Petrie Islands

Management Plan

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1.0 Introduction and Purpose

Petrie Islands is a 291 hectare site comprised of alluvial islands, wetlands and forests along the Ottawa River. This City of Ottawa asset offers a rare example of a largely natural island and wetland complex and is recognized as a Provincially Significant Wetland. The majority of Petrie Islands is conservation area with a popular summer recreation area featured at the site entrance. Management of the site has and will continue to place protection of the natural environment first while allowing recreational activities that respect the existing significant natural features.

1.1 Plan Purpose

The overall project objective is to design a management plan that will provide long-term protection for the significant ecological features and functions of Petrie Islands while allowing users to experience the area through appropriate recreational activities in a way which is both *manageable and sustainable* with resources available from the City of Ottawa and stakeholders.

The planning process has aimed to:

• Prepare a management plan for Petrie Islands with a twenty-five year horizon based on objectives that will meet the above plan purpose; the final objectives will be established in consultation with stakeholders and the City;

• Delineate activity zones and recommended strategies for managing a range of activities across the diverse landscape;

• Provide detailed short-term management recommendations (including cost estimates) as well as long-term management direction for dealing with identified issues (e.g. invasive species removal, re-naturalization of disturbed areas, etc.);

• Provide conceptual designs and cost estimates for infrastructure (e.g. boat launching areas, trail locations, generic surface treatment recommendations, interpretive opportunities, entry/access points, accessible trail location) as per the management recommendations; and

• Identify management and development priorities for the next five years and general guidelines for the longer term.

The area considered in this management plan comprises the island complex and adjacent mainland area. Throughout this plan, the term “Petrie Islands” refers to the park as a whole, including both the islands and the mainland. The word “Island” is used to refer only to the island portion of the park which consists of the Stuemer Park recreation area and the Grandmaitre Ecological Reserve. “Queenswood Forest” refers to the mainland portion of the park.

1.2 Plan Development Process

There has been extensive ecological assessment of the Petrie Islands by stakeholders and the City. A recent update (Brunton, 2009) completed as stage 1 of the management plan process provides a comprehensive review of the site’s existing ecological conditions. A summary is provided in Appendix A.

Preparation of the management plan has involved: consultation amongst stakeholders and user groups; an assessment of the impact and compatibility of uses given current ecological conditions; identification of management issues; and development of management directions, conceptual plans and priority actions to address the management issues, provide for the desired range of recreational activities and protect the site’s ecological features and functions.

Specifically, the planning process through 2010 and 2011 has included:

- A workshop with the Petrie Islands Advisory Committee (PIAC) and a public open house for the community, to obtain

community information and direction for future management of Petrie Islands;

- The development of use and management objectives, refined through input obtained through a stakeholder workshop, online survey and public session;
- The identification of opportunities for appropriate recreational use (hiking, canoeing and kayaking, education, nature appreciation, swimming, etc.);
- The identification and analysis of management issues and opportunities;
- The development of detailed management recommendations including:
    - Strategies for overall management of the site (including the definition of roles and relationships of the City with partners and stakeholders);
    - Management of uses (e.g. peak use beach days, beach closures, diversification of recreational opportunities, control of visitor impacts including undesirable activities (e.g. vandalism));
    - Management of existing and future stressors (e.g. growth in visitation, climate trends, invasive species);
    - Long term strategies for the preservation of ecological integrity;
- A conceptual plan for site infrastructure that supports public enjoyment, considering:
    - Boating access and opportunities;
    - Trail location, treatment and design options;
    - Use management (e.g. signage, etc.);
    - Interpretive resources (e.g. panels, interpretation centre);
- Refinement of the management recommendations and conceptual plan through a second stakeholder meeting in March 2011, consideration of written stakeholder feedback and review by City staff;
- Final revision of the Draft Management Plan to integrate relevant comments following circulation of the document to stakeholders and interested public and a public meeting in June 2011.
- The Petrie Islands Management Plan is to be submitted to Council for approval in January of 2013.

2.0 Location and Context

The history and current status of the islands and mainland that comprise Petrie Islands' natural environment and recreational features are described in this section.

2.1 Location of Petrie Islands

The Petrie Islands site consists of 291 ha of islands, wetlands and adjacent mainland along the southern shore of the Ottawa River in the north-eastern part of urban Ottawa (Figure 1). The mainland portion is bordered by the river to the north, by North Service Road to the south, by recreational pathways and the Queenswood subdivision to the west and by Trim Road to the east.

Figure 1: *Location of Petrie Islands* (Google Maps, 2011)

2.2 Natural and Cultural History

The following description of the natural and cultural history of Petrie Islands is adapted from the Friends of Petrie Island (FOPI) website (2010) and stakeholder input.

The most recent glaciation in the Ottawa valley occurred between 70,000 and 10,000 years ago. As the glacier receded, the Champlain Sea filled the depressed ground, covering the area. By 8,000 years ago, the Sea had receded and the Ottawa River flowed through the valley. Humans arrived around 3,000 years ago, when the Ottawa Valley is known to have been home to the Algonkian people. In more recent history, Philemon Wright and five American families came to Hull from New England in 1800. By 1806 they had floated the first timber raft down the Ottawa River and the Saint Lawrence to Quebec City. The last timber raft was floated down the Ottawa River in 1908, however logging continues in the Ottawa Valley by other methods.

Petrie Islands are named for Captain Archibald Petrie, a captain in the Royal Navy (1783-1864) who served in the war of 1812 and in the Upper Canada Rebellion of 1837. From 1844-1847 Petrie was the Member of Parliament representing Russell County and from 1852 to 1856 he was a member of Cumberland Council. Upon leaving the army in the late 1930s, Petrie leased a parcel of land that included the islands, and lived on a farm that had a view of them.

Petrie Islands were purchased by the Grandmaitre family in 1955. The family operated a sand and gravel extraction operation here over the next 50 years. The islands, except for one cottage and two private lots, were sold to the City of Cumberland (now part of the City of Ottawa) in 1983 for recreational use and wetland preservation. The Grandmaitre family retained a lease to continue their sand extraction operation until 2003. The conservation portion of Petrie Islands is named the *Grandmaitre Ecological Reserve*.

Human uses in the area during the past 50+ years have resulted in significant changes to the landscape and ecology of Petrie Islands. These include:

- Operation of the sand and gravel extraction operation from the 1950s to 2003;
- Part of the East Island was used as a garbage dump from the 1950s until the 1970s.
- A causeway was built from the south shore of the Ottawa River to the islands in the 1960s and the Grandmaitre family built four family cottages on the islands;
- The Carillon Dam was built in 1960-1964 near Hawkesbury, about 130 km east of Ottawa, drastically changing the banks of the Ottawa River and raising water levels by 1-1.5 m, creating the wetlands that exist on and around Petrie Islands today. Most of the area is flooded every spring.
- A public picnic area was developed by Friends of Petrie Island and the City of Cumberland in 1998, followed by the beach, parking area and trails.

The main recreational areas of the site have also been named to acknowledge local residents. The family beach area, developed at the former sand extraction site, was named Stuemer Park in commemoration of former Fallingbrook resident Diane Stuemer and her family, who sailed around the world from 1997-2001, departing and returning from Petrie Islands. Thousands of local residents gathered at the Island to welcome them home. Nearby, to the west of the beach areas under the shade of trees, is the Al Tweddle Picnic Area that acknowledges the long-time and significant contributions to site management and promotion of this member of the Friends of Petrie Island. A local well-known naturalist, Bill Holland, is recognized in the trail with his name that runs along the north side of Turtle Pond.

2.3 Planning Framework

Petrie Islands has been identified by the Province as a Significant Wetland and is also a candidate for status as a Significant ANSI (Area of Natural and Scientific Interest). The City of Ottawa Official Plan (2009) designates the upland habitats as "Urban Natural Feature" and "Major Open Space," and the wetland area as a "Significant Wetland" (Figure 2). Development potential is significantly limited by these designations and the accompanying zoning of Environmental Protection (EP) for the Urban Natural Feature and Significant Wetland areas, and Open Space (O1) for the Major Open Space (Ottawa, 2008). Much of the area is mapped as flood plain, and is regulated by the Rideau Valley Conservation Authority (RVCA) to protect river system processes.

The Urban Natural Feature and Significant Wetland designations apply to lands of high environmental value where human uses are restricted to those which are complementary to the natural features and systems. Careful site management, restoration and enhancement are required. The Official Plan specifies that these natural features are to be managed for conservation and outdoor recreation uses that do not adversely affect the natural characteristics of the area.

To provide additional guidance for activities on Petrie Islands, the City of Cumberland created a Petrie Islands Master Plan in 1998. Given changes such as amalgamation of the City of Ottawa in 2001, cessation of sand extraction in 2002, and ongoing development on the mainland south of the islands, an update of this plan is required. This management plan and implementation strategy will provide specific direction over the next 25 years (to 2035) to meet the specific objectives for Petrie Islands.

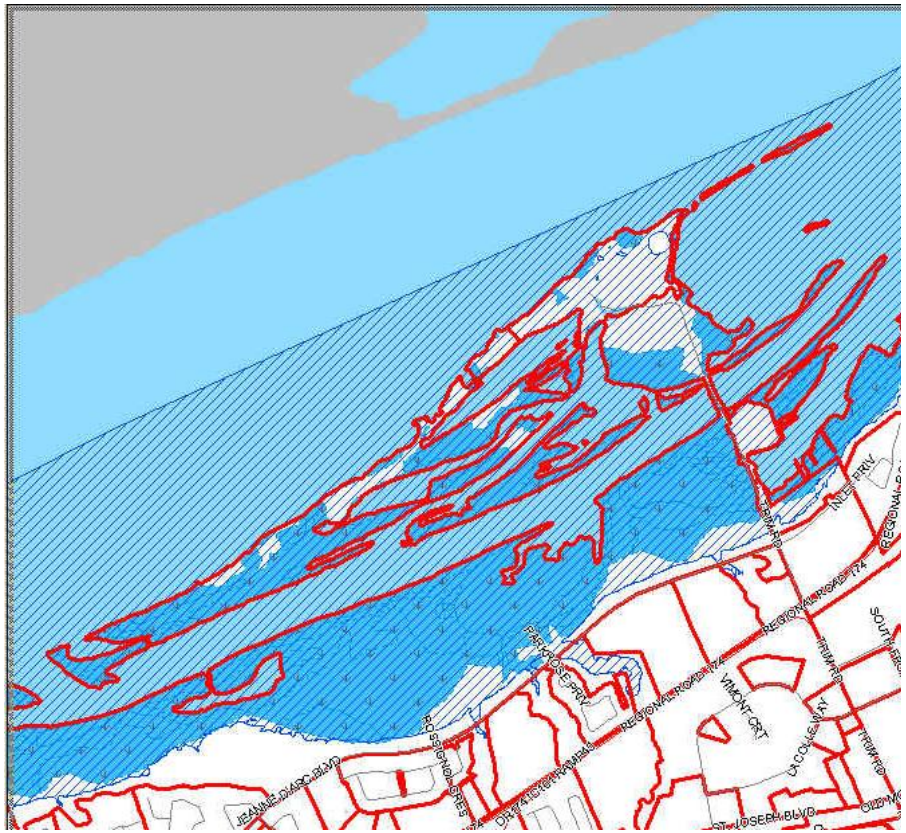


Figure 2: City of Ottawa zoning map for Petrie Islands
The red lines indicate the zoning boundary, the blue hatched area indicates the floodplain and the blue specks indicate significant wetland (City of Ottawa, 2008).

3.0 Existing Situation

This section describes the existing situation on Petrie Islands under a series of general headings – natural environment, outdoor recreation, education, health and safety and partnerships. This information sets the context for the subsequent management challenges and opportunities of the site (Section 4) and the recommended goals and management actions (Section 6).

3.1 Natural Environment

The natural environment of the Petrie Islands area has been well evaluated over the past few decades (see Appendix A for a synopsis of current environmental and ecological conditions). The area is recognized to be among the most important natural areas in the City of Ottawa (Brunton, 2010; Muncaster and Brunton, 2005; Brownell et al., 1997). Portions of the area are recognized as a Provincially Significant Wetland, a candidate Area of Natural and Scientific Interest (ANSI), and an area of high ecological value in two separate studies of natural areas in the City of Ottawa (Brownell et al., 1997; Muncaster and Brunton, 2005).

Figure 3 (adapted from Brunton, 2010) shows that vegetation communities are largely defined by soil moisture. The mainland portion is comprised of regenerating pastureland alongside mature woodland situated next to the Queenswood subdivision. The construction of the Carillon Dam in the early 1960's led to flooding of the lower sections of the study area to a depth of about one metre. As a result, extensive areas of abandoned pasture between the islands and the mainland were converted into wetland habitat. The area has a high level of floristic diversity and contains several regionally and provincially rare plants and vegetation communities. At least seven federally or provincially listed species at risk also occur within Petrie Islands, primarily in its wetlands but also within the forested areas on the mainland.

Figure 3: Existing Conditions of Petrie Islands. Nine habitats have been identified on Petrie Islands. These include (1) deciduous swamp forest, (2) thicket swamp, (3) meadow marsh, (4) shallow marsh, (5) shallow water aquatics, (6) upland deciduous forest, (7) mixed forest, (8) sand barren, and (9) cultural landscape. More detailed definitions for each habitat are provided in Appendix A.

These listed species include a large population of endangered Butternut trees (Brunton, 2010). The islands and embayments also provide important habitat for migrating birds along the Ottawa River in spring and fall.

It is important to recognize that many of the habitats, flora and fauna that currently inhabit Petrie Islands are actually a product of conditions created by the Carillon Dam. While Petrie Islands has been disturbed by human activity, it has demonstrated considerable natural resiliency. Despite greatly increased visitor use of the recreation area since sand extraction ceased in 2002, the ecological integrity of the site remains high (Brunton, 2010). This is attributed to: the high regenerative capacity of the annually flooded wetland communities on the main Island, the restriction of most high intensity uses to the beaches and recreational areas, and the relative inaccessibility of the western portion of Petrie Islands (Brunton, 2010). Stewardship efforts by the Friends of Petrie Island and other partner groups also contribute to the site's ecological health.

Vegetation and Wildlife: Under current levels of use, vegetation and wildlife appear to be relatively well protected (Brunton, 2010; public consultation). There is public concern about the effects of possible development and large events on nesting turtles, since much of the beach area is used seasonally as turtle nesting habitat by Blanding's, map, snapping and painted turtles.

