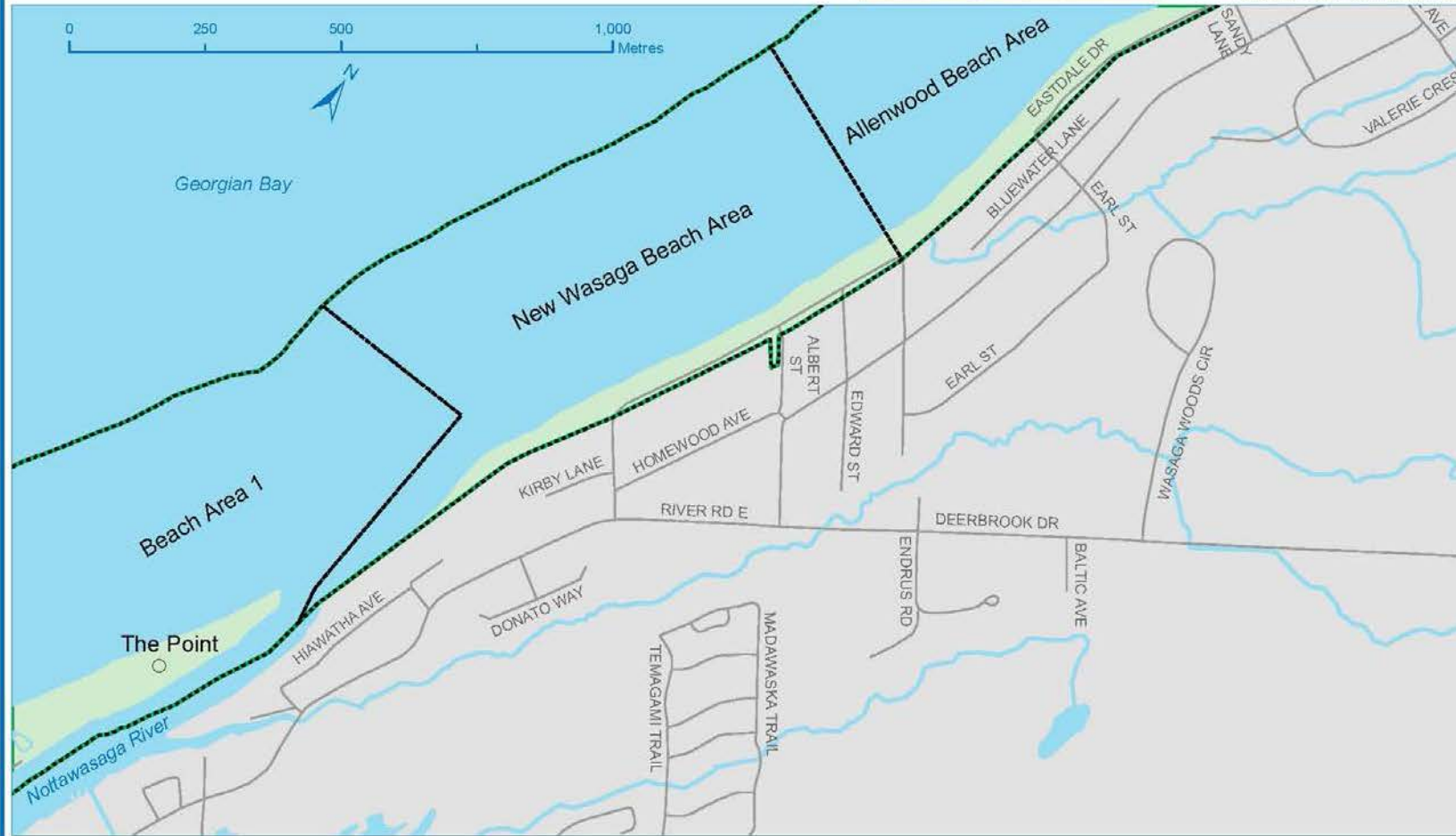


FIGURE 5

Beach Area 1



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



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Datum: North American Datum 1983
Base Derived From: LIO
Produced by Ontario Parks, Southwest Zone

