



Fifty Point Conservation Area Master Plan 2020

Final- January 2022



Prepared by: Hamilton Region Conservation Authority (HCA)
Photo Credits: HCA Staff, Bruce Harschnitz



TABLE OF CONTENTS

1.0	APPROVAL STATEMENT.....	4
2.0	PREFACE	5
3.0	EXECUTIVE SUMMARY.....	7
3.1	Introduction.....	7
3.2	Goals	8
3.3	Objectives.....	9
3.4	Site Concept / Philosophy	10
3.5	Policy and By-Law Framework	13
3.6	Master Plan Zones	13
3.7	Development Priorities	22
4.0	BACKGROUND	24
4.1	Study Area.....	24
4.2	Property History.....	25
4.3	Planning and Development Controls	26
4.4	Buildings.....	31
4.5	Physical Features.....	32
4.6	Cultural Heritage	33
4.7	Heritage Designation and Historic Buildings.....	36
4.8	Natural Areas	37
5.0	NATURAL AREAS INVENTORY	38
5.1	Physiography and Topography.....	38
5.2	Soil Composition	38
5.3	Hydrology and Surface Drainage	40
5.4	Biophysical Inventory Methodology	46
5.5	Ecological Land Classification	46
5.6	Flora/ Botanical Inventory.....	47
5.7	Fauna Inventory	47
5.8	Breeding Bird Survey.....	47
5.9	Ecological Land Classification Results	48
5.10	Flora/Botanical Inventory.....	52
5.11	Fauna Inventory Results.....	52
5.12	Aquatic Inventory.....	54
5.13	Significant Ecological Features.....	57

5.14	Biophysical Inventory – Analysis	58
5.15	Managed Forest	65
5.16	Natural Areas Recommendations.....	65
6.0	OVERALL SITE CONCEPT	71
6.1	Marina	71
6.2	Campground.....	73
6.3	Day Use.....	74
6.4	Marketing.....	75
7.0	CONSERVATION AREA MANAGEMENT	77
7.1	Land and Water Management	77
7.2	Vegetation Management	78
7.3	Fish and Wildlife Management	79
7.4	Cultural Heritage Management.....	80
7.5	Conservation Area Operations	81
7.6	Education	81
7.7	Research	81
7.8	Recreation	82
7.9	Partnerships	83
7.10	Paid Staff.....	83
8.0	FINANCIAL	84
8.1	Attendance and Revenue Forecasts	84
8.2	Capital Projects	84
8.3	Funding Sources	86
8.4	Business Model	87
9.0	MARINA MANAGEMENT	89
9.1	Boating Market	89
9.2	Boating Facilities	91
10.0	RECREATION MANAGEMENT.....	92
10.1	Campground.....	92
10.2	Education and Interpretation Programs	93
10.3	Day Use.....	94
10.4	Facility Rentals	94
11.0	SUMMARY	96
12.0	APPENDIX CONTENTS	97

List of Figures

Figure 1	Tourism Region	24
Figure 2	Watersheds and Study Area	28
Figure 3	Zoning Map	29
Figure 4	1975 Existing Vegetation	35
Figure 5	Soil Composition	39
Figure 6	Fishing Pond Transect	43
Figure 7	New Wetland Feature	44
Figure 8	Fishing Pond Map	45
Figure 9	Percentage of Total Catch Broken Down by Species	57
Figure 10	Marine Features	72

List of Tables

Table 1	Nature Reserve	16
Table 2	Natural Zone	17
Table 3	Access Zone	18
Table 4	Cultural Heritage Zone	19
Table 5	Development Zone	20
Table 6	Resource Management Zone	21
Table 7	Summary Ecological Field Study	46
Table 8	Vegetation Community	48
Table 9	Migratory Bird Survey	53
Table 10	Summary of Fish & Crawfish Caught, Fifty Creek	56
Table 11	Federal & Provincial Species at Risk	59
Table 12	Plants Recommended to Enhance Bird Habitat, Spring	66
Table 13	Plants Recommended to Enhance Bird Habitat, Fall	67
Table 14	Marina Features	90

1.0 APPROVAL STATEMENT

We are pleased to approve the Fifty Point Conservation Area Master Plan as the official policy document for the management and development of this conservation area. This Master Plan supports the current Hamilton Region Conservation Authority's (HCA) Strategic Plan.

This plan reflects HCA's Vision for a healthy watershed for everyone and Mission to lead in the conservation of our watershed and connect people to nature.

Moving forward over the next ten years this plan will help guide the development and operation of the conservation area in support of these goals.



Lisa Burnside
Chief Administrative Officer
Hamilton Region Conservation Authority

February 3, 2022

Date



Councillor Lloyd Ferguson
Chair, Board of Directors
Hamilton Region Conservation Authority

February 3, 2022

Date



2.0 PREFACE

The Fifty Point Conservation Area Master Plan is the guiding policy document for the development and management of this conservation area which is owned and administered by the Hamilton Region Conservation Authority (HCA). The recommendations in this Master Plan are intended to help provide direction and guidance for sustainable management and operation of Fifty Point Conservation Area (Fifty Point) over the next ten years.

This Master Plan was developed by HCA staff utilizing in-house expertise and resources, with a public consultation process to receive input from stakeholders and the public as follows:

Phase 1 Background

Background review was initiated January 2020 with the HCA executive team review of the work plan, engagement of staff, collection of mapping information, and gathering information through staff meetings. The COVID-19 pandemic interrupted this phase of the project in 2020. This phase was completed by spring 2021 and presentation of an information report to the HCA Conservation Advisory Board in June 2021.

Phase 2 Inventory

Inventory includes the collection and assembly of natural areas field surveys and mapping information, ecological reports, trail counter data, and visitor surveys. The COVID-19 pandemic started affecting the project in March 2020, shutting down the site and collection of data. The biggest impact was missing the 2020 spring bird migration, which required extending the project to 2021 in order to gather this data. As well, our usual process of conducting visitor surveys on site were affected, and HCA explored other options for safe public engagement during the pandemic. Consequently, an on-line public engagement site was launched on HCA's website in May 2021. Visitor surveys for the marina, campground, and day-use areas were conducted on-line through the HCA website. Flyers were also posted and distributed in the park giving visitors QR codes and weblinks to take them to the surveys on their mobile devices. The survey period ran from May 21st to August 15, 2021 with 446 surveys submitted, the majority of the surveys coming from local residents very familiar with the conservation area. Two public information booths were operated by staff in the conservation area on July 3 and 31, 2021 to share information on the plan, respond to questions, and sign up people interested in receiving the draft plan for review and comment. Visitors to the public engagement site during this phase were also able to register to receive and comment on the draft master plan in Phase 4.

Phase 3 Concepts

Concepts in this plan were completed in-house by HCA staff and refined with the information in the public surveys and input from stakeholders. Staff professional expertise and experience, plus lessons learned from operating Fifty Point for decades helped inform this plan. Five facilitated workshop sessions were held with staff covering site concept and vision planning; financial sustainability; day use and campground operations, marina operations; and capital

project priorities and plans. All information gathered in this phase was presented internally to HCA staff for review and comment, and then compiled in the draft plan circulated in Phase 4.

Phase 4 Summary

Finalizing the draft Master Plan includes reviews of the compiled draft plan by staff, stakeholders, and board advisory members, and circulation to the public who registered in Phase 2. The final draft document includes all stakeholder and public comments. After receiving final comments, the plan is to be presented to the HCA Conservation Advisory Board, and then to the HCA Board of Directors for endorsement and final approval.



3.0 EXECUTIVE SUMMARY

3.1 Introduction

Fifty Point Conservation Area (Fifty Point) is an 80-hectare property owned and managed by the Hamilton Region Conservation Authority (HCA) located on Lake Ontario at the mouth of Fifty Mile Creek. Fifty Point is at the easterly boundary of HCA's watershed, and within the municipal boundary of the City of Hamilton (Stoney Creek) and Niagara Region (Town of Grimsby). The marina basin and pond are located within Stoney Creek and the campground and swimming beach within the Town of Grimsby. See Maps 1 and 2 in *Appendix 1* for more information.

Historically this area was primarily agriculture in nature, however, there are now significant development pressures surrounding the property and population growth is rapidly transforming the area. Consequently, Fifty Point has become a major waterfront destination experiencing more intensive recreational use than most other HCA areas. The natural areas of the property are also important refuge and habitat for migratory birds and other species being displaced by the surrounding development.



HCA started acquiring land for Fifty Point in 1970 and the original development plans were prepared in 1975. The conservation area opened to the public in 1978. Site development over the years has been guided through three previous Master Plans. This plan updates and replaces the 2000 Master Plan.

3.2 Goals

This Master Plan outlines the long-term goals for conservation and land management at Fifty Point, and is intended to be a living document that will be updated completely in ten years' time.

This plan supports the following goals as outlined in HCA's current strategic plan:

Vision

- A healthy watershed for everyone.

Mission

- To lead in the conservation of our watershed and connect people to nature.

Commitment and Corporate Values

- Provide excellent customer service and a solution-oriented approach.
- Be accountable, transparent, and responsible in the use of resources.
- Embrace new technologies to help develop new ways of doing business and foster innovation.
- Promote teamwork internally and externally to achieve common goals, support existing relationships and build new partnerships.
- Maintain trust, act with integrity, and treat others with respect.
- Value knowledge to continually learn and improve, in an effort to achieve best solutions.