Significant Species and Species at Risk: Many regionally significant plant species occur in the Open Sand Barren Ecosite (Brunton, 2010) (Figure 3) on the north side of Petrie Islands. Although these areas show some disturbance (campfires, footpaths) the levels of use are not currently detrimental. The main concerns about significant species are related to sensitivities of turtle nesting and decline of significant species of flora (such as the provincially significant heart-leaved tear-thumb) within the relatively fragile swale habitats of Queenswood Forest.

Invasive Species: Petrie Islands currently has a relatively low ratio of non-native species to native species when compared to many natural areas within the City of Ottawa (Brunton, 2010). In the 2010 ecological assessment, some non-native invasive species were noted to be present, but relatively stable over the past decade.

Stakeholders identified buckthorn as an invasive plant of concern on the islands due to its relationship with the resident beaver population. Petrie Islands supports a large beaver population which has been removing many native tree and shrub species on the islands. The beavers do not take down buckthorn, which is an aggressive invasive plant, allowing for excellent conditions for the spreading of this species.

Garlic mustard, another aggressive plant species that is spreading within the Ottawa area, also grows at this site.

City staff and site stakeholders have noted that the increased presence of Canada geese in the beach areas is having an impact on the quality of the visitor experiences and is creating a potential health risk. The environmental sensitivities of the area may limit the available management options for discouraging or controlling geese.

3.2 Outdoor Recreation

In addition to its natural features of regional and provincial significance, Petrie Islands also supports significant seasonal recreation activities. Since construction of the beaches in the fall of 2003, the islands have received an estimated average of 207,000 visitors annually, ranging from 153,000 to 284,000. Visitor numbers

may increase as the site becomes better known and the population of the surrounding area grows.

Several structures and other services are now in place on Petrie Islands, and most of these support recreational uses (see Figure 4). The City of Ottawa has constructed a public washroom facility to support the large visitor numbers on the Island in the summer. An interpretation centre based out of a former cottage of Gérard Grandmaitre is operated by the Friends of Petrie Island (FOPI), a local organization active in conservation management, public stewardship and visitor interpretation activities. Three picnic areas and a children's playground have been constructed nearby. One private cottage and two private lots also remain on the Island.

The islands feature an existing system of walking trails, which extends from the causeway and recreational park areas along the shores of some islands (Figure 4). The northern shores of East, North and West Islands are linked by a heavily-used former vehicle track that extends from the picnic and parking area.

Petrie Islands supports a wide range of outdoor recreational activity including the following:

Year round:

- Fishing (ice fishing in winter, shore fishing the rest of the year)
- Hiking
- Photography
- Bird watching

Three season use:

- Boating (canoeing and kayaking)

May to October use:

- Sun bathing
- Family/group picnics
- Swimming
- Group tours (youth, seniors, schools)
- Ecological activities (schools, youth groups)
- Impromptu sports (beach volleyball, frisbee, soccer, football)
- Organized sports (beach volleyball)
- Cultural (painting classes)
- Special events (Canada Day, ethnic festivals, movie nights, lifeguard competitions, rowing regatta)
- Camping is generally prohibited but has been allowed for special groups
- Activities in the main river channel include wind surfing, para sailing, motorized para sailing, water skiing, sea doos, wake boarding
- Hobbies (model airplanes, boats and cars, kite flying)
- Exercise groups, boot camps, jogging
- Weddings
- Emergency response (training and rescue).

Overall, there is limited use of the islands in winter. In addition to ice-fishing noted above, some cross-country skiing and snow-shoeing occurs. The site parking lot is closed (not cleared of snow) during the winter months.

3.2.1 Cultural Heritage

As described in Section 2.2 under "Site History", the Ottawa River has great cultural significance to Canadians. The cultural heritage of Petrie Islands is representative for the Ottawa area, from the logging days and farming of early settlers to the sand dredging and area flooding from the Ottawa River and the recent creation of a publicly valued park.

Some of the local residents and families that have helped this park evolve on Petrie Islands have been recognized in the naming of various features such as the:

- Grandmaitre Ecological Reserve;
- Bill Holland Trail;
- Al Tweddle Picnic Area and
- Stuemer Park.

3.2.2 Events

The largest event held at Petrie Islands is the annual Canada Day celebration. Twenty-four-thousand people were reported at Stuemer Park in 2009 to watch the Canada Day fireworks display. This highly organized event has measures in place to limit the impact to the Island and ensure the safety of participants. Building on the success of Canada Day, other events have been attracted to the Island with mixed success. There are concerns about safety on the Island during these large events because it does not have the capacity (in terms of access, gathering area, and parking) to become a regional event venue. Stakeholders and the public have raised concerns about the effects of large events on water quality, safety, wildlife and neighbouring communities.

Smaller community events are also popular on the Island, such as family picnics and barbecues, employee retreats, group hikes and education events (nature interpretation, canoeing and kayaking).

3.2.3 The Beaches

During warm summer weather, the beaches of Stuemer Park are a popular destination and are often crowded on weekends. The north and east beaches are main draws for sunbathing and swimming (Figure 4). Sand is groomed by the City, and beach support services, including lifeguards and public toilet access, are available from the third week of June until the third weekend of August. There is pressure to extend the seasonal duration of these services.

3.2.4 Trails

Walking and hiking the trails are among the most popular activities on Petrie Islands. Currently there exists an extensive informal network of trails on the islands as well as the Queenswood Forest (see Figure 4). Dogs are not allowed on the island trails but are welcome in the Queenswood Forest. There are concerns with the potential ecological impacts of increased traffic on these informal trails. See Figure 4 for the location of the existing trail network.

Island Trails

The existing path/trail network extends throughout the entire East Island portion of the Grandmaitre Ecological Reserve. There are no designated trails on the other nearby islands.

During winter months, limited use is made of the trails for snowshoeing and cross-country skiing. The river floods in the springtime and waters can rise up to one metre, leaving the trails inaccessible. When in season, the trails provide good connectivity between many of the recreational areas on Petrie Islands, including the beaches, parking area, and park entrance, and offer opportunities to experience many different habitat types. They provide spectacular views of the Ottawa River, inner channel, Crappie Bay, Turtle Pond and East Bay.

There are five main trails demarcated on the East Island:

The *Bill Holland Trail* is the main, 1.4 km, out-and-back east-west trail stretching along the length of the isthmus connecting the east, north, and west islands. It extends from the end of *Turtle Trail* along the access road west from the parking lot, for a length of 0.7 km. It ends at an observation platform overlooking a small pond. It

provides access to two small loop trails, the *Beaver Trail* and the *River Loop*, described below.

The *Beaver Trail* is a small loop trail that provides much of the same experience as the Bill Holland Trail. The Beaver Trail goes south of the main trail, through a Hackberry grove and along a sand barren, and provides views of the inner channel.

The *River Loop* follows the north side of the Island along the Ottawa River and provides access to a small sandy beach and views of the Ottawa River.

The *Muskrat Trail* is an 800 m trail from the parking lot that includes an out-and-back portion to the point of the small peninsula that divides Crappie Bay from Turtle Pond. There is a footbridge over a small channel and an interpretive display. The trail leads back to its starting point past the canoe launch.

The *Basswood Trail* is a 1.5 km loop from the parking lot, south of the canoe launch, which extends along the shore of Crappie Bay to the foot of the causeway, and then turns north along Trim Road, through the deciduous forest and back to the parking lot. The trail is poorly defined from the causeway along the road to where it enters the forest again.

The *Sunrise Trail* continues from the causeway to the southeast end of the east beach along the downstream side of the island. From the end of the trail, visitors can follow a path through the park back to the picnic area or walk along 1 km of sandy beach which offers sunrise and sunset views and fine vistas of the Ottawa River.

The *Turtle Trail* is a 500 m loop which starts and ends at the parking area at the east end of Turtle Pond. It follows the shoreline of Turtle Pond, where there are viewing platforms, and crosses the access road to the interpretation centre, where it follows the Ottawa River shore, through the playground and picnic area at the West Beach, and back to the parking lot. This northern portion of the Turtle Trail is an extension of the main beach path.

The North Service Road and Queenswood Trails

In the Queenswood Forest, the main east-west recreational trail parallels the North Service Road for 2 km, to Tenth Line Road, where it turns and runs along the periphery of the Queenswood Heights and Fallingbrook residential areas of Orléans. It was paved with asphalt in 2010, and connects pedestrians and cyclists to the National Capital Pathway System, offering views of the main channel and the islands. Branching off from this path is a network of informal trails through the Queenswood forest, connecting to the wetlands to the north and the residential areas to the south. Used by walkers and mountain bikers, these trails have numerous issues and limitations including surface erosion and poor drainage. Without management interventions they will continue to deteriorate, creating further impacts.

3.2.5 Boating

Most boating around Petrie Islands is of an informal nature. There is a small-craft boat launch into Crappie Bay from the East Island for those who bring their own kayaks and canoes. Beaching elsewhere onsite is not encouraged. Motorized boats are welcome to use the private marina which is adjacent to the Island.

3.2.6 West Beach: Interpretation Centre, Playground, and Picnic Area

The Friends of Petrie Island (FOPI) Interpretation Centre is located to the west of the Al Tweddle Picnic Area, overlooking the Ottawa River at the West Beach area on the East Island. The interpretation centre is funded and run by FOPI in partnership with the City of

Ottawa and showcases information about the flora, fauna, and history of Petrie Islands.

Between the picnic area and the interpretation centre is a small playground. There is a seating area on the rocks along the river in front of the interpretation centre. Another picnic area is located near the parking lot along the Muskrat Trail, and a third is located on the West Beach. There are 40 picnic tables distributed amongst these sites.

3.2.7 Facilities

Currently there are washroom facilities, a playground and the FOPI Interpretation Centre on the Island, as well as a storage shed. A snack bar is being developed to support beach activities.

3.2.8 Fishing

Fishing around Petrie Islands is under provincial jurisdiction and is not regulated by the City of Ottawa.

Crappie Bay is the prime fishing area and fishing occurs both from the shoreline (Basswood Trail and causeway) and from boats. The use of the causeway for fishing is problematic given its limited width and the volume of traffic. Unless a specifically designated fishing dock is provided this will continue to be an issue.

Ice fishing (outside of Petrie Islands) is a popular winter activity with access to the ice provided at the marina. The facilities on the islands are closed during the winter months.

3.3 Education

Currently a number of local groups offer educational programming on Petrie Islands, largely focused upon nature interpretation and recreational activities. The City will continue to partner with stakeholders. See Appendix B for a complete list of current Petrie Islands' stakeholders.

Interpretive and Wayfinding Signage

The park entrance currently features a large sign with many posted regulations. The large array of illustrated prohibitions is both difficult to read while driving by and provides a rather negative first impression of the site.

Trails within Petrie Islands have limited directional signage and are not necessarily well defined. In some cases there are trails that have been established by hikers or mountain bikes leaving the formal trail system. Existing trail signage is basic, somewhat inconsistent and unilingual.

3.4 Health and Safety

The following description of site safety and security relates to the site's beaches, access and parking facilities.

3.4.1 Beach Safety

During the season of full beach operations, City staff perform lifeguarding duties, open and clean the washrooms, set up volleyball nets, and clean the beach area. As well, a port-a-potty is provided several weeks pre-and post-season. There is demand for washroom facilities in the off-season.

Due to the operation of the dams on the Ottawa River, the river currents may change very quickly, posing a danger to swimmers. As well, significant changes in water depths adjacent to the Island that result in variable water currents which are not necessarily obvious to potential river users. Safe swimming areas are clearly demarcated.

Providing accurate water quality measurements are a challenge for this swimming area. Water sample testing results are only available 24 hours after samples are collected and conditions can change from day to day. Water quality is influenced by numerous factors, including rain events, currents, heat, presence of waterfowl and the volume of beach users. Many people swim despite red flags and signs indicating that the beach is closed due to poor water quality. On days when either the whole beach, or a section of it is closed due to water quality concerns, lifeguards still patrol the area during regular hours to make sure that swimmers are safe. Inexperienced swimmers, beach use during the off-season, and attempted access to the beach by boats all cause concern for the City.

3.4.2 Access

The entrance to the island is poorly defined, marked by a large City of Ottawa sign at the south end of the causeway, followed by some regulatory signage, and large boulders once visitors reach the island. The causeway provides the only road access to the Island.

Currently there are some issues with illegal parking along roadways and the causeway, especially during events. On very busy days this situation can hinder emergency vehicle access to the park and to the remaining private residence on the island. Additionally, the City of Ottawa Emergency Services regularly uses Petrie Islands for training and emergency access. They sometimes need to travel through the parking lots and beach area to access the water with their boat equipment.

3.4.3 Parking

A small gravel parking lot for approximately 10 cars is located along the west side of the road at the north end of the causeway. The main parking area is located farther north, close to the beach and picnic areas. Parking is accommodated within large gravel parking lots, defined by wooden log guard railings. These lots are well organized. Parking facilities are rarely filled to capacity (274 vehicles) on the island, except during large events.

During large events the parking lots fill up fast and traffic becomes congested, which also becomes an issue for emergency vehicle access as previously noted. Currently parking is regulated with pay-and-display ticket machines but there is no mechanism for managing vehicles arriving at the site once the parking lots are full. Tighter controls may be needed for access to parking in future, should vehicle numbers steadily increase.

3.5 Partnerships

As described in the Natural Environment and Recreation sections above, a number of community groups work in partnership with the City to care for Petrie Islands and to provide community services at this valued destination. The value of all of these services is acknowledged and appreciated by the City and the nearby community. Current partnership initiatives that benefit Petrie Islands include:

- stewardship initiatives, nature interpretation and education services of the Friends of Petrie Island,
- kayaking and canoeing classes by the YMCA/YWCA and Spirit;
- community support from the Petrie Islands Advisory Committee members; and
- habitat research and restoration by the Ottawa Duck Club, the Ottawa Stewardship Council and Friends of Petrie Island.
- Boat ramp access provided by Oziles Marina for City of Ottawa Emergency Services

4.0 Area Challenges and Opportunities

This section outlines the main challenges and opportunities to consider in the management of Petrie Islands over the next 25 years. These have been identified through review of the site's existing conditions, future anticipated pressures and feedback from City managers and site stakeholders.