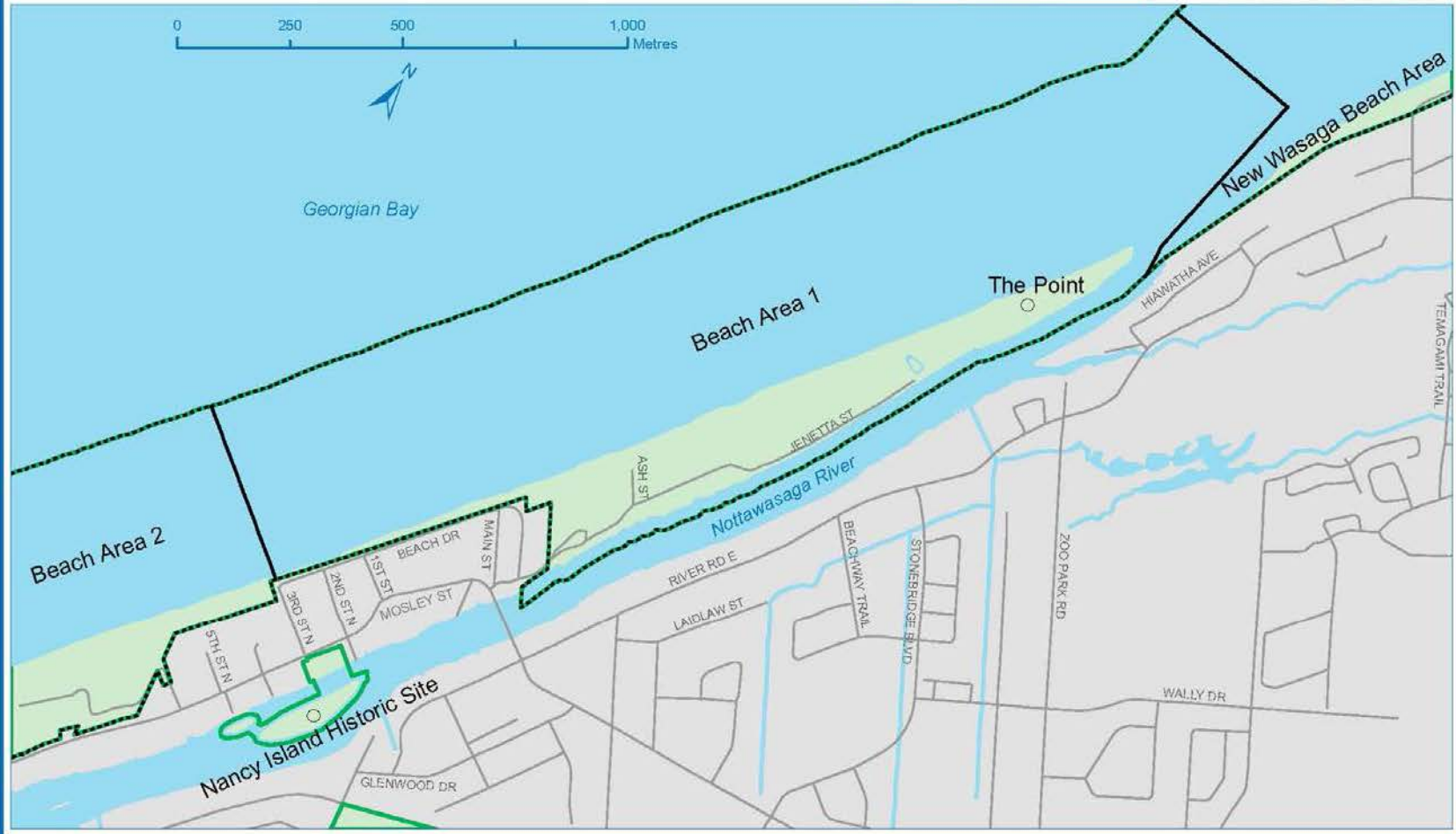


FIGURE 6

Beach Area 2



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



Ontario
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 Projection: UTM Grid Zone 17
 Datum: North American Datum 1983
 Base Derived From: L10
 Produced by: Ontario Parks, Southwest Zone