Organizational Excellence

- Ensure corporate and financial viability and the HCA's relevance in the community.
- Identify opportunities to engage the community, adjacent landowners, and Indigenous Peoples.

Water Management

- Protect the watershed for people, property, flora and fauna, and natural resources through flood and erosion control, water quality programs, low flow augmentation and adaptation strategies to adapt to changing climatic conditions.

Natural Heritage Conservation

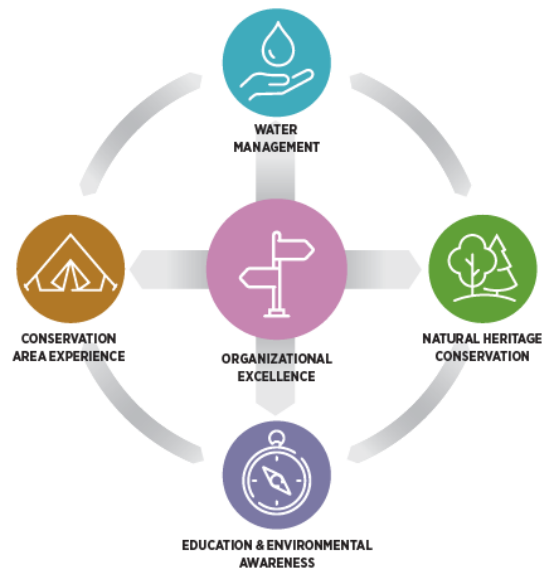
- Conservation, restoration and enhancement of watershed natural areas and ecology.
- Continue on-going ecological restoration projects and monitoring programs.
- Identify invasive species strategies and natural heritage plans in the Master plan.

Conservation Area Experience

- Provide high quality, diverse conservation areas that promote outdoor recreation, health, and well-being and strengthen public awareness of the importance of being in or near our conservation areas.
- Update and develop Master and management plans, and implement priorities to further enhance conservation areas for current and future generations.

Education and Environmental Awareness

- Provide outdoor learning experiences for students, teachers and the community, increasing knowledge and awareness of the value of our environment and heritage.



3.3 Objectives

The goals and objectives in the previous Master Plan have been assessed, and through consultation and analysis of current operations, the HCA supports the following long-term objectives for Fifty Point:

1. To conserve, restore, and manage natural areas (terrestrial and aquatic) in this multi-use

waterfront conservation area.

2. To provide visitors of all ages and abilities arriving by vehicle, bicycle, or walking-in access to quality recreational facilities and programs (active and passive).
3. To improve upon current facilities to maintain financial sustainability and minimize long-term operating costs.

3.4 Site Concept / Philosophy

Through our background work, consultation, and comments received, these key items were identified for Fifty Point to be addressed in this plan:

.1 Increased Visitation

Historically, most of the Fifty Point property was farmed until development of the QEW and subsequent acquisition of the lands by HCA. In recent years the conservation area has seen an influx of day-use visitors, on top of a fully occupied marina and well used campground. Population growth and surrounding development is bringing in more traffic and visitors. A greater number of visitors are arriving by bicycle or walking-in. Proposed in this plan are planning recommendations to improve pedestrian and bicycle access into Fifty Point from the surrounding community. The Covid-19 pandemic demonstrated the site's weaknesses in managing unanticipated high visitation. During the preparation of this plan, the public road allowance at the north end of Kelson Road became a public "hot spot" during the pandemic, with the public wanting to use this area to access the beach. HCA is in discussion with the Town of Grimsby on this area. Further discussions and consultation will be undertaken to help determine appropriate public use of this area for beach access. The operation of the two subdivision gates also needs to be considered.

Increased visitation and the trend towards larger recreational boats, trailers and vehicles are also straining the marina and campground, as well as the internal roadways and parking areas. This plan outlines general strategies to improve traffic flow and reduce congestion at key entrance areas, as well as options for community improvements outside the conservation area for municipal consideration. Roadway and parking improvements have also been accounted for in the capital development priorities list noted in *Appendix 2*.



To help reduce congestion at the main conservation area entrance, this plan proposes two enhanced secondary access points into the conservation area. The first access point would be a dedicated staff and service entrance from Baseline Road west of the main gate, at the driveway location of the current rental house. This area of the property would be converted into an improved work yard for park operations, and staff parking. The second access point would be an enhanced entrance off Kelson Road to permit more direct access to the beach area parking lots during peak summer holidays and weekends. This entrance would be operated and staffed as needed to divert traffic from Baseline Road and alleviate traffic stacking/bottlenecks at the main entrance. These two entrance points, along with the marina service gate at McCollum Road and road gate at Windermere Road, would also help with emergency access into the property as required.

HCA properties are trending towards increased visitation and parking across the entire watershed and this is not expected to decline. Visitor management and vehicle parking strategies are currently being investigated by HCA in response. Capital development of the features identified in this plan will need to consider these strategies and trends, and additional studies may be required to inform detailed planning, design, and operational improvements.

.2 Development of Adjacent lands

Adjacent lands targeted for potential development, as noted on the appended Map 2 - Site Context 'B' Map, could negatively affect the operation of the conservation area. The campground, for example, could be greatly impacted by adjacent development.

This plan does not presume HCA would acquire the adjacent land parcels on Kelson Road. High land costs have reduced HCA's potential to expand the conservation area by acquiring this parcel and the HCA's current Land Securement Strategy does not highlight these lands as targets for acquisition. Notwithstanding these two key items, the Board of Directors could consider their acquisition under supportive conditions and with funding in place. HCA welcomes support from the City of Hamilton, Town of Grimsby, and Niagara Region on this initiative. As a property owner, in addition to being a regulating body for portions of these lands, HCA will be commenting on proposed development plans for Kelson Road. When the lands to the west of Fifty Point were developed, HCA was involved in the subdivision development process and commented on buffer enhancements including fencing and landscaping for Fifty Point, that were conditions of that development. HCA anticipates similar enhancements would be required to buffer the east side of Fifty Point from adjacent development.

.3 Ingledale House

Future plans for the rental and operation of the Ingledale House need to be considered in the vision for the property. With the cultural heritage zone being set out in this plan, a full review of the Ingledale rental agreement and rental use of this area is recommended to

set out best practices for the continued care and operation of this heritage feature in the park.

.4 Shoreline Erosion

There will be ongoing needs to address impacts from high lake levels, shoreline erosion, climate change effects and weather impacts to park operations.

.5 Campground expansion

As noted in previous plans, expansion of the campground was partially acted on and the area north of the campground was evaluated for future campground expansion. Strong demand exists for more seasonal trailer sites, including potential for camping cabins. HCA will need to do a more detailed investigation of the costs to remediate the lands north of the campground for campsites and campground infrastructure, and weigh this against other recreation or naturalizing options, day use pressures, and the operational needs of the marina. The area to be further studied is noted on Maps 5 and 6 in *Appendix 1*.

.6 Marina

The Marina is a significant source of revenue for HCA and recommendations in this plan for the marina are of high importance.

.7 Conservation Area Zones

The priority of this plan is to conserve and protect the natural areas of the property while supporting recreational activities within this compact conservation area.

Nature reserve and natural area zones have been identified in this plan with management guidelines as outlined in Section 5.16. The ecological mapping and species data documented within this plan are also provided as a baseline inventory to help guide future land management decisions and project planning. Future site development may also be subject to review by the City of Hamilton, and the Niagara Region for those lands in their purview.



The forests at Fifty Point will continue to be managed under the objectives of the Managed Forest Plan for conservation, see *Appendix 6*. The long-term objective of this plan, watershed wide, is to have a healthy forest with short term objectives focused on thinning and planting. Invasive species management and restoration projects to help naturalize these areas will also be required to help support this objective.

3.5 Policy and By-Law Framework

Conservation areas owned and operated by the HCA are diverse in nature and spread across the HCA watershed. Fifty Point is at the easterly boundary of HCA's watershed. See *Map 1, Appendix 1* and Section 4 for more information.

HCA has approached this Master Plan with the mind-set that other conservation areas in the HCA portfolio requiring Master Plans or updates to Master Plans will follow a consistent methodology. Although Fifty Point is not located within the jurisdiction of the Niagara Escarpment Commission, the policies of the Niagara Escarpment Plan and guidelines of the Niagara Escarpment Parks and Open Space System (NEPOSS) 2012 planning manual have been observed in the preparation of this Master Plan.

HCA recognizes that certain public infrastructure such as utility corridors, trails, or transportation links may be required to cross conservation area lands. HCA policy for planning review and regulation of these features adheres to the *Conservation Authorities Act, R.S.O. 1990, C.27*. See Section 7 for more information.

The Fifty Point Conservation Area Master Plan adheres to policies of the Hamilton Conservation Authority, City of Hamilton, Niagara Region, and provincial policy. Portions of the property are within the Greenbelt Plan, urban boundary of the City of Hamilton, Town of Grimsby and the boundary of Niagara Region. See *Map 2, Appendix 1*.