4.1 Management Challenges

1. Managing growth

As Petrie Islands' appeal continues to grow, the City, stakeholders and users will face a number of challenges. These include: parking; increased beach, washroom and trail use; increased demand for boat launch and storage; and a demand for more special events. The City may be pressured to extend operating hours and the length of the supervised beach season.

2. Managing human impacts

The more visitors use Petrie Islands, and particularly the natural environment areas, the greater the human pressure will be on its ecology. Impacts of invasive species, noise pollution, water quality and littering may increase on all parts of the Island. Appropriate planning measures are necessary to ensuring that these impacts can be managed.

3. Water use activities

Allowable areas for swimming, fishing, motor boats, water recreational vehicles and other activities need to be well defined in order to ensure visitor enjoyment and safety as well as successful conservation of sensitive areas.

4. Waste management

Increased human use will create a demand for increased waste collection and litter management. There is also a demand for recycling facilities which do not currently exist at the beach. Managing waste from large events will become increasingly challenging if the numbers of events and event attendees increase.

5. Manage inappropriate activity

Illegal parking, motorized boats and dog-walking are the most common inappropriate activities reported on the island. Illegal parking along the narrow access road during large events is a serious issue due to the impacts on emergency vehicle access. Motorized boats have the potential to pollute the water within the swimming area, pose a danger to swimmers, increase demand on lifeguards (when people try to swim from their boats to the beach), cause shoreline erosion and create noise pollution. Dogs are not permitted on the islands; however, stakeholders reported frequent infractions and even confrontations with dog owners. Finally, wildlife poaching, vandalism and bush parties were not noted to be of serious concern at the time of writing this report but there have been occasional observations of these activities.

6. Human use capacity

There is concern about the capacity for Petrie Islands to handle large events. Currently the large Canada Day event is recognized as being well organized and as having a minimal (but not negligible) impact on the islands. Other large events face challenges in controlling public access to the islands, ensuring emergency vehicle access, controlling alcohol consumption near the water, potential interference with other visitors and mitigating litter and noise pollution. The increasing frequency of large events is also a concern.

7. Trail use

The trail system on Petrie Islands is maintained by the Friends of Petrie Island. In addition to the existing trail systems, informal and/or unauthorized trails have been created by visitors on the islands and the mainland. Mountain bikes are a particular concern on the mainland where they are causing some erosion on slopes and damaging the trails where people are constructing ramps for

their bicycles. Some groups and individuals have demonstrated an interest in constructing a loop trail on the islands in order to provide an enhanced recreational experience for hikers.

8. Potential impacts of future development

Adjacent residential development along the North Service Road and Trim Road will occur within the Plan's timeframe and will lead to increased growth in the area (see management challenge #1). In addition, Petrie Islands had been identified as an alternative location for an Inter-Provincial Crossing of the Ottawa River; this location is not, however, one of the preferred alternatives currently under evaluation through environmental assessment.

9. Balancing resident animal populations

There is concern that human development, such as the maintenance of turf areas and the presence of garbage is attracting unnaturally high populations of opportunistic species such as Canada geese and raccoons. Managing their populations is crucial to maintaining both recreation and ecological integrity of the island as well as water quality. Beavers, known as "ecosystem engineers" are capable of drastically changing the landscape and ecology of the island. Invasive plant species that make their way onto Petrie Islands from adjacent gardens, burrs and seeds carried in on shoes and pets, seeds blowing in from elsewhere and grasses spreading in from roadside ditches are all a concern for a natural space located in an urban area. Additionally, raccoons and other predators are of concern since they eat the eggs and young of the resident turtle species at risk.

10. Management for presence of Species At Risk

Currently, two threatened turtle species (Blanding's turtle and the eastern musk turtle) as well as several species of special concern (map turtle, snapping turtle, black tern and monarch butterfly) have been observed nesting or feeding on the islands. The public and stakeholders have expressed an interest in managing Petrie Islands in such a way as to encourage the viability of these species at risk and to protect individuals and their habitat from human uses and predators.

11. Beach erosion

Flooding, wind, and excessive use are all factors that contribute to beach erosion. Sections of the beach area have eroded due to high water action of the river and a lack of stabilizing vegetation on the slopes along the shoreline. Stakeholders and the City recognize that the islands are part of a dynamic system within the Ottawa River with some movement of sand and accompanying changes in vegetation expected over time. A balance in erosion management is required.

12. Water quality

The quality of the water at the beaches on Petrie Islands is a continuing concern for those who swim and participate in non-motorized water activities on the Island. Although the entire beach was only closed for two days in the 2010 season, there were eight days when only one section of the beach was available for use (either East Beach or the Main Beach). Incidences of sewage spilled into the river upstream of the islands have been a concern.

13. Site signage

Members of the public indicated that more effective signage is needed to welcome and direct visitors, especially on the islands. Some stakeholders expressed concern that there are too many signs on Petrie Islands and that many of these are inappropriately placed and bear negative messages (Appendix D). There is also a demand for increased interpretive signage.

14. Controlling access to the islands

Public and stakeholder consultation revealed that access to the Island needs to be controlled at times, such as during the winter season, during large events, and during flooding. Restricting access

(e.g. using a gate or toll gate) was proposed at two locations: on the mainland before accessing the causeway (for site control) and before entry to the Island. Stakeholders have raised concerns regarding the observed malfunction and need for the Pay and Display parking at this site.

15. Transportation to Petrie Islands

The existing causeway is quite narrow, creating dangerous circumstances for cyclists and pedestrians trying to access the islands. Public transportation to the islands consists of bus access along the North Service Road, from which visitors would walk along the access road to the islands.

Visitors to Petrie Islands sometimes arrive from the water by motor boats, kayaks or canoes. Water access provides some challenges such as docking of boats and potential conflicts with other site recreational uses.

16. Management of Petrie Islands

Petrie Islands is comprised of several interconnected areas (beach, trails, Queenswood Forest, channel areas) that serve different functions. It is important that management of each area be tailored to its needs and to the function that it is to serve. For example, Stuemer Park will need management actions that would not be appropriate in the conservation area and vice versa.

In addition, the number of stakeholders and City departments involved in management and activities within Petrie Islands has resulted in communication and co-ordination challenges. A strong need for clarity in roles and responsibilities was expressed during public consultation. The City and stakeholders have limited resources so management actions that mitigate more than one problem at a time would be ideal.

4.2 Site Opportunities

1. Dedicated Site Stakeholders

The City has the opportunity to work with a number of highly devoted stakeholders in the management and operation of Petrie Islands. A list of current stakeholders is provided in Appendix B. Much of the ecological and land use data collection, site maintenance, education and interpretive activities at Petrie Islands have been conducted by dedicated stakeholders.

2. A Recreation and Natural Area Destination

The rich natural heritage, quiet location, diverse landscapes, Ottawa River beach and overall site beauty set Petrie Islands as a star recreation and natural area destination within the City. Petrie Islands provides excellent opportunities for a wide variety of recreational activities, nature interpretation and programming for visitors to appreciate the cultural and ecological history of this area.

4.3 Roles and Responsibilities

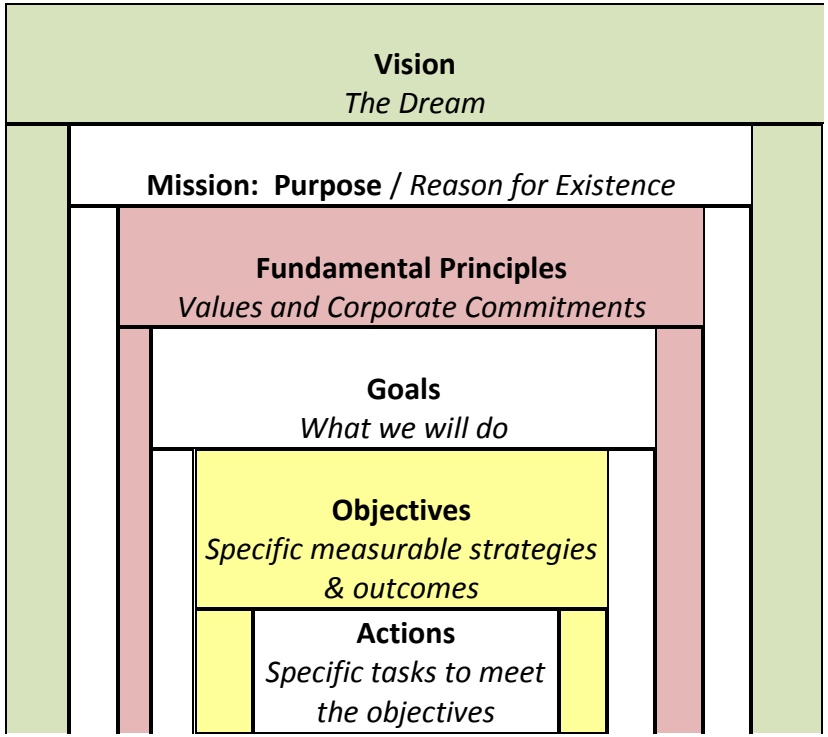
To date, many site management responsibilities have been shared by City staff and community organizations, such as site access and orientation, provision of a range of site education opportunities and maintenance of trails. The City's responsibilities have also included welcoming of visitors, site development, site access and orientation, provision of passive recreation and education opportunities, maintenance of the beaches, trails and washroom facilities, provision of lifeguards and emergency services, and enforcement of by-laws.

The respective roles and responsibilities of all site partners proposed under this management plan are specified in section 6.0.

5.0 Vision

To plan for the longer term health of Petrie Islands, a hierarchy of strategic statements was considered to provide a framework for plan development. Figure 5 describes the types of statements that work together to direct site management within this plan.

Figure 5: Management Plan Hierarchy of Strategic Statements
Adapted from Nova Scotia Agricultural College Strategic Planning Manual.



As shown in Figure 5, all statements support the vision. A vision articulates what is the desired state ("The Dream") of how the site should look, be experienced and understood within the timeframe of the planning process, in this case 25 years from now in 2035. The study team sought stakeholder input to build a 25-year Vision for Petrie Islands. This input consistently articulated a priority for natural features and systems protection while providing for public enjoyment of this Ottawa River "ecological jewel".

The 2035 vision for Petrie Islands is:

Petrie Islands will be recognized as a healthy and protected natural habitat for a diversity of systems and species and as an accessible educational and recreational destination for the community.

The mission or purpose of Petrie Islands is in this case captured within the above proposed vision statement. The fundamental principles upon which this plan is built, based upon this vision, existing site conditions and stakeholder input include:

1. The protection and promotion of ecological integrity will guide all management decisions;
2. The City of Ottawa will manage Petrie Islands in partnership with stakeholders; and
3. Development on the islands will be restricted to defined areas and will focus on activities that reduce human impact and improve ecological integrity (i.e. educational information, trail consolidation, etc.).

The following plan sections articulate the goals, objectives, outcomes and management actions that support achievement of this vision.

6.0 Petrie Islands Management Plan

The primary management tool for Petrie Islands is four activity zones (Figure 6). They are based on conservation objectives and the quality of the natural habitat and direct the location, type and intensity of human activity on the islands. Application of the activity zones will ensure the long term health of the natural environment and an appropriate level of human activity within Petrie Islands.

1. **Primary Conservation (111 hectares, 48% of total area)**

- Focused on the protection of ecological diversity and functions including Species at Risk and regionally significant species
- No development of any kind is permitted, including trails
- Public access is not encouraged
- Encompasses all of the South and part of the West islands as well as the Turtle Pond and Muskrat Bay (Grandmaitre Ecological Reserve)
- Includes the Petrie Marsh south of the channel

2. **Natural Environment (24 hectares, 11% of total area)**

- Focused on the protection of ecological diversity and functions including Species at Risk and regionally significant species
- Low impact recreational activities permitted (hiking on designated trails, non-motorized boating, fishing) provided that natural heritage is protected
- Encompasses part of North and East Islands (Grandmaitre Ecological Reserve)
- Includes parts of Queenswood Forest

3. **Recreation (22 hectares, 10% of total area)**

- Provided that natural heritage features are protected permits relatively intensive recreational activity in a natural setting (beach use, recreational pathways) and supporting services (parking areas, washroom and change facilities)
- Development subject to flood plain restrictions
- Includes Steumer Park, Al Tweddle Picnic area and the Friends of Petrie Island Interpretive Center on the islands
- Incorporates the recreational pathway corridor on the mainland
- Certain activities may only be permitted in designated locations (cycling, dog walking)

4. **Channel (72 hectares, 31% of total area)**

- Open water between islands as well as the channel separating the islands from the mainland
- Under provincial jurisdiction
- Promotion of low impact recreational use where appropriate (canoeing and kayaking)
- Motorized boats limited to low speed (maximum 5 km/h) to reduce risks to other users, wildlife, and avoid wake impacts;
- Beaching, except at designated boat launches, will not be encouraged