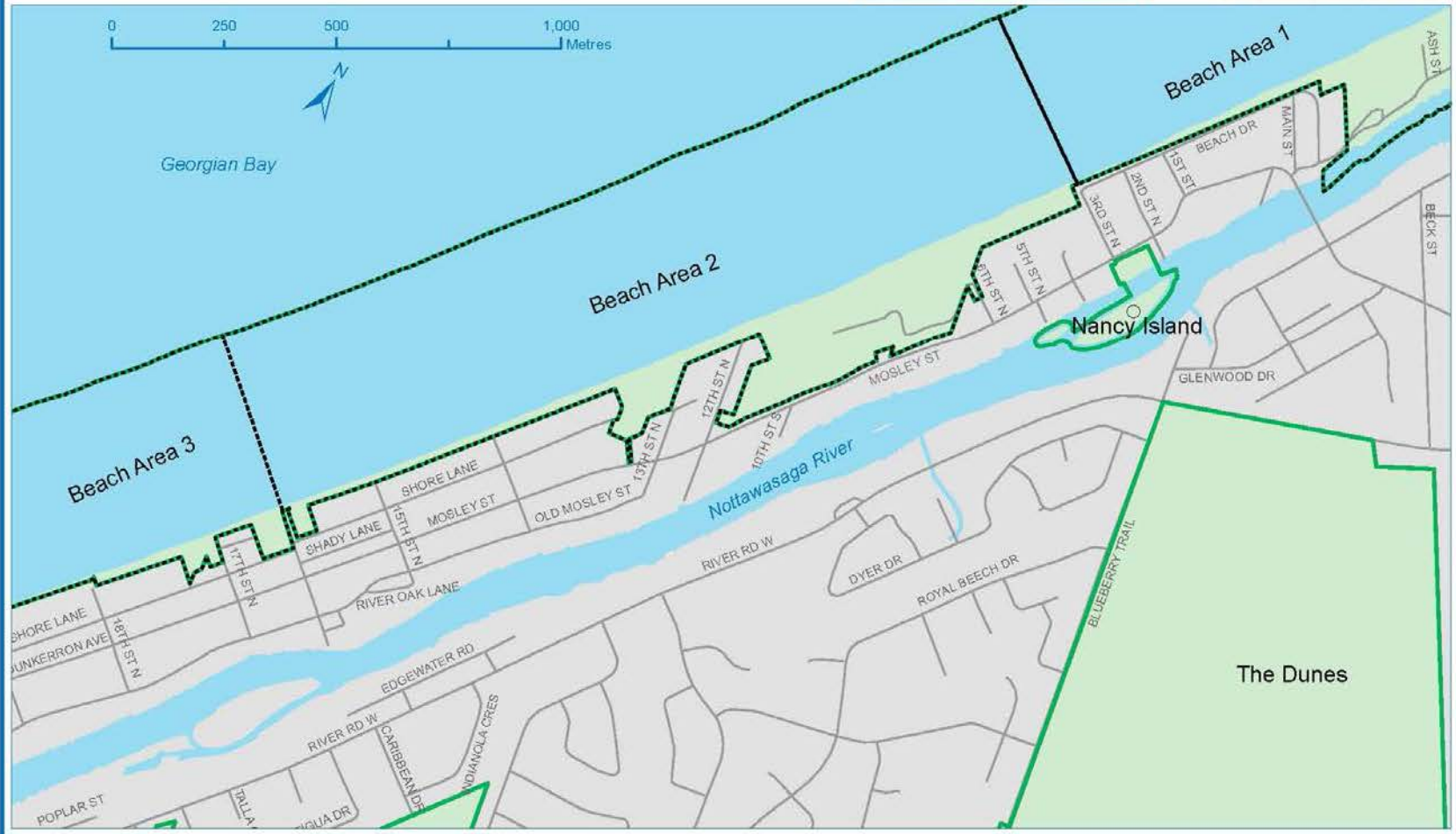


FIGURE 7

Beach Area 3



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



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Projection: UTM Grid Zone 17
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Base Derived From: LIO
Produced by: Ontario Parks, Southwest Zone