HCA will consult with outside agencies, and obtain the required approvals and permits when implementing projects flowing from this Master Plan.

3.6 Master Plan Zones

A 10 Year Masterplan Update Strategy was approved by HCA's Board of Directors in 2019 for properties that HCA owns and manages. As per this strategy document, guidelines were set out for the completion of HCA Master Plans (including Management Plans and Study Areas). This strategy noted that HCA lands that lie within the boundary of the Niagara Escarpment Plan will need Master Plan approval from the Niagara Escarpment Commission (NEC) for HCA to formally ratify them. Consequently, HCA strategically decided to develop all HCA Master Plans within the guidelines of the Niagara Escarpment Parks and Open Spaces System (NEPOSS), which is a requirement of the NEC for any public agency NEPOSS park Master Plans. The NEPOSS policy framework ensures HCA follows a consistent methodology for all plans, and the plans are developed to an appropriate level of detail with sufficient public consultation for all proposed land improvements and uses.

This Master Plan follows the NEPOSS planning manual and identifies six land use zones for Fifty Point. These zones are intended to help guide future planning, development, and management of the conservation area. The zone boundaries are shown in more detail in *Appendix 1 – Conservation Area Zones Map 4*.

Zones are intended to fulfill a variety of functions in the conservation area, including the following as outlined in the current NEPOSS manual:

- Identification and recognition of the features and attributes.
- Protection of key natural heritage features and cultural heritage features and functions.
- Segregation of conflicting recreational activities by directing activities with higher impacts to the least sensitive areas and low-impact activities to areas that are more sensitive, if appropriate.
- Delineation of areas on the basis of their requirements for management.
- Standardization of the approach to support management objectives and actions, based on a variety of features.
- Balancing of public use with the preservation of the natural environment.



There six land use zones identified are:

- | | |
|-----------------------|----------------------------|
| ○ Nature Reserve Zone | ○ Natural Zone |
| ○ Access Zone | ○ Cultural Heritage Zone |
| ○ Development Zone | ○ Resource Management Zone |

The following sections briefly describe each zone. The tables in each section provide a zone description, management direction, and permitted uses, including types of development in each zone. All resource, recreational, and facility development uses are subject to Canadian legislation and policies governing public lands and conservation areas, as well as the resource management policies identified in Section 7.

Appendix 7 contains the natural inventory species lists from background research and field work completed for the preparation of the Master Plan. In this Master Plan, “species at risk” means species listed by the MECP or Government of Canada as threatened, endangered, extirpated or extinct in Ontario including:

- Species designated as endangered, threatened or special concern by the Species at

Risk Act (federal) via the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and listed in Section 5.14.

- Species designated as endangered threatened, or special concern by the Endangered Species Act (provincial) via the Committee on the Status of Species at Risk in Ontario (COSSARO).

Fifty Point was divided into five functional zones in the 1992 Master Plan Update: Entry, Marina, Campground, Day Use, and Maintenance. These functional zones have been reviewed in this Master Plan and are included in the following land use zone tables.



Nature Reserve Zone

Nature reserve zones include significant earth and life science features which require management distinct from that in adjacent zones, as well as a protective buffer with an absolute minimum of development. Fifty Point's nature reserve zones contain the Fifty Mile Creek wetlands, woodlands and water courses, fishing pond, and associated environmentally significant areas.

Table 1. Nature Reserve Zone

Zone	Description	Management Direction	Permitted Uses (subject to management planning)
Nature Reserve (wetland)	<p>Include significant natural heritage features or areas that require careful management to ensure the long-term protection of natural heritage features.</p> <p>Intended to protect in perpetuity features and values of selected life and earth science areas such as:</p> <ul style="list-style-type: none">➤ Habitat of endangered, threatened, and rare species or species of special concern.➤ Significant Wildlife and fish habitat.➤ Hydrological systems (e.g. streams, wetlands, ponds)➤ Significant Woodlands➤ Areas of Natural and Scientific Interest (ANSI)➤ Significant landforms or escarpment features	<p>These areas are predominantly natural and should contain naturally functioning ecosystems.</p> <p>This zone is intended to protect natural heritage features in the long-term.</p>	<p>To protect, preserve, and rehabilitate identified natural heritage features, visitor uses are limited or restricted.</p> <p>Development is generally restricted to trails, necessary signs, interpretive facilities (where warranted), temporary research facilities and conservation practices.</p>

Natural Zone

Natural zones include natural, cultural, and aesthetic landscapes in which minimum development is required to support low-intensity recreational activities.

Fifty Point's natural zones are primarily the wooded areas adjacent to Fifty Mile Creek.

Table 2. Natural Zone

Zone	Description	Management Direction	Permitted Uses (subject to management planning)
Natural	Includes natural and high-quality natural settings, and aesthetic landscapes in which a minimum of development is permitted to support low to moderate intensity recreational activities.	The Natural Zone can function as a buffer between Development Zones and Historical or Nature Reserve Zones.	Low to moderate intensity recreational activities are permitted. A minimal level of development (e.g. trails, backcountry campsites, necessary signs and minimal interpretive facilities) is permitted to support low-intensity recreational activities.



Access Zone

Access zones serve as staging areas to support adjacent zones.

Fifty Point’s access zones are the main park entrance on Baseline Road, secondary gated access from Kelson Road, service access to the work yard from Baseline Road, and service access to the marina from McCollum Road. There are also two pedestrian access gates and potential for two more pedestrian access areas identified in this plan. This zone replaces the Entry Zone noted in previous master plans.

Table 3. Access Zone

Zone	Description	Management Direction	Permitted Uses (subject to management planning)
Access	Serve as staging areas (e.g. trailheads, parking lots) where minimal facilities support the use the Nature Reserve Zones and relatively undeveloped Natural and Cultural Heritage zones.	Access zones are intended to support the use of and access to adjacent zones.	Development may include minimal facilities to support Nature Reserve, Natural, and Cultural Heritage Zones. Examples include roads, signs, trailheads, and parking lots.



Cultural Heritage Zone

Cultural heritage zones are intended to protect significant archaeological or cultural heritage features.

Fifty Point's cultural heritage zone includes the Ingledale House and associated buildings and landscaping.

Table 4. Cultural Heritage Zone

Zone	Description	Management Direction	Permitted Uses (subject to management planning)
Cultural Heritage	Include significant archaeological or cultural heritage features or areas that require management that will ensure the long-term protection of the significant features.	Management planning for archaeological or cultural heritage features may range from maintaining their present condition to restoring and/or reconstructing the site.	Development will include protection and interpretation of archaeological or cultural heritage features. Examples include interpretive, educational, research and management facilities, trails, signs and historical restorations or reconstructions.



Development Zone

Development zones provide the main access to the conservation area for the visitor.

Fifty Point's development zones includes all park roads and parking areas, marina, campground, day use activity areas, buildings, and work areas for conservation area operations. This zone replaces individual zones for each of these areas noted in previous master plans.

Table 5. Development Zone

Zone	Description	Management Direction	Permitted Uses (subject to management planning)
Development	<p>Development Zones provide the main access to the conservation area or open space, and facilities and services to support the recreational activities available.</p> <p>This type of zone may allow for the development of visitor and conservation area facilities.</p>	<p>A Development Zone is usually oriented to the provision of recreational opportunities that are suited to the natural character of the conservation area or open space. Approved recreational activities are conducted in an environmentally sustainable manner.</p> <p>This zone should have minimal negative impact on natural heritage features, cultural heritage features, the natural landscape or watersheds.</p> <p>Development Zones are not permitted within / inside Nature Reserves.</p>	<p>Development may include roads, parking lots and gates, beaches, picnic areas, campgrounds and commercial service facilities, and orientation, interpretive, educational, research, and maintenance facilities.</p> <p>Development of facilities must be designed and undertaken in a way that will minimize their environmental and visual impact.</p>

Resource Management Zone

Resource management zones include areas managed to provide resource-related projects such as forest products, disturbed areas requiring restoration, and land that has a long-term resource agreement such as a managed forest.

Fifty Point's resource management zones include managed forest, Lake Ontario shoreline, and former agricultural lands.

Table 6. Resource Management Zone

Zone	Description	Management Direction	Permitted Uses (subject to management planning)
Resource Management	<p>Includes certain public lands that are managed primarily to provide resource-related benefits such as forest products, fish and wildlife, or flood control.</p> <p>Previously disturbed sites (e.g. old farm fields, abandoned quarries) where active measures are being taken to re-establish natural vegetation.</p> <p>May include land that has traditionally been managed under long-term resource agreements (e.g., forest management agreements or agricultural leases)</p>	<p>Resource Management Zones are sustainably managed for many diverse values such as wildlife, fisheries, forestry and outdoor recreation.</p> <p>Such zones may be places for experimenting with alternative resource management practices and developing a better understanding of ecosystem structures and functions in a scientifically sound manner. Should demonstrate exemplary conservation and stewardship.</p> <p>Should not be established in Nature Reserves.</p>	<p>These areas may be used to demonstrate ecologically sustainable resource management practices.</p> <p>Establishing permanent research plots for monitoring purposes (e.g. permanent sample plots for growth and yield studies) is encouraged in this zone.</p> <p>Water may be controlled for purposes related to flood protection, watershed management, or municipal water supply.</p> <p>Recreation uses in this zone are subject to HRCA policies and management planning.</p>

3.7 Development Priorities

The capital development priorities and estimates of development costs for Fifty Point over the next ten years are listed in *Appendix 2* and shown in *Appendix 1*, Map 5. Site Concept.