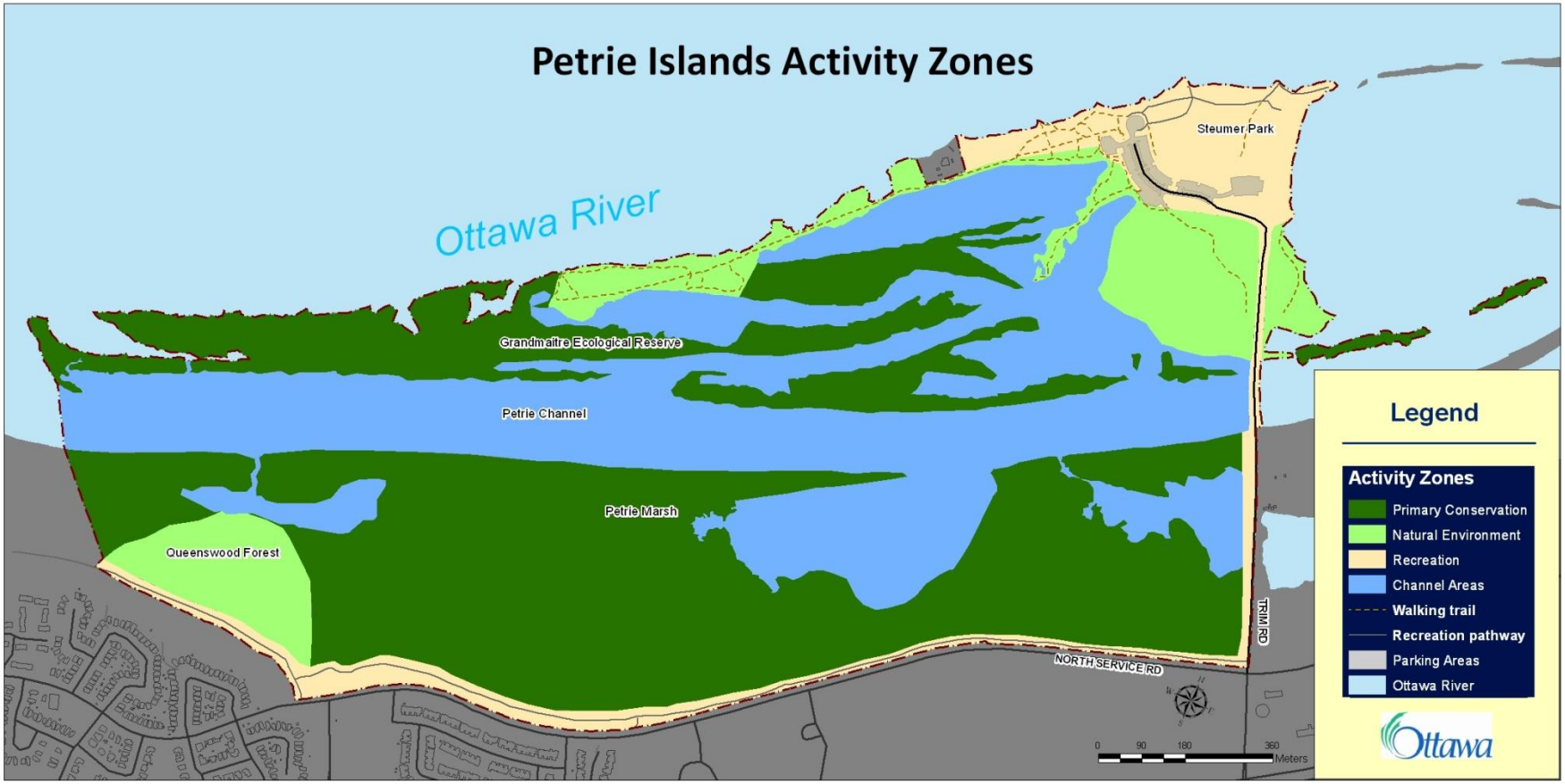


Figure 6: **Map of Petrie Islands Activity Zones** – Dark green represents the primary conservation area, Grandmaitre Ecological Reserve (islands) and the Petrie Marsh (mainland), light green represents the natural environment area, Grandmaitre Ecological Reserve (islands) and Queenswood Forest (mainland), yellow represents the Stuemer Park recreation area (beach, parking lot etc.) on the islands and the recreational pathway corridor (mainland) and the darker blue represents the channel areas.

Table 6.1 Permitted Activities According to Activity Zones

	Primary Conservation Area – Grandmaitre Ecological Reserve & Petrie Marsh	Natural Environment Area – Grandmaitre Ecological Reserve and Queenswood Forest	Recreation Area – Steumer Park,	Recreation Area – Mainland	Channel Areas
Recreational Uses	Limited				
Beach Activities			✓		
Canoeing and kayaking	✓ Allowed on Turtle Pond				✓ Beaching from channel is not encouraged
Motorboating					Max 5km/h - signage of *protected natural area* (no wake)
Walking/Hiking		On formalized trails	✓	On formalized pathways	
Shore Fishing		In specified areas only	In specified areas only	NA	
Nature Appreciation		✓	✓	✓	✓
Cross-country skiing, snow-shoeing		✓	✓	✓	
Bicycling			Permitted on roads and designated pathways	On approved pathways only	
Motorized Vehicles			Parking lot and access road only		Max 5km/h - - signage of *protected natural area* (no wake)
Dog walking		In specified locations within Queenswood Forest		✓	
Development	None				
Walking trails and interpretive signage		✓	~~✓~~	~~✓~~	
Day use facilities			[1]✓		
Permanent structures			[2]✓		
Visitor information		✓	✓ (eg picnic shelter)	✓	

[1], [2]Within the floodplain only open wall non-habitable structures are permitted

6.1 Management Goals for Petrie Islands

Five management goals have been identified for Petrie Islands:

1. Protect Ecological Integrity;
2. Provide Outdoor Recreation;
3. Offer Public Education;
4. Ensure Community Security and Safety;
5. Manage through Partnership.

These goals were established through public consultation and extensive discussion with stakeholders. In the following section the plan will describe how each of these goals is to be achieved. For every goal, management objectives are identified along with desired outcomes. Specific actions are then described and summarized in a table which details for each action; lead and support responsibility, resourcing estimates and proposed timing for implementation.

6.2 Goal 1 Protect Ecological Integrity

Goal 1: Protect Ecological Integrity: *Management of Petrie Islands will be based on an ecosystem approach to maintain the ecological integrity and diversity of this significant natural area.*	
Management Objectives	***Outcomes***
Apply an adaptive management approach to maintain the natural areas of Petrie Islands. Protect the habitats of Species at Risk and of Provincially and Regionally significant species and vegetation types.	• Natural and intact vegetation communities remain healthy • Invasive species do not expand their extent • Visitors and management partners recognize the ecological values of the area • Significant species are identified and their habitats are maintained • Management partners have up-to-date information for decision-making and day-to-day management • Environmental restoration projects are implemented • Water quality of the Ottawa River is improved

Protection of Vegetation and Wildlife:

- The primary conservation area on West Island (Grandmaitre Ecological Reserve) continues to feature many significant species; these habitats will be maintained.
- Informal (unnamed) trails on Petrie Islands will be decommissioned and restored to reduce access and mitigate shoreline and slope erosion. Trail upgrades are recommended to ensure hikers stay on the main trails.
- Any new trail development will be carefully managed to ensure that flora and/or fauna of regional or provincial significance are not adversely affected. A future loop trail on the islands could be completed with minimal impact to vegetation and wildlife (Brunton, 2010). Design and establishment of such a loop trail is not an immediate priority however, it could be considered in the future.
- The ecological impacts of trail use require regular monitoring, reporting and maintenance. The City will work with partners to ensure that problems are promptly identified and addressed.
- Turtle nesting sites will be protected by partners with support from the City.
- The western boundary of the Queenswood Forest represents a property boundary rather than a change in the natural landscape. It is recommended that management practices extend into the adjacent natural area.

Significant Species and Species at Risk: Species at Risk and their habitats will be protected in a manner that is consistent with the Endangered Species Act, 2007 and its regulations, as well as Ottawa's Official Plan and supporting policies.

Invasive Species: Monitoring of trails and recreational areas is to be carried out by partners with support from the City. The presence of any aggressively invasive species is to be reported and acted upon promptly. Currently, invasive species identified as relatively stable onsite include purple loosestrife (*Lythrum salicaria*), Eurasian milfoil (*Myriophyllum spicatum*), common reed (*Phragmites australis*), and frog's bit (*Hydrocharis morsus-ranae*). Slightly increasing populations of yellow iris (*Iris pseudoacorus*) and Jerusalem artichoke (*Helianthus tuberosus*) were also noted (Brunton, 2010), and recommended for population monitoring. Jerusalem artichoke could be considered for near term removal while the population is still relatively small, before it becomes firmly established. Monitoring and possible near term control actions may be required for buckthorn, garlic mustard, beavers and geese. Other

unidentified invasive species are likely to become problematic in the future.

Successfully controlling aggressive invasive species typically depends on a high level of co-ordination and commitment from both agencies and volunteers for monitoring and mitigation activities. The presence and extent of existing and new invasive plant species should continue to be monitored.

The City will erect information panels to allow users to identify and report presence of invasive species. The City will commission a thorough assessment of the ecological integrity of Petrie Islands at least once every ten years, more frequently if resources allow.

Actions to discourage the Canada geese from inhabiting the beach area will need to be environmentally benign, given the close proximity to the Ottawa River and the high permeability of the sands in the areas currently frequented by geese. It is recommended that the City use a mix of tools to deter and repel geese to reduce the goose population in Stuemer Park. These may include measures that reduce the available food (reduced lawn areas), interfere with sight lines for goose landing (varying height vegetation, placement of low fences) and presence of unpalatable odours or tastes through use of non-toxic repellants that can work together to make the area less attractive as habitat.

Landscaping of Petrie Islands, whether for goose control, habitat restoration or aesthetic purposes, will be restricted to locally appropriate native species in order to avoid introducing potentially invasive non-native species to the natural area. Vegetation community mapping and species lists compiled during past ecological assessments of the Island will be used to determine whether proposed plantings are appropriate.

City monitoring and periodic control of the resident beaver population is also recommended to continue. The City and its partners work together to monitor the removal of trees by beavers, with trapping employed to remove individuals when large numbers of trees are brought down. Opening of the canopy through tree removal by beavers has also been observed to allow the establishment of buckthorn to replace the native tree cover. Removal of buckthorn may be required in these areas in the near future.

GOAL 1: Protect Ecological Integrity

Management of Petrie Islands will be based on an ecosystem approach to maintain the ecological integrity and diversity of this significant natural area.

Action	Product	Activity Area	Responsibility		Resourcing	Timing*
			Lead	**Support**		
1. **Manage impacts on turtle breeding** through separation of human activities during sensitive times, control of predator access to eggs	Improved species protection	Grandmaitre Ecological Reserve Natural Environment Area; Stuemer Park	City Operations, PIAC / FOPI;	City Natural Systems Planning; Researchers	Existing staff and Operating funds (up to $500/year for supplies)	Short-term (annual)
2. Establish clear delineation of the **site's recreational use, natural and conservation areas.**	Land Use Designations, as shown on Figure 6.		City Parks Recreation & Culture		Existing resources	Short-term (with 2011 management plan approval)
3. Manage spreading invasive species. - Organize community group removal of Jerusalem artichoke plants beside the causeway, to prevent full establishment. - Develop management plans for species expected to be a threat in the near future, such as phragmites.	Identify significant populations; Mitigation plan / program for removal of invasive species	All	Partners	City Parks Recreation & Culture , PIAC	Partners; Possible supporting funds from City operating fund for equipment (~$200-300 per year)	Ongoing, as determined from monitoring program Medium-term species removal and development of management plans
4. **Monitor extent of significant species, invasive species and overall ecological integrity of the site** at regular intervals	Regular ecological assessment; baseline population survey for significant species	All	FOPI / PIAC, local universities	City Natural Systems Planning, City Parks Recreation & Culture	Operating $ for students, ecological assessment	Ongoing annual monitoring; Long-term - detailed assessment every 10 years
5. **Manage pests through effective control measures** that do not negatively impact other aspects of the Island such as water quality or overall ecological integrity.	Presence of Canada geese is decreased; beaver impacts are managed	All	City Parks Recreation & Culture	City Natural Systems, FOPI, community	Existing Capital/Operating fund; $100-1000/year for tools / advice	Ongoing
6. Use only locally appropriate native species for landscaping, to avoid introducing non-native species.	Ecologically appropriate landscaping	Stuemer Park, All other areas as needed	City Parks Recreation & Culture	City Natural Systems, Forestry Services	Existing	Ongoing

*All timing is subject to secured funding within the City operating and/or capital budget, as applicable

Short-term is within 1-2 years; medium term = 2-5 years; long-term = 5-10 years; ongoing represents an activity already underway and which will continue

6.3 Goal 2 Outdoor Recreation

GOAL2: Provide Outdoor Recreation *Petrie Islands will provide the people of Ottawa with an outdoor recreational destination where they can experience a diversity of recreational activities appropriate to the setting and respectful of the area's ecological features and functions.*	
Management Objectives	***Outcomes***
Support a range of low impact outdoor recreational activities that respect ecological values. Permit year-round recreation within the limits imposed by the environment, available resources and supporting infrastructure. Support community activities and organized recreation opportunities in order to engage members of the community while maintaining ecological integrity and community safety.	• Visitors have a range of outdoor recreational experiences available including nature interpretation and appreciation, hiking, biking swimming, kayaking, canoeing, picnicking, community gathering permitted as per table 6.1 • Partners provide a range of complementary services that enhance the recreational experiences of visitors

Special Events:

- Confine events to the Bowl at the centre of Stuemer Park so as to keep disturbance of existing ecology to a minimum.
- Educate event organizers in regard to the impacts of the festival activities on the turtle nesting and island ecology.
- The Canada Day celebrations will continue to be held at Stuemer Park, according to the organizational conditions imposed in past successful event years.
- No new major events (more than 200 people) and no expansion of existing events will be permitted on the islands in order to maintain a balance between regular day-to-day visitors and those that attend site special events. Small organized gatherings such as picnics and community events are encouraged. The reason for the limiting of event numbers is due to the fact that this site is primarily a natural area with a beach. The site does not have the facilities (i.e. washrooms) to support ongoing major events. As well, larger events require logistics organization of shuttle buses and measures to manage potential impacts on the surrounding natural environment. Event requirements (such as transportation, waste management and recycling, numbers) will be managed and approved by City Wide Allocations within the Parks, Recreation and Cultural Services Department.

Beaches: The City will continue to provide beach support services, including lifeguards and public toilet access, during the appropriate season.

Trails:

General

- Motor vehicles (outside of the designated access and parking areas) and dogs are not permitted on the islands.
- Cycling is permitted in the recreation areas.
- Trails through natural areas should be cleared to a width of one metre.
- Trails will be mounded slightly higher than the surrounding grade and designed with swales flanking them to facilitate drainage away from the trail without significantly altering the topography of the island. Following storms, the trails should be walked and inspected to repair any washed out areas.
- At drainage channels, small boardwalks will be constructed at crossings so that trail erosion does not constrict drainage ways
- Bicycle racks will be installed at key locations on the island where information and cycling routes are also to be posted.

- Simple, professionally produced way-finding signs will be developed to direct users along pathways and trails. These should be placed at regular intervals along the trails and at turns and other points where the direction of the trail may be ambiguous. Include signage to encourage public respect for the site and consider use of colour-coding to depict activity areas. See Appendix D for sign examples from other park locations, the Interpretive Signage description in section 6.3 and proposed sign locations illustrated on Figure 7).
- All trails will have a minimum 3 m setback from the shoreline wherever possible and avoid mature vegetation.

Island Trails (Figure 7)
The existing western loop trails of the Beaver Trail and River Loop, along with the westernmost portion of the Bill Holland Trail will be maintained in their existing location.