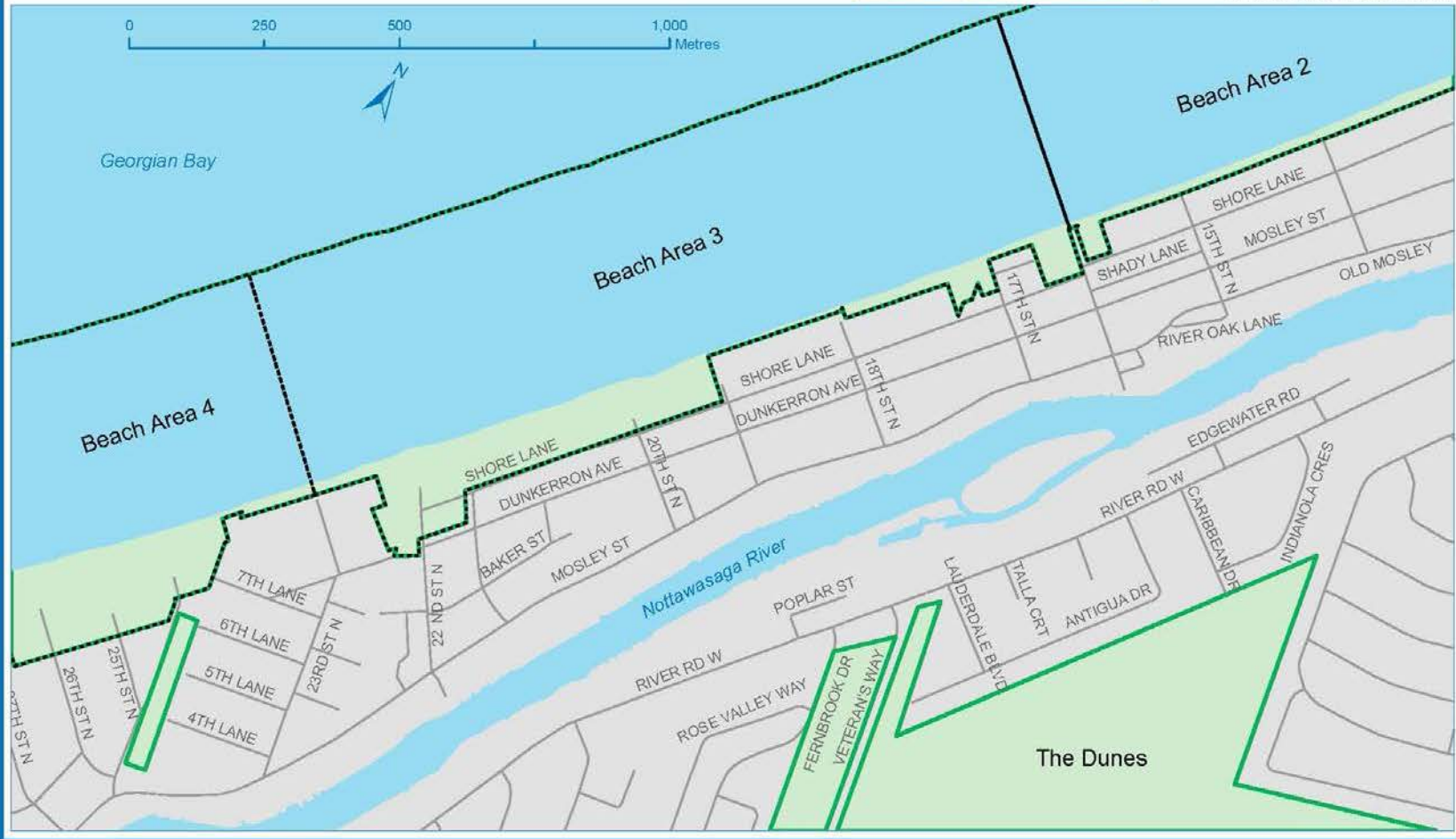


FIGURE 8

Beach Area 4



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