All development projects are to be reviewed annually for the life of this Master Plan, and the capital development priority list updated as necessary. Capital projects should not be started until a long-term strategy with timelines and costs for each project are clearly defined and sufficient resources are available to complete them. See Section 8.2 for further information.

Significant capital development for Fifty Point over the next ten years falls within these categories:

.1 Replace Significant Park Features

These significant park features require ongoing repairs for public safety, are nearing or past the end of their life cycle, and are proposed to be replaced or expanded upon:

- Marina Piling – height extension to existing pilings, as well as expansion / new pilings.
- Marina Docks – replacement and reconfiguration.
- Marina Boardwalks - replacement
- Fishing Pond Access Platforms
- Main Park Roads and parking area improvements.



.2 Add New Park Features

These capital projects are proposed to serve a greater number of visitors, generate revenue, and improve customer service:

- Access improvements at the Kelson Road service entrance to provide for secondary access into the day use beach area.
- Swipe card access gate(s) at or near the main park entrance for pedestrians and cyclists.
- Passive recreation expansion north of the campground.

.3 Enhance Existing Park Features

These capital projects are proposed to enhance existing park features and improve customer service:

- Access improvements at the main park entrance including road works to improve traffic flow, improved signage, and associated security fencing, gates, and gatehouse upgrades.

- Site improvements west of the main park entrance for a separate staff and service entrance and improved work yard, including road works, signage, and associated security fencing and gates.
- Swipe card upgrades to re-open existing pedestrian access gates on the west fence located at Greenstem Crescent and McCollum Road.
- Provide additional secure boat storage areas for the marina operation.
- Improve the existing day use parking areas.
- Improve the beach washrooms.
- Add a public washroom near the fishing pond day use area, explore use of the Ingledale House to achieve this objective.
- Add a park pavilion at the campground.
- Improve the fishing pond north parking area and pond access.
- Improve trail access between all parking lots and activity areas.



4.0 BACKGROUND

4.1 Study Area

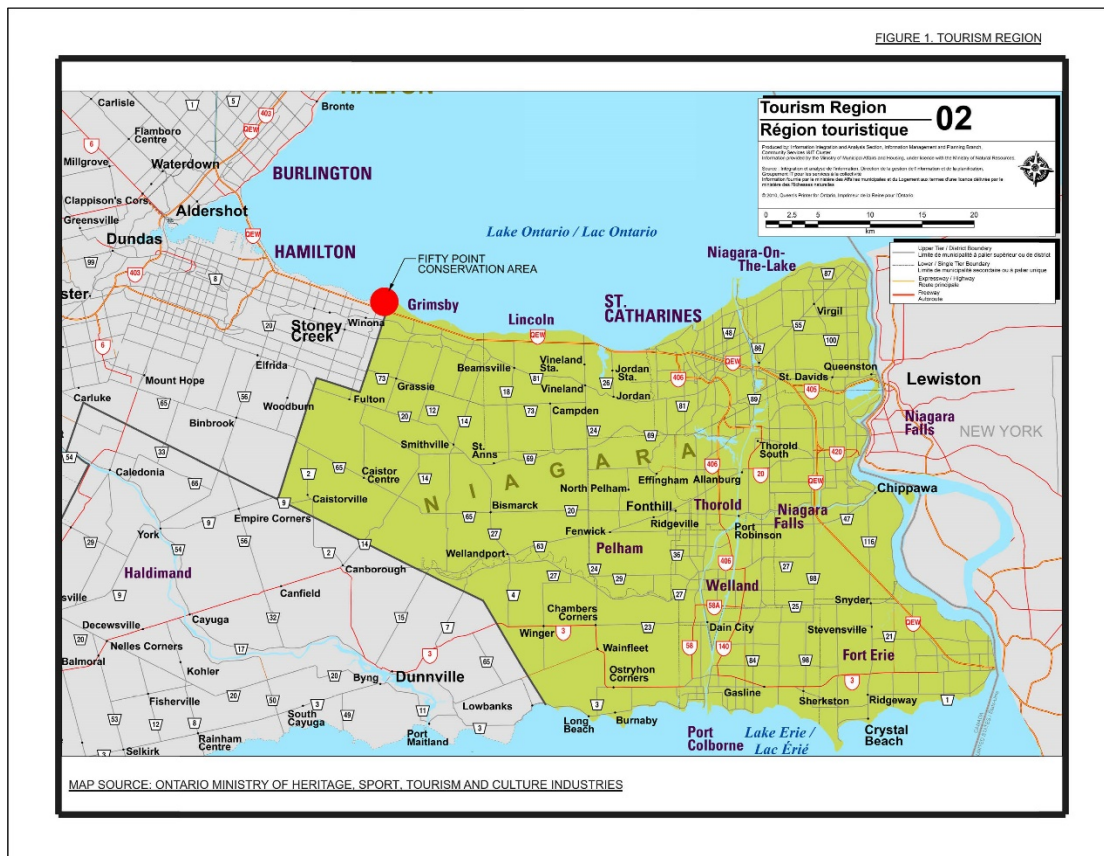
Fifty Point Conservation Area is located on the southern shoreline of Lake Ontario, and straddles the municipal boundaries of the City of Hamilton and Niagara Region. The property is owned and operated by HCA, and situated within the Stoney Creek Numbered Watercourses sub-watershed regulated by HCA. The study area and sub-watershed boundaries are shown in Figure 2, page 28.

The main entrance at 1479 Baseline Road is near the North Service Road at Fifty Road and the Queen Elizabeth Way (QEW). Fifty Point is bounded by Kelson Avenue North on the east and the Lake Pointe residential community to the west. Fifty Point and the Biggar Lagoon Wetlands to the east, are the few remaining natural lands in this area accessible to the public.

Fifty Point has become a popular day-trip and family vacation destination within easy driving distance from major urban centers in southern Ontario.

With direct access to Lake Ontario and an established Marina, the park welcomes both visitors and boaters from all across the Greater Toronto and Hamilton area as well as Niagara Region. Figure 1 shows the tourism market area considered by this master plan.

Figure 1. Tourism Region



During the preparation of this Master Plan, three visitor surveys were distributed online and at the park. One survey targeted day-use visitors, another addressed camping and the third focused on boating and the Marina. These public surveys ran from May 27 to August 15, 2021. See Marketing Section 6.5 for the survey analysis.

Development proposed for Fifty Point will require review by the Hamilton Conservation Authority, the City of Hamilton, and Niagara Region. Draft copies of this document are to be circulated to these agencies, and their comments will be addressed in the finalized master plan.

Figure 2 shows the overall study area and HCA landholdings associated with Fifty Point. This master plan update is part of a ten-year strategy for reviewing HCA lands across the watershed. HCA staff are following this strategy to systematically glean valuable scientific data and site information from targeted study areas, and to use this information in the preparation of master and management plans.

4.2 Property History

Fifty Point is an 80-hectare conservation area owned and operated by the Hamilton Conservation Authority. See Section 4.6 for the history of the property prior to HCA purchase.

In 1971, HCA purchased the land collectively with the Province of Ontario from the Carpenter family to develop the Fifty Point Conservation Area. By that time, materials had been excavated from the property in the building of the QEW, creating the fishing pond we see on site today.

The original Master Plan for Fifty Point was prepared in 1975, recommending that “the Fifty Point Conservation Area be developed as an intensive use, recreation area including the following uses: boating, camping, picnicking, swimming, hiking, nature and historical interpretation, fishing, skating, cross country skiing, snow shoeing, skin diving, water skiing and related activities.”

The second Master Plan was prepared in 1992, and by this time the following developments were realized on site: the road system; Ingledale House renovations; work compound; marina construction (312 slips); beach development; picnic areas along Fifty Creek; and shoreline stabilization. The main goals of this plan were to examine water recreation and investigate increasing the marina significantly to serve the boating market (with upwards of 1,900 slips). It was also noted that development of a campground would serve visitors travelling the QEW, and a 136- site campground was proposed in this plan.



The third Master Plan was prepared in 2000. In the early 2000's, significant capital works were undertaken at the marina to rebuild the marina walls, funding was also obtained at that time for channel dredging and shoreline protection. Once these projects were completed, improvement of the boat ramp and associated trailer parking area was completed, as well as sewer and water main projects in the park. Serviced campground sites were added to serve the growing recreational vehicle (RV) / trailer market. Ball hockey came into the park and operated until 2020. Parking areas near the beach were improved. A recreational trail system, lookout platforms, and new fishing bridge over the pond were installed. The marina boat lift was repaired for a number of years to keep it in operation, and eventually replaced with a new lift so the marina boat hauling will be well served for the life of this plan. To sustain revenue, the automated gates were installed at the main entrance consistent with other HCA conservation areas, and revenue options with the marina such as food services, restaurant etc. were added to the park operations. Evaluation of these services needs to be continually assessed in the annual business plan for Fifty Point.