The Muskrat Trail will not change with the exception of the proposed addition for a lookout deck at the end, to provide views of the inland water bodies.

The bike path, which connects the north end of the causeway to the main parking area, provides an alternative to riding on Trim Road. It is proposed that it be surfaced with aggregate and its function identified with signage. It is also proposed that the Sunrise Trail be surfaced with stone aggregate and bicycles permitted. By extending the Sunrise Trail to connect with the paved paths around the beach area a complete bicycle loop around Stuemer Park would be created.

A recommended future trail option is an extension to the Bill Holland Trail to complete a larger loop which extends from the point where the existing trail passes the western end of the Turtle Pond, turning back through the Hackberry stand.

North Service Road and Queenswood Trails (Figure 8)
The trails within the Queenswood Forests will be consolidated and improved, such as provision of a lookout to the islands, use of boardwalk(s) in sensitive areas, establishment of educational and directional signage. The North Service Road and Queenswood Trails should remain largely within their current configuration. Some trail re-routing may be required to reduce soil erosion and avoidance of wet areas.

The existing trails will be examined for erosion and, where needed, paths will be recut into the slope to stabilize the slopes, decrease erosion, and improve safety. Paths will be bench cut into the slope to provide a level walking surface, taking care to minimally disturb tree roots and other vegetation.

Partners will be encouraged to coordinate trail cleanup and maintenance on the islands and in the Queenswood Forest.

Gateway Entrance:
A new Petrie Islands gateway sign will be designed and integrated into the landscape, or the existing City of Ottawa/Petrie Islands sign will be integrated using local materials and landscaped using native vegetation. Regulations will be incorporated into a welcome sign/information kiosk, which will include a large map of the park, including trail, boating and bicycle routes, to be located at the bend in the road, where drivers can pull off to get their bearings. The same sign will be reproduced and located at the north end by the bathroom facilities for people to view as they leave the parking lot. The locations of these signs are identified on Figures 7 and 8.

To further visually define the site entrance, the small parking area near the causeway should use the same types of wooden railings as in the main parking area to establish design continuity.

Boating:

- Motorized boats will not be encouraged in the channel areas.
- Explore the feasibility to erect buoys and signage at the entrance point to discourage motorized boats from entering the channel.
- Figure 7 outlines a proposed interpretative kayak and canoe route. Boaters can use guide maps provided by partners at the interpretation centre or from a kiosk at the boat launch on the island. The maps are mainly for orientation, so that canoeists/kayakers can be made familiar with boating in the channel and bay. In order to protect the natural environment, boaters will be encouraged to beach only at the designated location or at the nearby Oziles Marina.
- Motorized boats can dock at the marina; the existing boat dock at the East Bay will be improved and its accessibility is to be enhanced for use by non-motorized boats (primarily canoes and kayaks) and emergency services.

Facilities: The existing playground and picnic area are appropriate for the site. The City would support the development of an open-walled picnic shelter (gazebo) in Stuemer Park. Washroom and parking facilities will be open from spring to fall.

Cultural Heritage: A historically-themed playground would help in cultural heritage education, alongside information panels.

Fishing: Fishing in Crappie Bay will be encouraged at designated areas along the shores of the Basswood and Sunrise Trails.

GOAL2: Provide Outdoor Recreation *Petrie Islands will provide the people of Ottawa with an outdoor recreational destination where they can experience a diversity of recreational activities appropriate to the setting and respectful of the area's ecological features and functions*						
Action	**Product**	**Activity Area**	**Responsibility**		**Resourcing**	**Timing**
			Lead	**Support**		
1. **Develop a gateway entrance and site signage system** that implements the site Activity Areas map and that guides and educates visitors.	Site signs, guidance materials, overall communications strategy	Stuemer Park, Grandmaitre Ecological Reserve (Natural Environment Area) and Queenswood Forest (Recreation Area)	City Parks Recreation & Culture	City Communications; City Park Operations; Partners	~$20,000 for overall communications strategy, for sign design, production & establishment	Short-term
2. **Encourage low impact recreational use activities such as** swimming, hiking, kayaking/canoeing, fishing and picnicking.	Operating procedures, supported by signage	Activities as appropriate to Stuemer Park, Grandmaitre Ecological Reserve (Natural Environment Area) and Queenswood Forest (Recreation Area)	City Parks Operations	City Parks Recreation & Culture	Existing staff and operating ~$1500 for signs and brochures	Short-term
3. **Establish guidelines for special events** with the goal of minimizing impacts on the site's natural features through control of attendance numbers, site access and event frequency.	Operating procedure	Guidelines will apply to Stuemer Park	City Parks Recreation & Culture, City Parks Allocations	City Parks Operations	Existing resources	Short-term
4. Encourage exploration of the bays and channels around the islands with kayaks/canoes.	Canoe/kayak interpretive trail;	Channel	City Parks Recreation & Culture	City Park Operations	~$5000 for formalization of "trail" with supporting signage and guidance materials	Medium-term
5. Consolidate trails through Queenswood Forest, including use of a Boardwalk where needed and to the river shore providing a lookout.	Queenswood Forest Trail System	Queenswood Forest (Recreation Area)	City Parks Recreation & Culture	City Park Operations	~$20,000 for trail delineation and building	Medium-term
6. **Support low impact use during winter and spring** such as hiking, snowshoeing, cross-country skiing and fishing. These activities do not involve active maintenance or monitoring by the City.	Operating procedures, supported by signage	Activities as appropriate to Stuemer Park, Grandmaite Ecological Reserve (Natural Environment Area) and Queenswood Forest (Recreation Area)	City Parks Operations	City Parks Recreation & Culture	Existing staff and operating funds	Long-term

*All timing is subject to secured funding within the City operating and/or capital budget, as applicable

Short-term is within 1-2 years; medium term = 2-5 years; long-term = 5-10 years; ongoing represents an activity already underway and which will continue

6.4 Goal 3 Public Education

GOAL 3: Public Education *A range of educational opportunities including interpretive trails and programming will be offered in collaboration with partners to present the natural and human histories that comprise Petrie Islands' heritage.*	
Management Objectives	***Outcomes***
Petrie Islands will be recognized for the conservation and enhancement of its native biodiversity. Petrie Islands will provide the people of Ottawa with a natural recreational destination that will allow them to connect with, and better their understanding of, this unique ecosystem Identify the contributions of human activities, such as construction of the Carillon Dam, upon the current ecological diversity of Petrie Islands	• Visitors will be informed of the full range of features, facilities and experiences available • Visitors and management partners are well informed of the natural and cultural history of Petrie Islands • Petrie Islands is recognized and valued as an outstanding model in its balance of ecological integrity with recreational use • Visitors will understand and respect permitted and restricted activities • Management partners and visitors understand how human activities have contributed to the current conditions, habitat types and diversity of Petrie Islands • The regenerative capacity of nature is understood

Interpretive Signage

Building upon the gateway and wayfinding signage descriptions under Section 6.2 Outdoor Recreation:

- The City will provide communication (primarily website and signage) that will address the following:
  - Welcome
  - Orientation
  - Description of recreation opportunities
  - Regulations
  - Interpretation
- Each trail will have an interpretive map at its start, and at viewing spots and points of interest along the route.
- Interpretive signage will be established at key site features such as significant habitats and vegetation types, resident species, Carillon dam effects and the old dump-site as today's habitat for at-risk turtles. These will serve to educate the public about local natural and cultural history. Interpretive information could also be posted at the washroom facility, to reach a wider audience and introduce beach-goers to the ecological features of the island.
- There is a confusing array of signage on the islands and many contain negative messages. Signage at the park should be positive, promoting the site's features rather than featuring prohibited activities.

GOAL 3: Public Education *A range of educational opportunities including interpretive trails and programming will be offered in collaboration with partners to present the natural and human histories that comprise Petrie Islands's heritage.*						
Action	**Product**	**Activity Area**	**Responsibility**		**Resourcing**	**Timing**
			Lead	**Support**		
1. Strengthen existing ecological educational programs to further reduce human impact	Comprehensive education program	Stuemer Park, Grandmaitre Ecological Reserve (Natural Environment Area)	Friends of Petrie Island	City Parks Recreation & Culture	Internal existing resources plus $ identified under Goal 2 for overall communications/ education strategy; $5000 for design, production and establishment of signage, displays, resources for program delivery	Medium-term
2. Establish natural and cultural interpretive signage at key site features.	Designed and established site signs	Stuemer Park, Grandmaite Ecological Reserve (Natural Environment Area), Queenswood Forest Recreation Area	City Parks Recreation & Culture	City Parks Operations		Medium-term
3. Improve public awareness of water quality	As part of Communications strategy	Stuemer Park	City Parks Recreation & Culture	City Surface Water Quality		Medium-term

*All timing is subject to secured funding within the City operating and/or capital budget, as applicable

Short-term is within 1-2 years; medium term = 2-5 years; long-term = 5-10 years; ongoing represents an activity already underway and which will continue

6.5 Goal 4 Community Security and Safety

GOAL4: Community Security and Safety *Community safety and public enjoyment will be ensured through the development of appropriate infrastructure and signage.*	
Management Objectives	***Outcomes***
Establish site infrastructure which preserves ecological integrity. Apply a system of signage, pathways, seasonal services, educational programs and site facilities that enhance educational and recreational experiences.	• Visitors are provided with clear, comprehensive and inviting directions for enjoyment of the site's amenities • Use of the site will not impact upon neighbouring communities or resident species

Much of the Community Security and Safety management objectives and outcomes are addressed by the actions recommended in Sections 6.2 and 6.3. The management actions specified in this section address the remaining community security and safety issues.

Access: Trees will be planted around the gateway for aesthetics and as a traffic-calming measure. Trees should be native, characteristic of the Deciduous Swamp Forest ecology of the area, such as ash (giving consideration to the City's strategy for future ash tree management) or maple. Tree placement will not impact upon site views.

For the long-term, the causeway should be widened to allow for safe alternative access (pedestrians, cyclists) and should provide access to safe fishing platforms. This could include consideration of a cantilevered path along road with separate non-car entrance or widening of the causeway. Bicycle racks will be established as illustrated on Figures 7 and 8.

An entry gate should be added to the south end of the causeway to restrict vehicular access during times of flooding or when parking has reached capacity

Finally, emergency access to the islands will be improved by providing direct access for emergency vehicles along the pathway on the east side (of East Island) to the East Bay boat launch. See Figure 7 for the proposed emergency access location.

Parking: Parking availability does not need to be increased for the foreseeable future, however appropriate management actions need to be taken for particularly busy days to prevent illegal parking that may restrict emergency vehicle access.

Motorized Activity: Motorized vehicles are not encouraged in the channel areas, in Queenswood Forest or outside of designated areas on the islands.

GOAL 4: Community Security and Safety *Community safety and public enjoyment will be ensured through the development of appropriate infrastructure and signage.*						
Action	**Product**	**Activity Area**	**Responsibility**		**Resourcing**	**Timing**
			Lead	**Support**		
1. Trees: Plant trees along causeway and at park entrance for aesthetics and safety.	Safer, more attractive entrance.	Along site entrance	City Parks Recreation & Culture; City Forestry Services		~$2500	Medium-term
2. **Provide Emergency Access** along the east side of the parking lots, as illustrated in Figure 7, to provide direct access for emergency vehicles to the water.	Improved emergency access along existing pathway	Grandmaitre Ecological Reserve (Natural Environment Area) and Stuemer Park	City Surface Operations		Path upgrade may be required	Medium-term
3. Improve Road and pedestrian safety leading to the Island through a re-designed entry to the islands that provides more space for **Non-Car Access.** This will encourage pedestrian and bicycle access and improved site aesthetics.	A re-designed road and entry to the islands that provides an inviting welcome to visitors and safe pedestrian and bicycle access.	Roadway and Causeway leading to the site	City Surface Operations	City Parks Recreation & Culture	~$100,000	Long-term

*All timing is subject to secured funding within the City operating and/or capital budget, as applicable

Short-term is within 1-2 years; medium term = 2-5 years; long-term = 5-10 years; ongoing represents an activity already underway and which will continue

6.6 Goal 5: Management Through Partnership

Goal 5: Management Through Partnership *Successful long-term management of Petrie Islands' natural and cultural features will occur through community engagement*	
Management Objectives	***Outcomes***
Develop a management framework that recognizes, respects and integrates the strengths and available resources of all management partners	• Management partners are clear on their respective responsibilities • Relevant information on the activities, condition and health of Petrie Islands is shared regularly between partners • Management activities within Petrie Islands and are accomplished in an efficient and cost-effective manner

While the City of Ottawa has primary responsibility for the development, management, and maintenance of Petrie Islands there are significant opportunities to engage the community as partners in these actions. Petrie Islands is located within close proximity to a substantive urban population that includes many regular visitors, groups and individuals with time and interest in caring for Petrie Islands. The dedication and availability of the current group Friends of Petrie Island, as well as potential untapped resources, such as local schools, can be a valuable resource to effectively manage the area's needs and maximize limited City resources through partnerships. Coordination of activities and resources will be required to ensure progression in achieving the vision, goals and policies within this plan. Recommendations to effectively leverage and guide the energy and resources of all of the interested groups and individuals are articulated in this section.

Site management responsibilities to be led by City staff include: site access and orientation; visitor welcome; provision of passive recreation and education opportunities; maintenance of beaches, trails and washroom facilities; and enforcement of by-laws.
To effectively manage the valuable recreation and natural environment resources of Petrie Islands, it is very important that the resources be available to complete the activities set out in this plan. The City will work with partners to secure the resources required for this site to meet its potential. The site size, number of users and variety of activities that occur here require a City main point of contact to be responsible for overall site coordination. Annual reporting on the site activities and progress towards implementation of this plan will be completed by the City and its partners.

In order to facilitate effective working relationships with partners, the City needs to establish a clear governance structure and contact list for site management tasks. It is proposed that this structure include a Petrie Islands Management Advisory Board that builds upon the current Petrie Islands Advisory Committee, strengthening the terms of reference and establishing the City coordination contact as the Board lead. The City will continue to work in partnerships to further community interests such as development of organized recreational and educational activities, construction of open-air structures and removal of invasive species.