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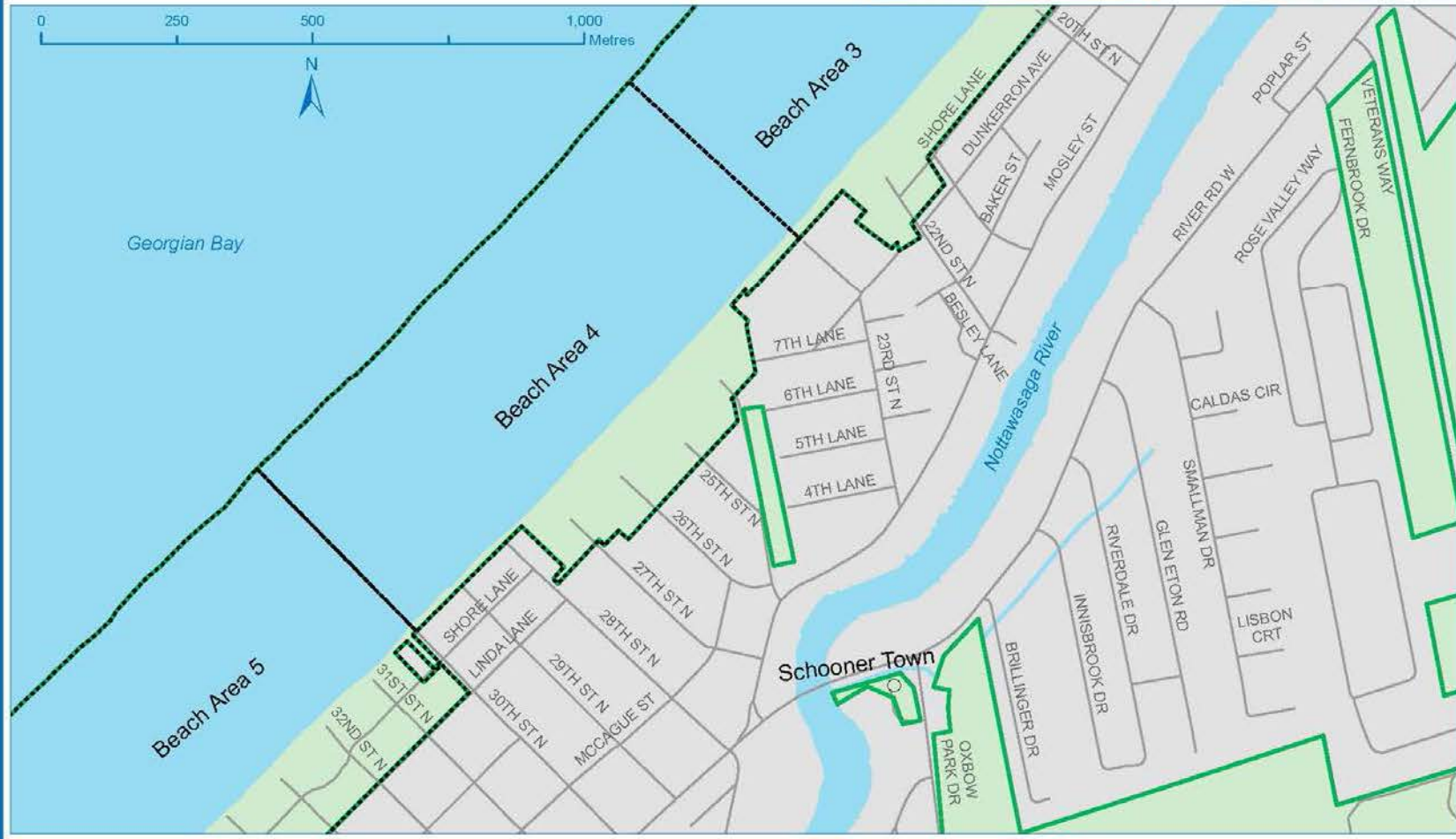