Of most significance since the 2000 Master Plan have been changes to the surrounding lands at Fifty Point. Prior to 2000 HCA owned land parcels south of Baseline Road and to the west of the conservation area. Those lands were sold by HCA for needed revenue and converted to the residential development we see today. The pedestrian gates to the Lake Pointe community were installed during this development phase. HCA also leased land to the City of Hamilton for the installation of the sewage pumping station adjacent to the marina at McCollum Road. These land use changes can be seen on the aerial photos and in *Appendix 1*.



4.3 Planning and Development Controls

Fifty Point is essentially split along the border of two municipalities: City of Hamilton (Stoney Creek) and Niagara Region (Town of Grimsby). The division begins at the intersection of Baseline Road and Winston Road and follows Fifty Mile Creek to the shoreline of Lake Ontario. Significant features of the Hamilton portion of the property include the marina, fishing pond,

Ingleddale House and the main entrance. The Niagara Region side is comprised of the campground and day-use beach.

See Figure 3, Zoning Map (page 29) for the location of the zoning areas as described below.

The western portion of Fifty Point in the Stoney Creek community, is under the City of Hamilton's zoning by-law, the property falls within Ward 10, and is classified as Open Space (P4). There is a small portion at Baseline Road classified as Highway Commercial (HC-1H) as well as a small portion near the municipal boundary as Intensive Recreation (IR).

In the Urban Hamilton Official Plan, lands within Fifty Point are designated as Open Space (Schedule E1). This plan also identifies areas of Fifty Point as Core Areas and Linkages, which form part of the City's Natural Heritage System (Schedule B). This includes Significant Woodlands (Schedule B-2), Fifty Mile Creek Non-Provincially Significant Wetland (Schedule B-4), Lake Ontario (Schedule B-5), Fifty Mile Creek Environmentally Significant Area ESA (Schedule B-6), and Watercourses (Schedule B-8), and linkage areas west of the fishing point and surrounding a section of the wetland within the southern portion of the property (Schedule B).

The Ingleddale House at Fifty Point has heritage designation from the City of Hamilton. See Section 4.7. The City also notes in the Official Plan that the land contains high Archaeological Potential.

The eastern section of Fifty Point is within jurisdiction of the Town of Grimsby. The Grimsby Official Plan designates areas as Park & Open Space and Environmental Protection (01 and 02) (Schedule B).

As shown in *Appendix 1, Map 1*, there are planning and development controls in the area that are restricting development near Fifty Point. These include the Greenbelt Plan and Niagara Escarpment Plan. The Official Plan for Grimsby also notes the urban boundary expansion to Fifty Point, and an area of intense urban development at Casablanca Boulevard, within easy walking and cycling distance to the conservation area. The proposed GO Station south of the QEW at Casablanca Boulevard is also within cycling and hiking distance to Fifty Point via Casablanca and Oakes Road North over the QEW. The outcome of the area planning and development controls is very evident now in the community with the new residential and commercial development between Fifty Road and Casablanca Boulevard (See *Appendix 1, Map 2*).

A review of current demographic trends reveals this area is growing at 2x the provincial average, and over the lifespan of this master plan population growth in the area is estimated to add 20,000 more residents within 15 minutes travel to the conservation area. It is anticipated many of these new residents will seek access to the shoreline and natural areas for recreation and Fifty Point will be receiving more visitors. During the preparation of this master plan we observed higher gate attendance than previous years of operation. This visitation trend is anticipated to continue for the life of this plan drawing from the surrounding growing community. See *Appendix 5* for more information.

Figure 2. Watersheds and Study Area

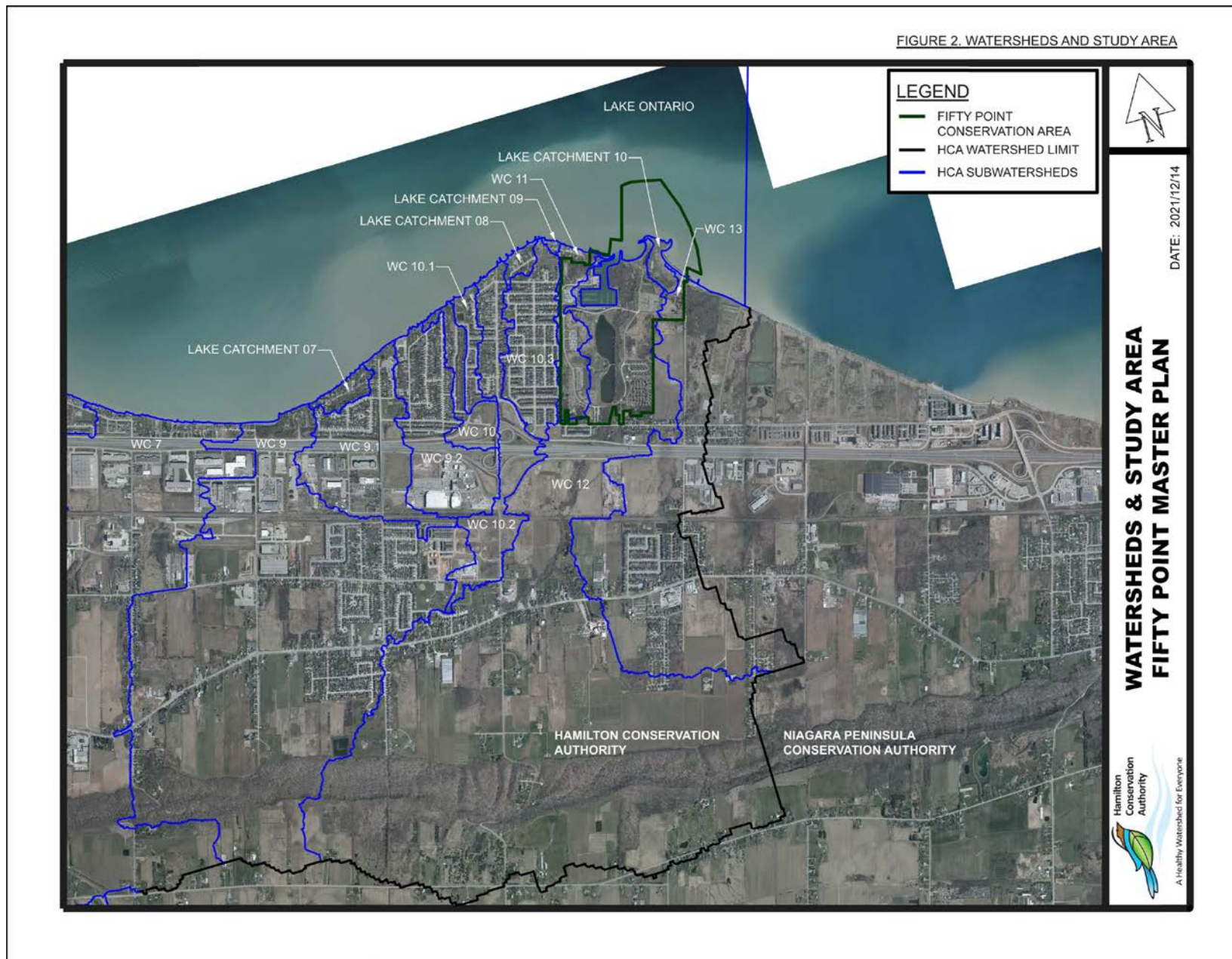
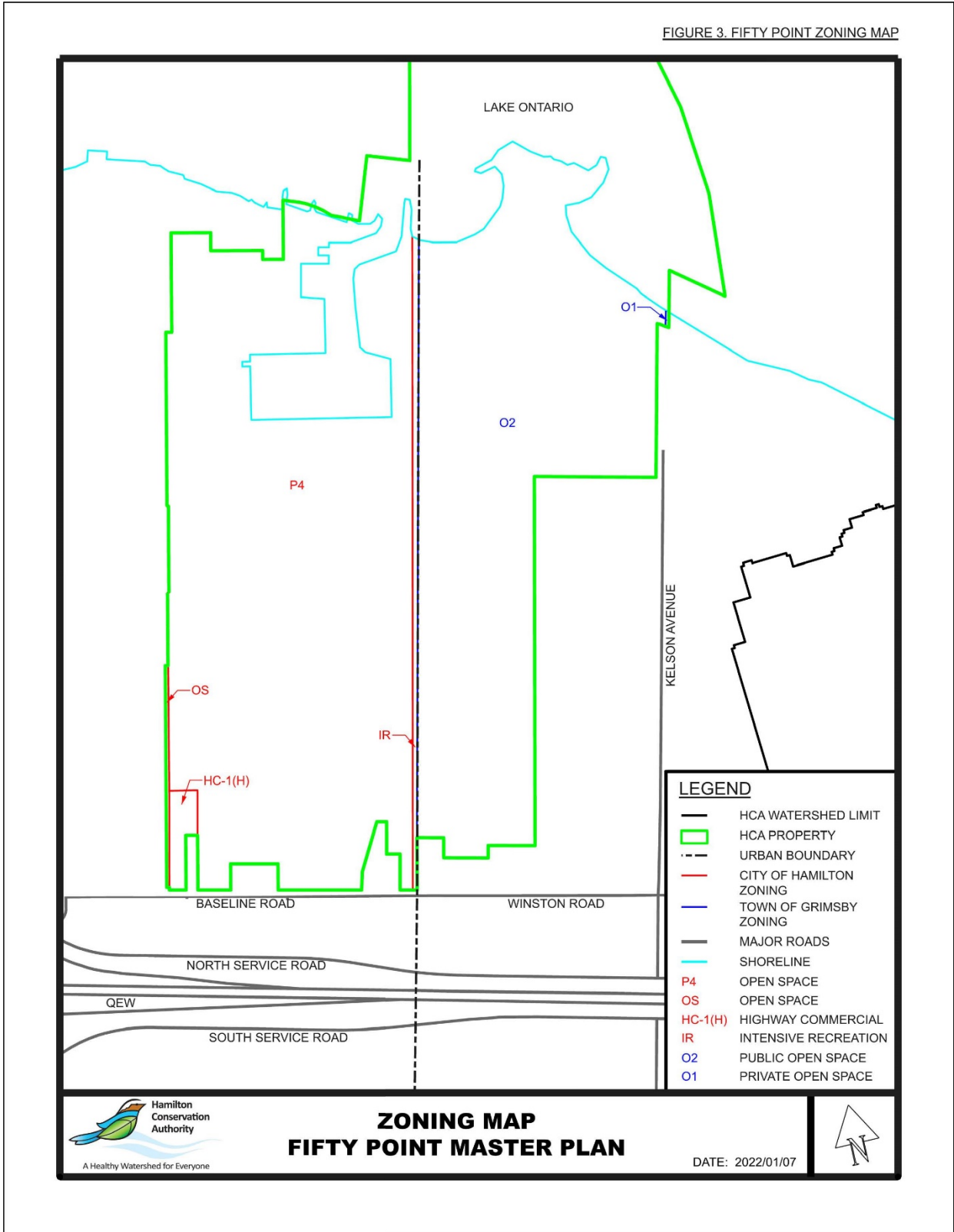