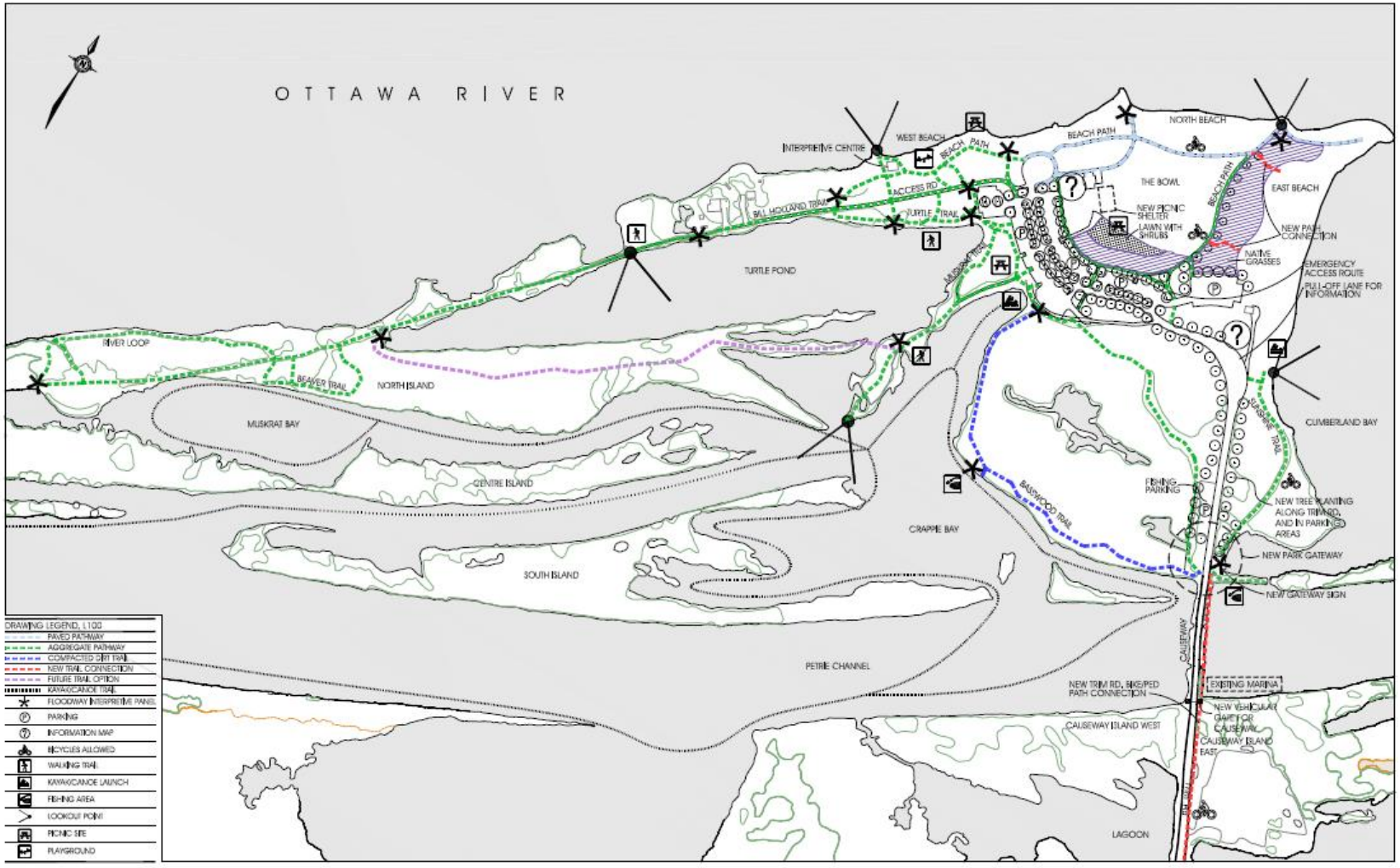
Goal 5: Management Through Partnership *Successful long-term management of Petrie Islands natural and cultural features will occur through community and agency partnerships.*						
Action	**Product**	**Activity Area**	**Responsibility**		**Resourcing**	**Timing**
			Lead	**Support**		
1. Expand existing cooperative partnerships with community groups and businesses for long term collaborative management, maintenance, and program delivery	Written agreements Main City contact	All Areas	City Parks Recreation & Culture	PIAC	Internal staff	Short-term
2. Establish a clear governance and reporting structure for management, including designation of City coordination contact and other City representatives for various site responsibilities.	Petrie Islands Management Advisory Board	All Areas	City Parks Recreation & Culture	PIAC	Internal staff	Short-term Meets ~ quarterly
3. Compile annual reports to clearly document progress on management plan implementation	Report on website	All Areas	City Parks Recreation & Culture	PIAC	Internal staff and stakeholders	Medium-term

*All timing is subject to secured funding within the City operating and/or capital budget, as applicable

Short-term is within 1-2 years; medium term = 2-5 years; long-term = 5-10 years; ongoing represents an activity already underway and which will continue

7.0 Site Plans

Site plans have been developed to illustrate the existing and proposed features for the Petrie Islands and Queenswood Forest. These are presented in the following Figures 7 and 8.



CIVITAS

PETRIE ISLANDS MANAGEMENT PLAN PROJECT

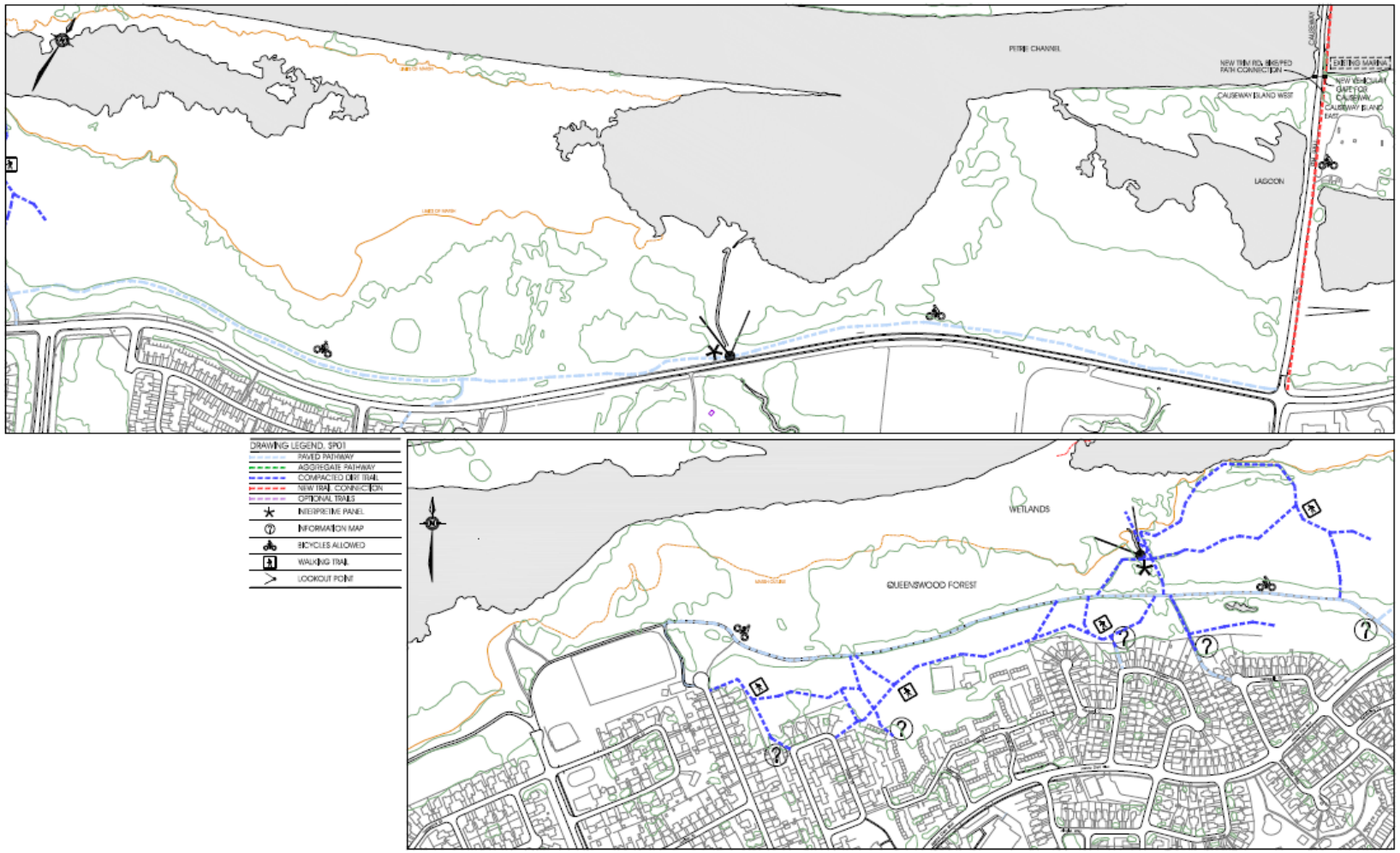
PETRIE ISLANDS
OTTAWA, ONTARIO

SCALE: 1:600

DATE: AUGUST 01, 2011

PETRIE ISLANDS SITE PLAN

FIG. 7



CIVITAS

PETRIE ISLANDS MANAGEMENT PLAN PROJECT

PETRIE ISLANDS
OTTAWA, ONTARIO

SCALE:
1:750
DATE:
AUGUST 01, 2011

QUEENSWOOD FOREST SITE PLAN

FIG. 8

8.0 Plan Review

This plan reflects a 25 year vision and actions suggested for the next 10 years. It is recommended that the plan be reviewed in 2021 to determine whether changes to the plan are necessary. Any major changes would require a report for approval by City Council. The plan review will consist of a similar process to the one followed for the preparation of this plan to update current conditions, challenges and opportunities and revision of the strategic directions as required through public input.

9.0 Conclusion

This management plan has identified five main goals of:

1. Protect ecological integrity
2. Outdoor recreation
3. Public education
4. Community safety and security
5. Management through partnership

to achieve the 2035 vision of Petrie Islands being *recognized as a healthy and protected natural habitat for a diversity of systems and species and as an accessible education and recreational destination for the community*.

Each of these goals has a set of supporting management actions proposed to occur in the short (next 1-2 years), medium (2-5 years) and long-term (5-10 years). These actions will serve to mitigate a number of the challenges outlined in section 4.0. The main outcome of this plan is that all visitors to Petrie Islands will know their full range of experience options and will know what to expect and what they want to do when they arrive.

In the short-term, management activities for Petrie Islands will focus upon clarifying overall site management roles, responsibilities, procedures and allowable activities, building upon current site partnerships, establishing welcoming and directional signage and expansion of existing management of the site's ecosystem balance with a focus upon managing impacts upon turtle breeding and any immediate invasive species concerns.

Within the next 2-5 years, or medium-term of this plan, the management activities will address finalization of an overall communications strategy for the site, including development of enhanced educational programming, public understanding of the area's water quality and interpretative signage. Recreational feature development to occur in this time period includes development of the kayak and canoe interpretative route amongst the islands and consolidation and improvement of the Queenswood Forest trails. There will also be initial progress on improved site safety through establishment of trees and a gateway at the site entrance and improved emergency vehicle access. Annual reporting on site management and exploration of alternative funding sources to implement further site capital improvements will commence.

Finally, the longer term activities that will occur in 5-10 years from now consist mainly of a re-designed causeway to separate cars from cyclists and pedestrians that visit the islands. Attention to further support of site use during winter and spring will occur during this time as will completion of the next comprehensive ecological condition assessment for Petrie Islands to inform the proposed next plan review process.

Petrie Islands is a natural gem in an urban area. Strong management that respects and enhances its ecological integrity will contribute to this area forever remaining as a favoured recreation destination, conservation area and source of pride for the community.

10.0 References

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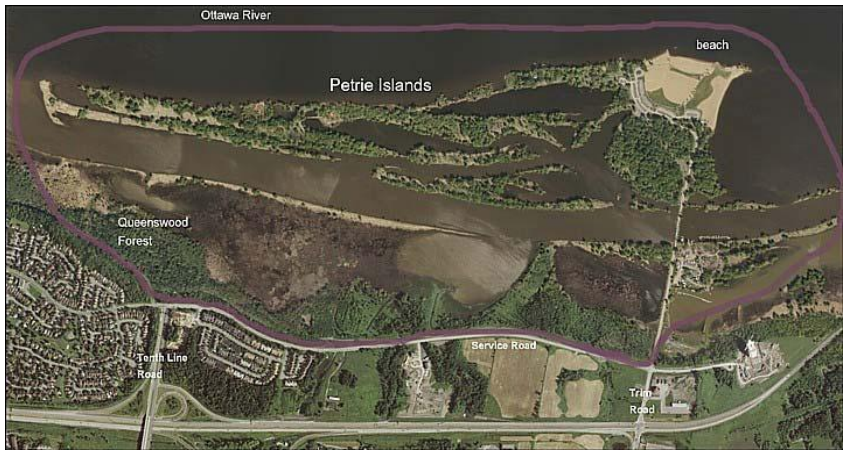
Appendix A – Synopsis of Natural Environment Existing Condition

Prepared by Brunton Consulting Services

Petrie Islands Management Plan (Phase 1): Natural Environment Existing Condition

Synopsis

The City of Ottawa is developing a management plan to guide short term and long term activities and management measures in the Petrie Islands and associated public lands. An objective enumeration of the existing condition of natural environment features and functions is an essential starting point in the preparation of the management plan. The need for a management plan for the area is underscored by the huge increase in the visitorship since the recent construction of a day-use recreational area at the downstream end of the Islands.



This existing conditions assessment represents the first phase of the management planning process. It will form the foundation upon which a separate analysis and a prescription of management needs and opportunities (Phase 2) can be prepared from an ecologically sound and appropriate basis.

The Petrie Islands Study Area is centered on a group of narrow sand islands near the southern shore of the Ottawa River in the northern portion of the former Municipality of Cumberland within the City of Ottawa. The 290 ha study area has experienced localized but intense development impact. Extensive marshes and deep-water aquatic vegetation occupy the area between the islands and the Ottawa River shore. The study area includes mainland areas between the rivers shoreline and the North Service Road, between the recreational pathway at the Queenswood subdivision to the west and Trim Road in the east. A total of approximately 375 ha of land and water are enclosed within the study area.