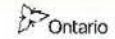
FIGURE 9

Beach Area 5



Wasaga Beach

- Legend**
- Provincial Park
 - Watercourse
 - Out of Scope
 - Beach Area Boundary
 - Waterbody
 - Road



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Projection: UTM Grid Zone 17
Datum: North American Datum 1983
Base Derived From: L10
Produced by: Ontario Parks, Southwest Zone

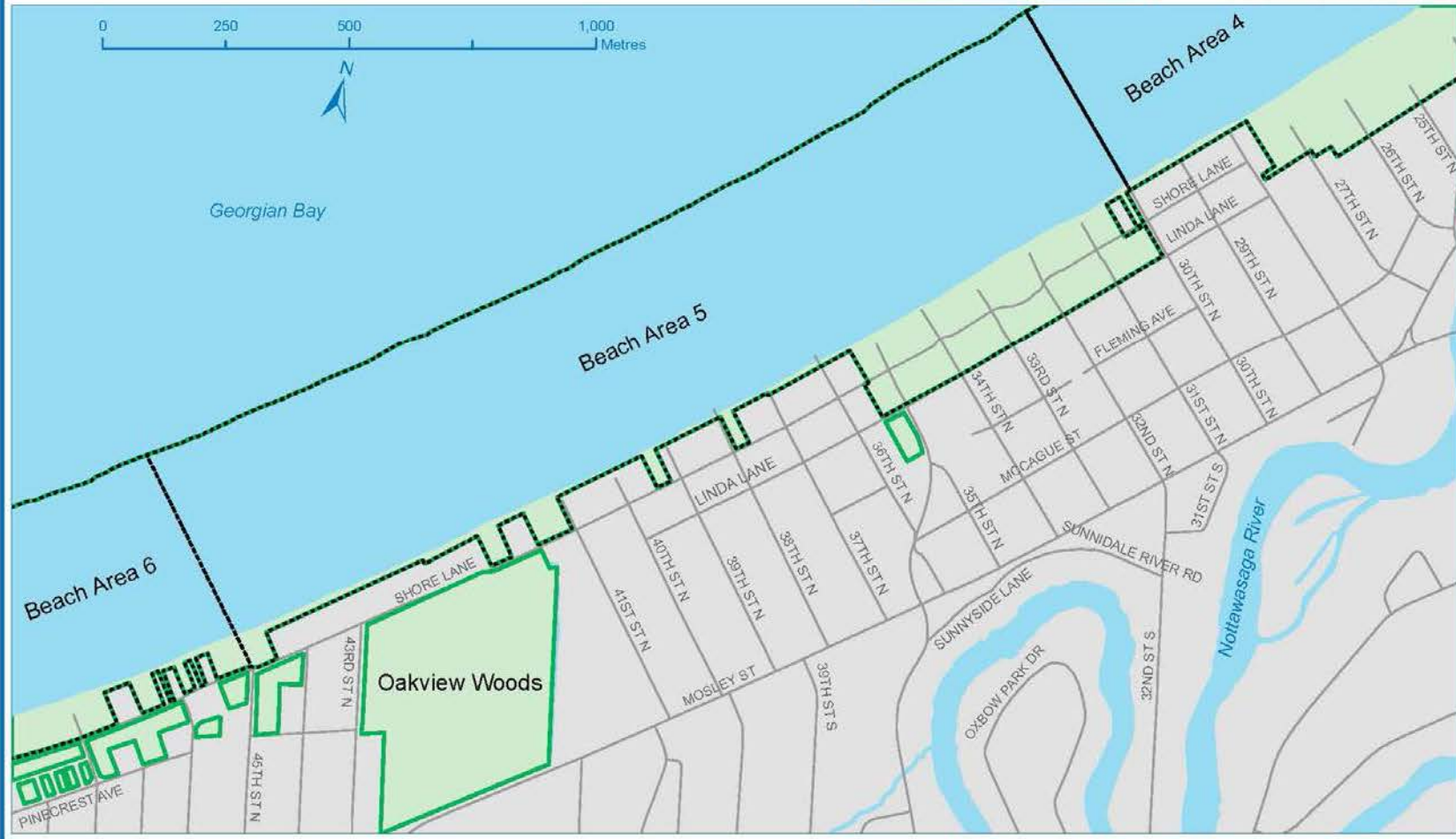


FIGURE 10

Beach Area 6



Wasaga Beach

- Legend**
- Provincial Park
 - Beach Area Boundary
 - Out of Scope
 - Watercourse
 - Waterbody
 - Road



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Projection: UTM Grd Zone 17
Datum: North American Datum 1983
Base Derived From: LIO
Produced by: Ontario Parks, Southwest Zone