Figure 3. Fifty Point Zoning Map



4.3.1 Planning Recommendations for the Fifty Point Area

During the writing of this plan, the COVID-19 pandemic demonstrated community planning and design weaknesses in serving the large volumes of visitors to Fifty Point. This section outlines issues encountered by HCA, with suggested recommendations for future planning and design consideration.

The conservation area closed in spring 2020 at the beginning of the pandemic, affecting the boating and camping season, as well as gate revenue. Upon re-opening visitation surged, with double the amount of day use visitors entering the park when compared to previous years. This doubling of visitors was on top of the regular marina and campground attendance. It is not certain if this trend will be sustained as pandemic restrictions ease and the US border fully opens. However, it is reasonable to expect that if a portion of the new visitors that have “discovered” Fifty Point during the pandemic make return visits, visitation numbers will trend upwards for the life of this Master Plan. This is in addition to the population growth projected for the surrounding community that is already bringing more walk-in visitors.

During the pandemic, summer visitation to Fifty Point created traffic problems on Baseline Road, particularly on weekends and at peak holidays. Long line-ups of vehicles trying to enter at the main gate stacked the length of Baseline Road to the commercial plaza at Lockport Way. Parking at the commercial plaza and area roads happened when visitors could not enter Fifty Point. Neighbours were negatively impacted by traffic congestion blocking their homes. The park gate closed at peak times when the beach areas became too crowded, resulting in frustrations at



the gate turning people away, and problematic for admitting marina patrons and visitors who had reserved campsites. Kelson Road became a hot spot for parking. Police were called in at various times for traffic control outside the conservation area. The Town of Grimsby also stepped up their efforts on Kelson Road for parking enforcement and garbage cleanup from the high number of visitors using this ungated area to access the beach. HCA reached out to the Great Lakes Waterfront Trail organization to have them remove mention of trail access at this location from their website and trail maps. All of these issues point to the need for further planning review to determine better solutions for community planning, traffic control, visitor management, and community beach access and recreational trail connections.

Another outcome of the pandemic HCA encountered was the need to monitor the visitor numbers on site to ensure social distancing could be maintained. One method of control was to close the unsupervised pedestrian access gates along the western boundary by the Lake Pointe community. HCA received a number of public comments sent in to the office, and submitted in the day use surveys requesting the pedestrian gates be re-opened. Both

for convenience to the community, and safety concerns using Baseline/Winston Road which currently has no sidewalks or marked bike lanes. For these pedestrian gates to re-open HCA recommends three strategies. One, that public sidewalks and bike lanes be installed on Baseline/Winston Road so that visitors may safely use this road to enter at the main park gate. Two, that the existing pedestrian gates at the subdivision be re-designed so an HCA pass card is required to swipe and enter, and that trails in the park to these gates be modified so that staff can easily see and monitor the gate activity. And three, that beach access from Kelson Road be further reviewed with the Town of Grimsby and neighbouring landowners along with HCA's plans to use the service entrance at this location as an alternative park entrance for Fifty Point.

The Niagara Region Transportation Master Plan notes there are streets in the surrounding community in transition, as farmland becomes converted to urban development. Baseline Road as it is currently designed does not provide a safe and comfortable environment for pedestrians and cyclists. As well, with the increased residential development, more vehicle traffic is in the area and as the pandemic has shown traffic bottlenecks have occurred at the entrance into Fifty Point. It is recommended that Baseline/Winston Road be studied further by the municipalities and targeted for priority planned improvements to address these needs. As suggested in the Niagara transportation plan “all Regional Road projects identified in the Road Capital Plan, including repaving, (use) a Complete Streets approach, designing roads to be universally accessible, safe and comfortable for all users.” (page 57).

Aside from Baseline/Winston Road and Kelson Road traffic, the other area of planning concern for HCA and some area residents are the agricultural lands on Kelson Road abutting Fifty Point. These lands are excluded from the Green Belt area of planning control. Development of these lands without adequate buffers to Fifty Point would negatively affect the Fifty Point operation. HCA is interested in further discussion on the future planning of these lands.



Ingledale House 1938

4.4 Buildings

See Section 4.6 and 4.7 for historic buildings, and *Appendix 1*, Map 8. for building locations.

The original remaining farm building on the property, the Ingledale House, is a designated heritage building. The second floor of this house is currently used as a rental residence, the main floor is open only by appointment for heritage interpretation, tours, and research. See Section 10.2 and 10.3 for more information.

HCA commenced site development at Fifty Point in 1971 to prepare for the opening of the property in 1978. During that time a modest gravel road brought visitors to the Lake Ontario shoreline near the mouth of Fifty Mile Creek. Where the beach is today there was about a 2m bluff at the shoreline with a narrow beach at the bottom of the bluff. The beach as we know it today began to develop in the 1980's when the land spit was constructed out into the lake east of the creek.

Most of the park infrastructure commenced in the 1980's and the capital assets are now showing their age. A cursory overview of the building assets follows:

By 1983 the first park superintendent was living on site in the house at Baseline Road, west of the main entrance at the workshop area. The house was renovated and added to in 1989 and maintained over the years as a superintendent's residence. Since 2006 it has been used as a rental residence, however the ongoing maintenance and upkeep of this building exceeds the revenue potential for HCA.

The marina, campground and day use building development began in the 1980's with the first washroom buildings and beach house. As the marina was developed, in the 1990's the marina and campground washrooms were added. As noted in the 2000 Master Plan map, at the corner of Shippee Ave and McCollum Road was a driveway that went east from this intersection to two residences associated with the McCollum family. The driveway looped north up to Windermere Road. Remnants of this lane are still visible in the woodlot north of the marina. The houses were demolished in the 2000's and the boat launch trailer parking lot and restaurant parking lot constructed in this area has erased remnants of this past occupation.



Since the 2000 Master Plan the entrance gatehouse was enlarged with the automated gates arriving in 2013. The Winona and Lakeside Pavilions were added as well as the workshop building. Not constructed but shown in this plan are two buildings for the campground – a gatehouse at the road entrance to the campground, as well as another comfort station for campground expansion. This plan does not propose installation of these buildings.

4.5 Physical Features

Fifty Point is a significant greenspace on this rapidly urbanizing area of Lake Ontario shoreline.

The landforms within the park are largely artificial and include ponds, a reclaimed land spit, and a man-made beach. Fifty Mile Creek and the treed buffer along the creek forms a significant

natural corridor running through the centre of the property. This corridor will remain protected through the conservation zoning set out in this plan.

There are two beaches in the conservation area. The small one at the mouth of Fifty Creek has not changed much in overall size since 1983 and pet owners are allowed to use this area. The man-made main swimming beach is one of the largest in this area of Lake Ontario.

A substantial woodlot near the shoreline, as well as fragmented managed forest areas, and scattered trees and shrubs in the groomed activity areas help provide habitat and refuge for wildlife. Fifty Point is a significant site for migratory birds, with the natural areas and ponds providing feeding and rest areas for a variety of waterfowl, shorebirds, and songbirds.



The Ingledale House is a historical landmark. The house and associated buildings and landscaping are a unique cultural heritage feature at the centre of the conservation area.

The majority of the land at Fifty Point was previously farmed, and there are fragments of past orchard and vineyard cultivation north of the campground. Some of the resource management areas noted in this plan contain parent soils original to the area at time of European contact.