Natural environment values in the Petrie Islands study area have been examined on a number of occasions in association with various reviews of natural environment significance in eastern Ontario and the City of Ottawa. The study area has always rated highly in such assessments and is widely recognized as one of the most important natural landscapes in the City of Ottawa. The study area has been designated a Provincially Significant Wetland (L'Arrivee and Brown 1987) and is also a candidate Provincially Significant ANSI (Area of Natural and Scientific Interest) (Brunton 1995). The City of Ottawa Official Plan (Ottawa 2003) includes the area as Urban Natural Feature and Major Open Space (the upland habitats) and Significant Wetland (the wetland habitats). There are significant municipal development limitations imposed on such landscapes (Ottawa 2003).

A detailed natural environment assessment of the study area was conducted in 1999. Some of the area has been re-examined in the

course of development issues, including the construction of the recreational park and beach at the downstream end of the Islands and the consideration of an Interprovincial Crossing (bridge or tunnel) at the upstream end of the study area. Additional natural environment data have been gathered in the course of citizen-directed conservation management investigations (e.g. Friends of Petrie monitoring of reptile populations). The majority of the background natural environment data here, however, have not been updated for a decade. The requirement for a greater level of confidence of natural values information prior to the development of a management plan in such an ecologically significant area necessitated this Phase 1 up-date project.

2009 EXISTING CONDITIONS INVESTIGATION

The present study provides a review and up-date of existing natural environment conditions for the Petrie Islands study area, taking into account changes including some minor loss of habitat in the vicinity of the marina and the park, other recreational developments such as trails and picnic areas, changes in pertinent regulatory and legislative designations, natural habitat change, recent natural environment discoveries and changes in human use. All major terrestrial and aquatic habitats in the study area were examined during June and September 2009 field investigations by Daniel F. Brunton. These were not intended to be comprehensive and involved much less time than the in-depth 1999 studies. Current investigations were undertaken to confirm or amend and up-date the findings and conclusions of the 1999 inventory. Accordingly, attempts were made to relocate and confirm the presence and status of all significant flora and fauna. New discoveries from these investigations were integrated into the updated and upgraded database. Faunal surveys were not conducted in 2009 although faunal observations made incidentally to updating floristic and vegetation conditions were noted.

EXISTING FEATURES AND FUNCTIONS

Site investigations in 2009 indicated that almost no change has occurred in the natural features or ecological functions of the Petrie Islands study area since the time of 1999 comprehensive inventory. This applies not only to the diversity and condition of the native biodiversity of the area but to the overall ecological integrity of the site. Such a consistent maintenance of high quality natural environment conditions is rare in heavily utilized urban natural areas and speaks well for the strength of the natural forces of habitat renewal here. Key to this is the dynamic, critical impact of river flooding over much of the island landscape.

Habitat Representation

Eighteen vegetation types (ecotypes), as described by the Southern Ontario Land Classification System, were identified in study area during the 1999 comprehensive assessment and were confirmed to still be present during the present review. They are summarized within nine broader habitat categories, as follows:

WETLAND HABITATS

1) SAS Shallow Aquatic (1 ecotype)
2) MAS Shallow Meadow Marsh (2 ecotypes)
3) MAM Mineral Meadow Marsh (1 ecotype)
4) SWT Thicket Swamp (1 ecotype)
5) SWD Deciduous Swamp Forest (6 ecotypes)

UPLANDS HABITATS

6) RB Deciduous Forest (3 ecotypes)
7) FOM Mixed Forest (1 ecotypes)
8) SBO Sand Barren (1 ecotypes)
9) CU Cultural (1 ecotypes)

The relatively well represented Hackberry-Ostrich Fern Swamp Forest vegetation here (SWD4-1) is a provincially rare habitat

type, occurring only on Ottawa River and adjacent St. Lawrence River alluvial islands. The Hemlock vegetation in the Queenswood Forest remains one of best examples of this vegetation in the City of Ottawa.

Hackberry-ostrich fern swamp vegetation

Flora

The Petrie Islands study area supports one the highest level of native floristic diversity of *any* natural area in the City of Ottawa. Over 320 native vascular plant species are now known from this area. This represents almost 100% of the native diversity of comparable Ottawa River alluvial islands, including the Upper and Lower Duck islands and Kettle Island (in Gatineau). It is highly probable that alluvial island faunal representation is comparable high.

Over two dozen Regionally Significant plant species (rare within the City of Ottawa) occur within the Petrie Islands study area, including two Provincially Rare species, Cat-tail Sedge (*Carex typhina*) on the islands and Heartleafed Tearthumb (*Persicaria arifolia*) in Queenswood Forest.

One additional 'significant' species is listed as federally and provincially Endangered. This species is Butternut (*Juglans cinerea*), a tree that is commonly scattered across the lower Ottawa Valley. It is exceptionally common in the study area (and on other Ottawa River alluvial islands). The health and condition of over 200 trees have been assessed on the Petrie Islands.

Diseased Butternut trees along Petrie Island shores

Fauna

Two scheduled Species At Risk (SAR) animals, Blanding's and Musk Turtles (Threatened), are known to occur in swamp forest habitat in the Petrie Islands study area. In addition Black Tern, Map Turtle, Snapping Turtle and Monarch Butterfly, species of Special Concern (listed but not protected by regulations of the Ontario *Species At Risk Act*), are present in the study area. The turtles are relatively common residents of deeper, open water areas. Tern observations in marsh habitat are of birds nesting in similar habitat in Gatineau, Quebec and venturing here for feeding. The butterfly is common throughout southern Ontario and is observed crossing all habitats in the study area.

Ecological functions

The known and potential special features values of the Petrie Islands study area are dependent on the continuity and integrity of its natural environment. In this regard, the study area provides the best representation of several uncommon or river-dependent habitats in the City of Ottawa. Several elements of the deciduous swamp forests are regionally and provincially significant, with Hackberry Swamp forest likely being a nationally rare vegetation type.

Superlative representation of the native biodiversity of these alluvial habitats remains one of the most important ecological function attributes of the study area. The study area also contributes as a concentration area for aquatic fauna, especially for migratory birds. Its level of representation of rare species of both flora and fauna is exceptional amongst natural areas in the City of Ottawa.

IMPACTS AND CONSTRAINTS

The development of a major beach and day-use area and expansion of the marina has apparently resulted in little or no net loss of natural values in the Petrie Islands study area. Although this would not normally be the case, the fact that the park development was almost totally confined to a formerly industrial area (sand extraction) largely mitigates it impact.

Recreational usership

Recreational use has increased dramatically since the establishment of the day use beach with its associated parking and picnic areas. It is highly concentrated at the park site although boat use amongst the islands (canoeing, kayaking, recreational fishing) has evidently increased as well. Somewhat surprisingly, evidence of long term site degradation away from this developed area remains slight, however. This likely is be attributable to the some of the trail and associated development instituted by citizen action (The Friends of Petrie) as well as the relatively poor access to some of the most ecologically sensitive areas and to the restorative capacity of annual river flooding.

Mountain bike bridge &minor slope erosion in Queenswood Forest

Informal pathways within and formal pathways adjacent to the Queenswood Forest remain largely unchanged in regards to negative impact since the 1999 assessment. Minor increases in slope erosion are evident where mountain bike traffic (virtually unknown in 1999) has cut into trail margins. Some informal bridging within the forest has mitigated potential impact at some wet trail sections, however.

Biological agents

Invasive vegetation does not appear to be a significant factor in the Petrie Islands study area. Increases in Yellow Iris (*Iris pseudoacorus*) and Jerusalem-artichoke (*Helianthus tuberosus*) are evident but neither appears to be problematic. The population of other common invasives such as Purple Loosestrife

(*Lythrum salicaria*) and Frog's-bit (*Hydrocharis morsusranae*) appears to be consistent with 1999 levels.

The rapidly spreading and uncontrollable blight that is devastating native Butternut populations is now evident on many trees here and likely will eventually eliminate this species from the study area.

ECOLOGICAL INTEGRITY

On balance, despite relatively large scale recreational development in parts of the area, the overall ecological integrity of the Petrie Islands study area appears to be comparable to that of 1999. Swamp forest and mainland upland forest habitats appear to have maintained their native biodiversity. In essence, the natural environment features and functions of the Petrie Islands study area appear to remain in excellent condition. The study area appears to have considerable potential for the development of low density recreational facilities and opportunities on land and in water without compromising the integrity of important natural features and functions.

HABITATS

Nine different habitats (Figure 3 in Petrie Islands Management Plan) exist within Petrie Islands as identified in Brunton (1999). They are described using the closest equivalent habitats in the Southern Ontario Vegetation Classification System (Lee et al, 1998).

1. **Deciduous Swamp Forest**

This area is of relatively low biodiversity but high ecological integrity as it is one of the least disturbed vegetation types in the Ottawa-Gatineau area

a. Ash Mineral Deciduous Swamp Ecosite
   i. Dominated by green ash
   ii. Primarily along the edge of Petrie Marsh
   iii. Sand-based mineral soils
   iv. Disturbed forest (disturbances include Carillon Dam flooding, landfill and sand extraction sites)
   v. Dense undergrowth of introduced canary grass (*Phalaris arundinacea*)
   vi. In mature upland Queenswood forest there are small stands of black ash mineral deciduous forest

b. Maple Mineral Deciduous Swamp Ecosite
   i. Exists on most of the island's periodically flooded sand=based swamp habitat
   ii. Ground vegetation is dominated by ostrich fern (*Matteuccia struthiopteris*) and canary grass
   iii. Maple species include red maple-dominant stands, silver maple-dominant stands and swamp maple-dominant stands

c. Hackberry Mineral Deciduous Forest
   i. Located in central portions of East, West and Centre Islands
   ii. Undergrowth is almost pure stands of ostrich fern

2. **Thicket Swamp**

This habitat occupies shallow water or periodically heavily-flooded sites in open or partially wooded areas. As a transition area between marsh and forest, this habitat features high biodiversity including marsh birds and small wetland mammals. These habitats are all relatively young as original ones were destroyed after construction of the Carillon Dam.

a. Alder Mineral Thicket
   i. Grows at the edge of sheltered river bays on the islands and in small depressions within mature upland forest in the Queenswood Forest.

b. Willow Mineral Thicket Swamp
   i. Grows at the edge of canary grass marshland and some sheltered river bays on the Islands.

3. **Meadow Marsh**

Established after the 1964 Carillon Dam flooding, this habitat features low biodiversity and a relatively great presence of non-native vegetation

a. Organic Meadow Marsh Ecosite
   i. Made up primarily of non-native canary grass
   ii. Grows on former mainland area on a thin layer of organic material
   iii. Shallow marsh vegetation would normally grow here

4. **Shallow Marsh**

This habitat was established after the flooding caused by the Carillon Dam in 1964. It has richer and more native biodiversity than the canary grass marsh, although the presence of bur-reed does indicate a disturbance. The area supports the richest native wetland biodiversity within Petrie Islands including the highest population of marsh fauna. This dynamic habitat protects the structure of the island complex by reducing erosion and sedimentation.

a. Organic Shallow Marsh Ecosite
   i. Permanently flooded
   ii. Periodically flushed by flowing water
   iii. High diversity of significant vascular plants
   iv. Important turtle-nesting sites
   v. Cattail organic shallow marsh is common along Petrie Channel and shallow water areas of the Island and Petrie Marsh

5. **Shallow Water Aquatic**

Floating-leaved and submerged aquatic plants grow in this habitat, which demonstrates no evidence of long-lasting negative effects from the Carillon Dam flooding.

a. Submerged Water Aquatic Ecosite
   i. Diverse association of aquatic plants, dominated by pondweeds (*Potamogeton spp*.), eel grass (*Valisnera Americana*) and waterweed (*Elodea Canadensis*)
   ii. Some areas severely infested by several introduced aquatic weeds including Eurasian water-milfoil (*Myriophllum spicatum*) and frog's bit (*Hydrochanis morsus-ranae*)
   iii. Fresh, flowing shallow to deep water with a sandy substrate serves as a transition zone between open water and marsh
   iv. This area features high biodiversity and provides habitat for fish, turtles and other fauna
   v. Natural succession sped up by invasive species will turn this into marshland

6. **Deciduous Upland Forest**

Located on the mainland it, it was originally dominant but was displaced by agriculture and is now regenerating. This is the most mature vegetation in Petrie Island park area.

a. Dry-Fresh Poplar White Birch Deciduous Ecosite
   i. Dominated by trembling aspen and also featuring white ash, green ash, bur oak and red maple
   ii. Ground cover is a combination of native and introduced herbs

b. Dry-Fresh Deciduous Ecosite
   i. Early successional vegetation growing on dry sand ridges
   ii. Tree species include basswood, hackberry and butternut
   iii. Hackberry forest (regionally significant flora) occurs in three small stands, two on the northern and southern edges of North Island and the third on a ridge in Queenswood Forest

c. Fresh-Moist Lowland Deciduous Forest Ecosite

i. Seasonally flooded former pasture dominated by green ash
ii. Covers Causeway Islands and other shoreline areas west to Queenswood Forest

7. **Mixed Upland Forest**

Mature sugar maple, hemlock and yellow birch forest growing in undisturbed silty-sand clay soils on the mainland. The undergrowth is unusually dense and diverse beneath the hardwoods. This habitat is a transition between deciduous forest habitat and coniferous forest.

a. Sugar Maple Hemlock Forest
   i. Found on the clay and silty-sand landslide area of Queenswood Forest
   ii. Eastern hemlock was common here prior to selective harvesting by pioneers

8. **Sand Barren**

This habitat features sparse to moderately dense mostly native vegetation growing in small areas of open sand on Petrie Island at beach backshores and disturbed clearings. Sand barren is maintained by active disturbance. Conditions are exceptionally dry and exposed creating inhospitable habitat for typical Ottawa-Gatineau flora. Habitat has low biodiversity