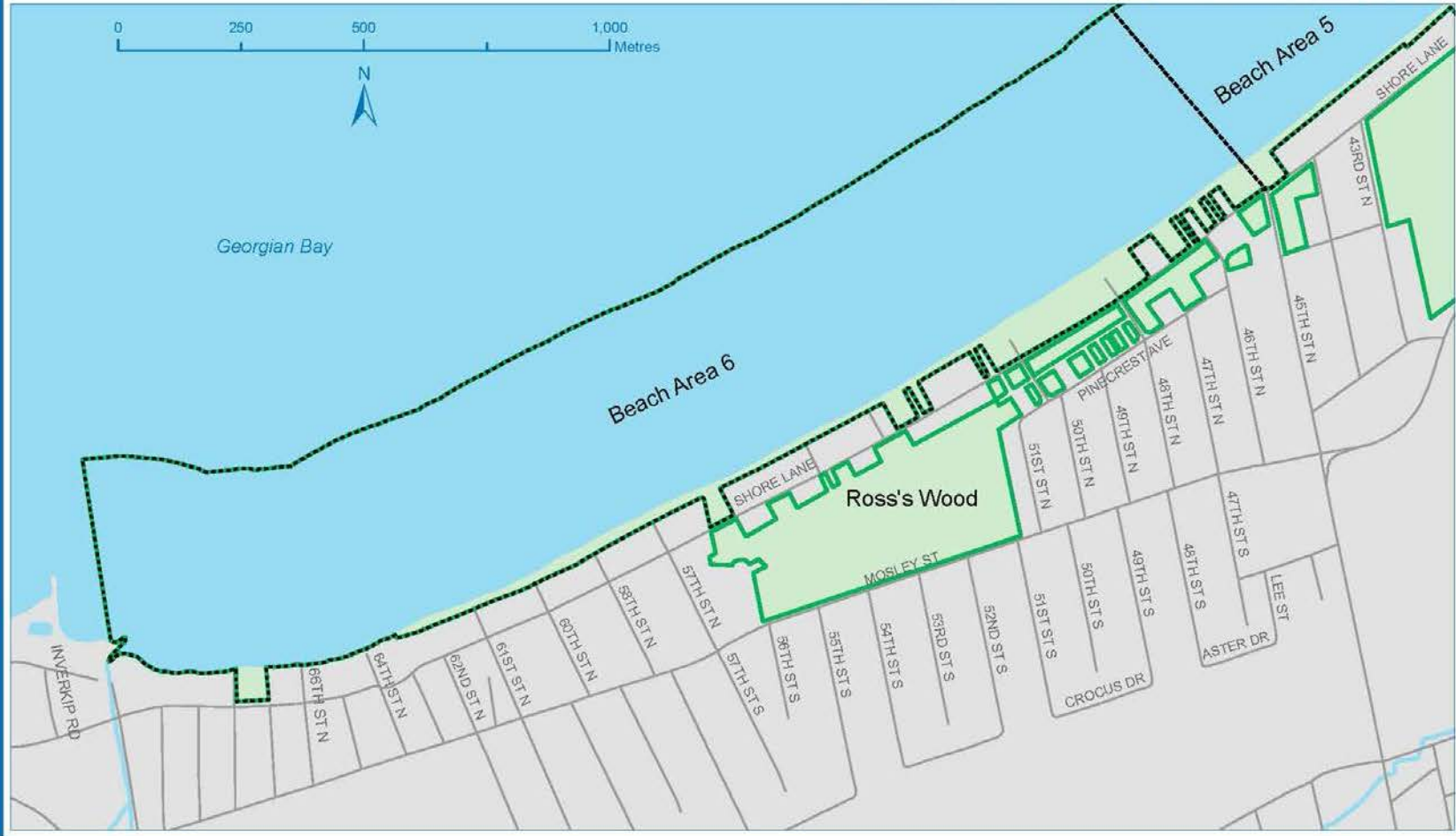


FIGURE 11

Dunes Area and Current Development



ⁱ Les espèces en péril sont celles figurant sur la Liste des espèces en péril en Ontario (EEPEO) dans le Règlement de l'Ontario 230/08 pris en application de la *Loi sur les espèces en voie de disparition de l'Ontario*. Cette liste est établie par le Comité de détermination du statut des espèces en péril en Ontario (CDSEPO).

ⁱⁱ Species at risk are defined as those species listed on the Species at Risk in Ontario (SARO) list in Ontario Regulation 230/08 under Ontario's *Endangered Species Act*. This list is developed by the Committee on the Status of Species at Risk in Ontario (COSSARO).

ⁱⁱⁱ Ontario Parks manages protected areas for the benefit of significant species as defined by Ontario's Natural Heritage Information Centre (NHIC) or NatureServe. Status is assessed and documented at three distinct geographic scales: global (G), national (N), and state/province (S). Conservation status ranks are based on a one to five scale, ranging from critically imperiled (1) to demonstrably secure (5). Global, national or provincial ranking considered significant or rare for the purposes of this plan are: global ranking of G1, G2 or G3, national ranking of N1, N2 or N3, or provincial ranking of S1, S2 or S3.

Global, national, or provincial conservation status ranks are used to set conservation priorities for rare species and natural communities. These ranks are not legal designations. The most important factors considered in assigning provincial ranks are the total number of known, extant sites in Ontario, and the degree to which they are potentially or actively threatened with destruction. Other criteria include the number of known populations considered to be securely protected, the size and population trends of provincial occurrences, and the ability of the taxon to persist at its known sites. Hybrids, introduced species, and taxonomically dubious species, subspecies and varieties have generally not been included. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. Provincial ranks have been assigned using the best available scientific information, and have been reviewed by a group of experts on the flora and fauna of Ontario.

^{iv} Health Checks provide a detailed review of stream health, forest conditions, wetland conditions, and groundwater health in relation to Environment Canada's *How Much Habitat is Enough?* publication. In this publication, minimum habitat requirements to maintain healthy wildlife populations are suggested based on habitat guidelines for the lower Great Lakes and mixedwood plains areas (the area south and east of the Canadian Shield in Ontario). These suggested targets are not binding, and should be considered in the context of applicable legislation and regulations, as well as local knowledge and circumstances, when used to develop local land and resource management policies. The NVCA's Health Checks also provide an overview of stewardship activities and initiatives undertaken within the watershed and subwatersheds. The 2013 Watershed Health Check indicated that the Nottawasaga Valley watershed, as a whole, had good forest and wetland conditions, very good groundwater health, but poor stream health.

^v Watershed Report Cards are part of an initiative to report on watershed health in a standardized, consistent way across many of Ontario's 36 Conservation Authorities. Surface water quality, forest conditions, wetland conditions, and groundwater quality are reported on so as to enable analysis within the watershed and across watersheds. The Nottawasaga Valley's 2013 Watershed Report Card consists of the following grading: Surface Water Quality received a C; Forest Conditions received a B; Groundwater Quality received an A; and, Wetland Conditions received an A (A is excellent; B is good; C is fair; D is poor; and, F is very poor).