Figure 4, (page 35) 1975 Existing Vegetation, is from the first Master Plan prepared for Fifty Point. The cultivated orchards and vineyards east of the creek contained Concord and Niagara grapes, sour and sweet cherries, and plum and pear trees. Along the westerly boundary Concord and Niagara grapes, cherry, apple and pear trees were in production. The woodlot was confined to the creek corridor and along the waterfront. Other vegetation noted surrounded the Ingledale House including the drive to the house from Baseline Road. A number of plant species are noted in the 1975 plan at the Ingledale House, this provides a good reference for HCA for future landscape development of this cultural heritage feature.

See Section 5 for more information on the physical and natural features of Fifty Point.

4.6 Cultural Heritage

The Hamilton Conservation Authority recognizes the Fifty Point area was inhabited and governed by First Nations prior to European contact. Respect for the cultural heritage of Indigenous Peoples is supported in this Master Plan and HCA's Strategic Plan. See Section 7.4 Cultural Heritage Management.

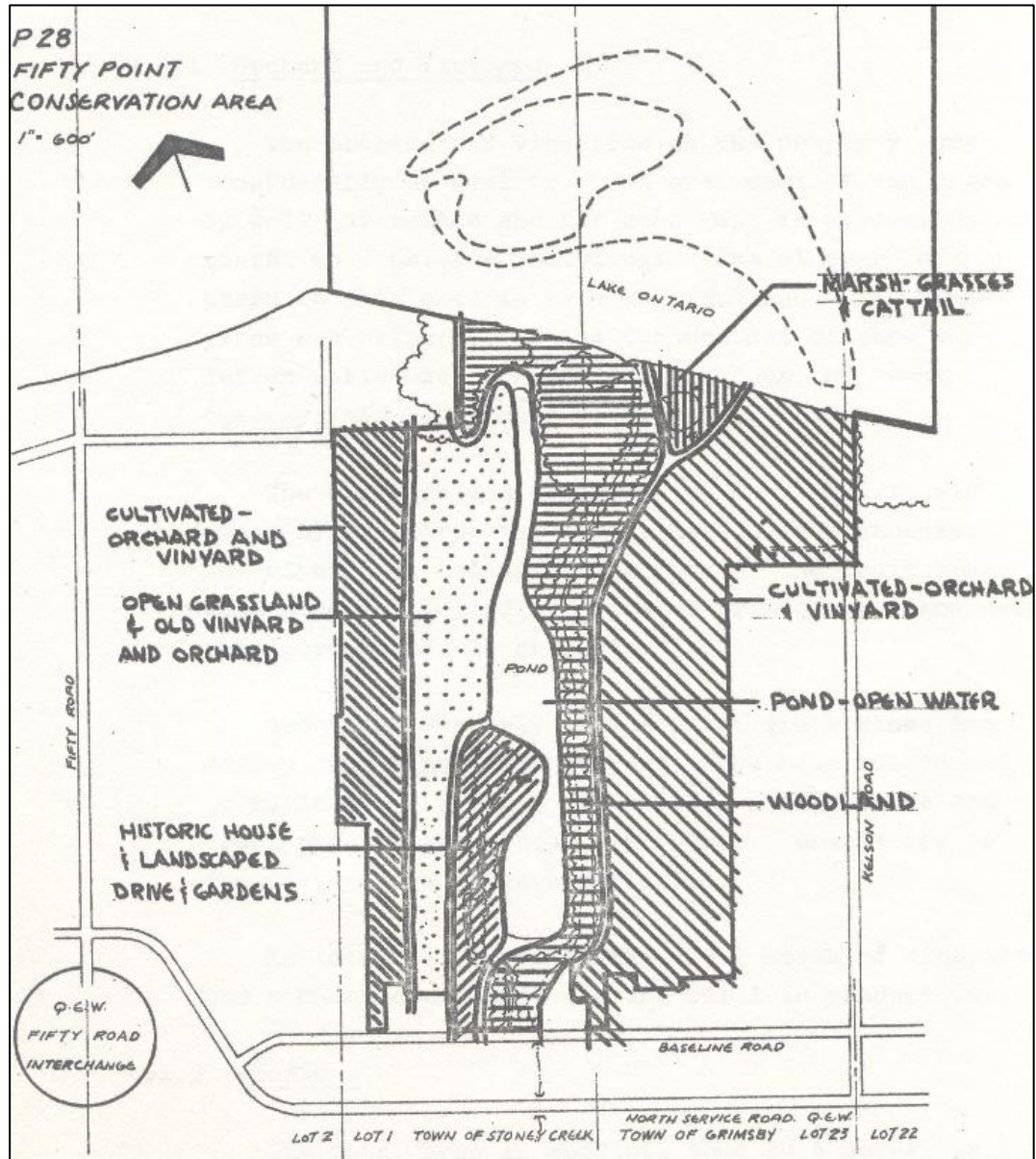
The first known written records for this property state it was originally owned by John Green, who with his wife Mary Davis immigrated to Upper Canada (Ontario) in 1787 as United Empire Loyalists. In 1813, John Green registered the purchase of Broken Front Concession Lot 1 in the Saltfleet Township and eventually sold the property to John Inglehart in 1815. The original documents are signed Johannes Englehart, meaning the family anglicized their name after immigrating from Pennsylvania. John with his wife Magdalene and their children lived on the land as tenants from 1808 until they purchased the property in 1815. Once John Inglehart died in 1835, the land was passed on to his son Jacob.

Jacob Inglehart and his wife Jane had six children; two boys and four girls. His will and testament made it apparent that family was extremely important to Jacob. For example, land was bequeathed to both his sons and each daughter received money and comfortable sleeping essentials (bedstead, bed and bedding). As well, Jacob gifted his wife the use of the house, garden and furniture for as long as she wanted. After his death in 1853, Jacob left the property to his eldest son Hiram Fred Inglehart. Upon this time, the farm was presumed to have been flourishing and very profitable. An 1851 census claims 50 acres had been cleared, 33 acres were planted with mainly wheat crops, but peas, oats, Indian corn and clover were also harvested. Sheep were also tended to and a small orchard of apples produced cider. Hiram ran the farm until suffering a horrible accident in 1870. The incident left him blind and since he and his wife had no children or descendants, Hiram was forced to sell the farm. The property was sold to Henry Magill and evidently ended the Inglehart's association.

Henry Magill farmed the land with his two sons for a short time before selling the land in March of 1890 to Jonathon Carpenter. It was Priscilla, Jonathon's wife who named the house Ingledale in honor of the family who built it; the Inglehart's. Jonathon was from the Carpenter family who immigrated from Hopewell, New Jersey as United Empire Loyalists. Across Southern Ontario Ingledale became very well known for Jonathon's fine driving horses and Priscilla's revolutionary business of raising a herd of purebred Jersey cows. The couple were both extremely forward thinking for their time, especially in regards to responsibilities and stereotypes of women. Jonathon proved this by transferring the ownership of the land to his wife.



Figure 4. 1975 Existing Vegetation



At the beginning of the new century, the Carpenters recognized the societal advancements and drastic changes in local farming. With the help of his two sons Victor and Gordon, Jonathon moved away from horse breeding and focused more on agriculture. Ripping up the old apple orchard, the family planted rows of pears, peaches, plums, cherries and grapes. Rows of fruit covered the property and ran from Baseline Road to the very edge of Lake Ontario. Fruit and produce became the main source of income for the Carpenter family.

After Victor suffered a fatal injury while loading the produce at the rail yard in Winona, Priscilla sold Ingledale to her only remaining son Gordon for \$1.00. Priscilla lived out the rest of her life at Ingledale with Gordon and his family, which consisted of five children.

Gordon died intestate and the property went through Eric Carpenter, his son and executor, to

the four surviving Carpenter children. Walter, Gordon's eldest son and predecessor passed away prior from a heart attack while working on the farm. Eric and his family built a house on Baseline Road just outside the entrance to Ingledale's driveway in the late 1940's. Descendants from Eric's family still live just outside the gates of Fifty Point in the house west of the main park entrance on Baseline Road.

Ingledale continued in the Carpenter family until 1969, when the four children agreed to sell the property to a local group of speculators who envisioned large estates scattered across the lot. Eric's sister, Nora Carpenter remained on the property and lived in the Ingledale home. Soil excavations were taken for the construction of the Queen Elizabeth Way and this is how Fifty Point's Pond came to be. However, Nora would not allow anyone to excavate any further unless they left the house intact. This act of defiance led to the purchase of the property in 1971 by the HCA through funding arrangements with the Province of Ontario. Nora Carpenter lived at Ingledale until 1976. While she resided in the house the HCA consulted with Nora for many restoration projects.

4.7 Heritage Designation and Historic Buildings

The Ontario Heritage Act enables municipalities to protect and manage Ontario's cultural heritage resources. Part IV of the Act provides for municipal designation of individual properties as having cultural heritage value. Properties are designated by a municipal by-law, with reasons for designation or a description of heritage attributes which must be retained to conserve the cultural heritage value. Heritage property designation serves to: recognize the importance of a property to the community; identify and protect the property's cultural heritage value; encourage good stewardship and conservation; and promote knowledge and understanding about the property and the development of the community.