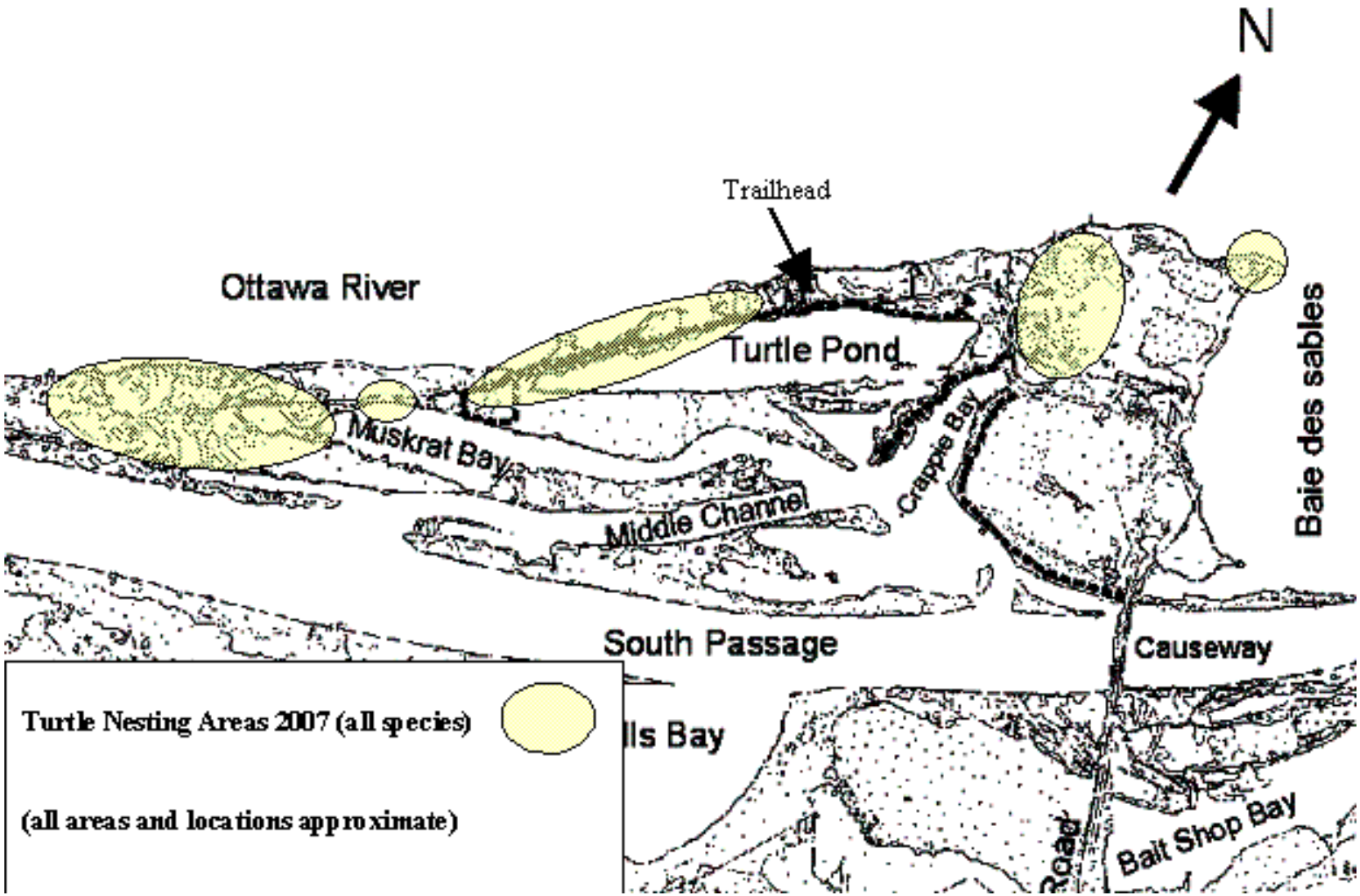
a. Open Sand Barren Ecosite
   i. Common species include bracken (*Pteridium aquilinum*), Canada blue-grass (*Poa compressa*), St. John's-wort (*Hypericum perforatum*) and hawkweeds (*Hieracium spp.*) growing on virtually pure sand
   ii. Ecosite is rare in Ontario
   iii. Dry bracken fern grows in clearing at west end of North Island and east end of West Island as well as other small backshore beach areas on East, North and West Islands.

9. **Cultural**

This habitat on the southern side of the Petrie Marsh is made up of regenerating pasture. Establishment of non-native weeds is common in regenerating meadows threatening native species and reducing ecological integrity of the habitat

a. Cultural Meadow Ecosite
   i. Pasture grasses and many non-native herbs make up the early successional flora
   ii. Succeeding into upland forests and thickets (raspberry cultural thicket, sumac cultural thicket and hawthorn cultural savannah)

b. Developed Area (parking lots, upper beach etc.)
   i. Devoid of plant life other than occasional roadside weeds
   ii. Not considered natural or near-natural habitat
   iii. Nonetheless used by wildlife species under certain conditions.



Turtle Nesting Map. This map defines the turtle nesting sites from 2007. The results are quite similar to those from 2006 and appear to reflect the sites described in 2009. The image is from Petrie Islands Turtle Nesting Survey (2007).

Appendix B – Stakeholders and Planning Group

The project was directed by Parks Planner Kevin Jones (Parks, Recreation and Cultural Services Department of the City of Ottawa) with support from Planning and Growth Management (Land Use and Natural Systems unit) and Forestry Services. The Rideau Valley Conservation Authority (RVCA) and the Ontario Ministry of Natural Resources (OMNR) provided additional technical advice. Local stakeholder groups including a formal advisory group, the Petrie Islands Advisory Committee (PIAC), provided input throughout the plan's development that was led by the SENES Consultants Limited - Ottawa project team in association with Holly Bickerton, Ecologist, and Civitas Architects Inc.

Several community stakeholders, many of whom belong to the Petrie Islands Advisory Committee, provided formal input to the management plan development through 2010 and 2011. Participants included the following:

Name	Organization
Bill Bower	Ottawa Duck Club
Meredith Brown	Ottawa Riverkeeper
Robert Burnford	Ottawa Stewardship Council
Joffre Cote	Ottawa Stewardship Council
Royal Galipeau	Member of Parliament, Orléans
Peter Goddard	Baxter Conservation Area, RVCA
Len Goddard	Sonshine Club
Yves Grandmaitre	Grandmaitre Ecological Reserve, Marina & Bait Shop
Pierre Grandmaitre	Grandmaitre Ecological Reserve, Marina & Bait Shop
Ed Gratton	Queenswood United Church
Henri Gravelle	Councillor Monette's Office
Robert Gray	Friends of Petrie Island
Peter Hall	Ottawa Forests & Greenspace Advisory Committee

Name	Organization
Christine Hanrahan	Ottawa Field Naturalists Club
Clive Horne	Cumberland Village Community Association
Fred Hyde	Navan Community Association
Beth Lalonde	Cairine Wilson Secondary School
Phil McNeely	Member of Provincial Parliament, Ottawa-Orléans
Bob Monette	Councillor, City of Ottawa
Tony Pancheco	YMCA / YWCA
Dave Redmond	Villages Community Association, Chair of Petrie Islands Advisory Committee
Zybina Richards	Fallingbrook Community Association
Suzanne Sanford	Recreational Liaison, City of Ottawa
Al Tweddle	Friends of Petrie Island, Queenswood Heights CA

Appendix C – Summary of Public Input

The following table provides a summary of the comments offered through public input:

Comment	Response
Desire to maintain natural features of the island	Maintained / enhanced through proposed policies and actions; created “Natural Environment” and “Wilderness” areas
Desire to enhance role as a **community gathering** area	Included as part of plan directions
Protection of **turtles** and turtle habitat	Potential use of chicken-wire to protect nesting turtles from pests (raccoons), conservation area to limit human disturbance, public education, formalization of trails
Turtle nests - there are quite a few around the new washroom facilities and at East Beach. The concern is that Caravibe is in June on East Beach at the height of nesting	Management actions included to protect turtle nesting from humans and predators.
"no **boat access** at all" in the turtle basking area	Included in the management actions to not allow boating in sensitive areas, discourage overall.
Expanded **partnerships** with other agencies and with community groups	Built into plan goals, actions, such as Friends of Petrie Island, Petrie Islands Advisory Committee, schools, etc.
So many issues with **monitoring & enforcement**. Effectively much of the site enforcement of use falls to the Friends. Some kind of **role clarity and responsibility** needs to happen	Respective roles are outlined in the plan and will continue to be clarified as the plan is implemented, such as through the recommended Petrie Islands Management Advisory Committee.
All proposed activities by **large groups** should go through FOPI	The City will regulate events; staff will in turn liaise with FOPI
Management issues on beach area usage for **large events** – it is a great location and should be encouraged but possibility of over-use	A City event coordinator will decide on site capacity for large events as well as site-specific measure for safety etc.
Enhance the existing trail system	The plan includes formalization of trails, closing of unauthorized trails on Petrie Islands, trail enhancement on both mainland and islands
Loop trail around turtle pond	An option is included in the plan for future consideration.
There are **too many trails** in Queenswood forest already	Some trails will be decommissioned
Establish an interpretative route through the islands for **kayak/canoe travel**	Interpretive route is included on the Petrie Islands Site Plan (Figure 7). This will be supported by a map, and possible future smart-phone applications or online information.

Comment	Response
Support more uses by youth, such as rowing, kayaking, sailing ;	This will be supported through map and online information availability for kayak and canoe trail and the partnership programming onsite.
Expand the availability of onsite education and natural interpretative programs Improvement of the **interpretation centre**/eco-museum	Partnering with different groups for these activities will continue, including enhancement of the interpretation centre
Improve (**pave**) access road and parking facilities for the recreational portion of the island	The road will not be paved due to requirement to maintain permeable surface (to protect natural systems).
Plant trees	Some added to site concept
Build a **shelter** from the sun, wind and rain	Proposed in site concept
Picnic tables	Proposed in site concept
Washrooms (portable toilets closer to the picnic area and interpretation centre)	To be considered by the City
Establish a barrier that will allow for **closing the site at night**	An automated gate will be considered by the City
The water course on the bay side of the island is extremely dangerous to recreational vessels (logs and underwater stumps)	Recreational boating in this area will be discouraged
Build a Petrie Islands **outdoor clubhouse**	Not anticipated to occur; further site development not appropriate for this regulated floodplain, significant wetland area. Only an open air structure(s) will be considered.
Improved canoe launch, storage for community groups, rowing and sailing **facilities**	Canoe launch and support facilities are part of the site concept
Keep it as **natural as possible** i.e. no new trails	No new trails are proposed.
Suggest putting up **interpretative signs** with pictures of species in the area and info about the environment	These will be included on the suggested interpretive panels
Management Challenges for the next 5 years: - water quality - managing human impacts on natural areas - management of geese - impacts from nearby development - waste management - managing pests and invasives - better site access for walking, cycling and transit	All of these are addressed in the management plan.

Comment	Response
Establish a **charitable foundation** capable of providing tax receipts for those who donate	To be considered as part of implementation to obtain adequate funding, perhaps by FOPI
Avoid at all costs the invasion of “sea-dos” and other noisy, polluting **recreational vehicles**	Uses restricted through plan
A **new patio concession** is going in. This is a new concrete pad to seat 190 around a turtle nesting site near the north shoreline.	The proposal was dropped
A **fine ($120) is the best deterrent to keep dogs out** and it would be good to post the fine on the signs	This will be addressed on signage and through working with by-law, encouraging use of nearby dog-friendly parks etc.
There are too many negative **signs** on the island, sign pollution, ineffective signage etc.	The plan recommends removal of much of the negative signage and strategic placement of new signage
Welcome sign at the "bend" - a small pull-off area and a big map outlining all the things that are on the island.	Suggested in site concept
Lots of issues about **fall and shoulder season access** - the need for lifeguards on June and Sept weekends, need for public access to toilets at this time. Potential for contracted services for extended access;	To be considered as part of the implementation, allocation of City staff group and stakeholder responsibilities
Opportunity for more recreational development	Optimization of recreational potential included within the plan, in consideration of the ecological capacity
Concerns re: **fertilizer application** to beach to deter geese (health and water quality concerns)	This method can lead to water contamination and health concerns because of phosphorus content of fertilizer – this is discouraged and alternate methods are explored in the management plan
Has anyone explored the benefits of **changing the designation for the property to rural**? It would open a few beneficial venues for groups like FOPI for financial assistance from the province, would still keep the property under city control, may provide a bit more flexibility when time comes for additional uses	Can be explored as part of plan implementation
Consider a dedicated website for Petrie Islands.	Will be considered as part of Communications Strategy.
Please acknowledge the contributions of community builders in establishment of the Petrie Islands.	Text has been added to the plan to acknowledge individual and family contributions to Petrie Islands.

Appendix D – Communication Recommendations

Building upon the communications recommendations of Section 6, the following provides additional considerations for **site** signage look and messaging.

Photos of Existing Signage:

Below are some suggestions to revise the site signs to positive-sounding messages, followed by sign and gateway photo examples from other park locations:

- A sign indicating that pedestrians and bicycles are permitted one way but only pedestrians another
- “Dogs are not permitted on the islands. We invite you to walk your dog on the mainland in Queenswood Forest or in xy park nearby. Walking your dog on the island can lead to a $00 fine. Thank you for your cooperation.”
- A welcome sign that includes upcoming events (large events as well as community-run or stakeholder-run smaller events that are open to the public such as nature walks, picnics, other activities)
- The welcome sign will only list permitted activities and prohibited activities can be outlined on a different sign
- A warning sign about poison ivy may help to keep people on trail
- It is recommended that the overall number of signs be reduced, particularly the number of no parking signs and other signs carrying a negative message
- The barcode for the City’s smartphone app could be placed onto site signs allowing visitors to discover and explore other city parks, including parks that may permit activities that are prohibited on Petrie Islands (e.g. dog walking)

Entrance/ Gateway Signage Examples

Photo: Rudy Dale, 2000

Wayfinding/Interpretive/Informational Signage Examples

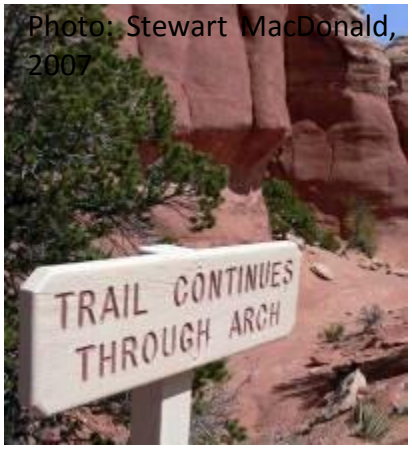


Photo: Stewart MacDonald, 2007

Photo:http://shawneetheshep.blogspot.com/2010/01/pyramid-mountain-natural-historic-area.html, 2010

Photo: Richard Layman, 2007

Photo: www.istockphoto.com