Fifty Point contains one building with heritage designation from the City of Hamilton – The Ingledale House.

The Ingledale House achieved heritage designation for both its historical and architectural importance. The home was built circa 1815 by John Inglehart and his wife Magdalene. The couple had originally immigrated with their young family from Pennsylvania to Canada around 1797 in support of the British during the American War of Independence. The architectural design of the home demonstrates Loyalist-inspired characteristics of the early 19th century with Georgian concepts of beauty and propriety. During each construction phase, these timeless styles were maintained and extended to both the exterior and interior spaces of the home.



The original homestead was built in late 1815 and the initial foundation is currently identified as the kitchen or north side of the Ingledale House. After John Inglehart's death in 1835, the property was passed on to his son Jacob and he constructed a south addition to create the house we know now as Ingledale. During this phase close to half of the original home was demolished. Jacob and his wife retained what was left as a kitchen. The next alteration to the Ingledale House occurred

when Henry Magill sold the property to Jonathon Carpenter in 1890, who tore down the east wing to accommodate space for farm buildings to raise Jersey cows and horses.



Notable exterior features of the Ingledale House include historic elements of the facades of the original homestead, as well as the south addition. Original features such as windows, shutters, doorways, roofing, chimneys and masonry foundation walls demonstrate fine Loyalist architecture characteristic of the first half of the 19th century. The home embodies both Georgian concepts of beauty and propriety and Neo-Classic architectural details.

This master plan sets out a cultural heritage zone surrounding the Ingledale House, with the intent to provide a setting that respects the heritage designation and value of this building to the community. The surrounding outbuildings and landscape features within this zone, while not designated historic, shall be compatible to the historic building. Further detailed evaluation of the home and site is recommended, and to develop a specific HCA management plan for the continued care and operation of this feature within Fifty Point.

4.8 Natural Areas

Fifty Point's natural areas include an Environmentally Significant Area (ESA), wetlands and Significant Woodland, forest management area, and fish habitat. Fifty Point contains a mix of vegetation including wetland, forests, plantations, former agricultural fields that are naturalizing, meadows, shoreline and beach areas. The fishing pond is man-made and a central feature in the conservation area.

All future development from this Master Plan is to follow the Master Plan zone guidelines outlined in Section 3.6, and the natural areas recommendations noted in Section 5.

5.0 NATURAL AREAS INVENTORY

5.1 Physiography and Topography

This study area is located in the St Lawrence Lowlands physiographic region. Bedrock in the area is Queenston shale of the Ordovician period, with glacial deposits of Lake Iroquois sandy and silty loam.

The natural topography of this region between the Lake Ontario shoreline and the Niagara Escarpment is uniformly flat terrain, drained by a number of small and shallow but steep sided creeks which flow from the escarpment to the lake. There is some variation in the soil composition within this area, the soils are of either a clay or sandy/silty nature. The combination of soils and favourable microclimate between the lake and escarpment has made this the principal tender fruit growing area of Canada.

The natural topography of Fifty Point is very flat with fairly impervious soils. Drainage ditches were incorporated into the park development to alleviate extensive wet areas which could occur following substantial rainfall. The flood plain of Fifty Creek was wide at the lakeshore with marsh lands when HCA acquired the property. With the park development and construction of the land spit, Fifty Creek has been channelized, replacing the marsh lands with the beach complex seen today.

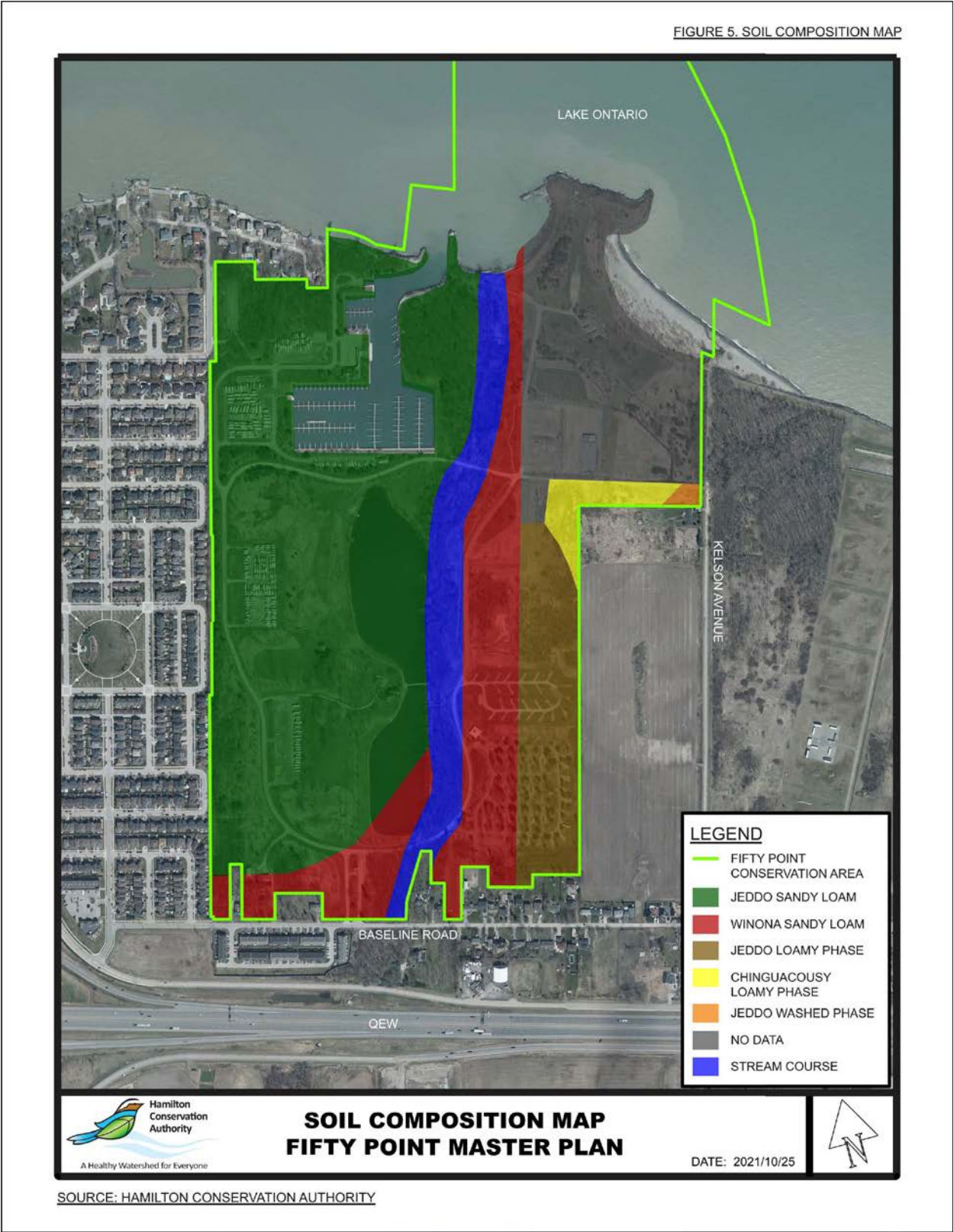
5.2 Soil Composition

The following soil information was recorded in the 1975 Master Plan:

- The surficial soils are predominately of the Jeddo-Winona sandy loam group which is imperfectly drained and deposited over clay till. Recent soil investigations for the wetland project confirmed the presence of silty clay till underneath a thin layer of topsoil in the area north-west of the fishing pond.
- The underlying clay till is mainly Rochester gray clay-shale which is relatively impervious to ground water movement.
- The sandy loams are relatively flat (0.5% to 5% grade) and stone free.

Area well drilling records obtained by HCA in the 1970's indicated the following subsurface soils: 0 - 15ft depth brown clay, 15 to 46ft depth blue clay, 46 to 47ft depth clay sand, water at 46ft depth. It should be noted well data was limited at that time, the area had been serviced with municipal water supply for many years.

Figure 5. Soil Composition



During development of the conservation area, the soils were found to not be ideal for sewage disposal by a normal septic and tile bed system. Consequently, pump out holding tanks were installed for the park washrooms, and connections to municipal sanitary sewers were installed for the marina operation with the Lake Pointe community development.

5.3 Hydrology and Surface Drainage

Fifty Point is located on the shore of Lake Ontario and contains sections of 3 Stoney Creek Numbered Watercourses WC11, Fifty Creek/WC12, and WC13. Connected to Fifty Creek is a 4-hectare pond located roughly in the middle of the conservation area. See Watersheds and Study Area Figure 2, (page 28).

.1 Lake Ontario

Lake Ontario is the smallest of the 5 Laurentian Great Lakes and is the last one in the chain that drains to the Atlantic Ocean through the St. Lawrence River. The Lake is one of two in this chain which has a water control structure for hydro production and shipping at the outlet, Lake Superior being the other. This means that the water level within the Lake can be artificially manipulated but this is governed by an international agreement through orders from the International Joint Commission and managed by the International Lake Ontario-St. Lawrence River Board. The lake level naturally varies throughout the year based on the volume of its inputs but generally peaks in the early summer and is lowest in the late winter prior to the snow melt.

The construction of the marina at Fifty Point permanently altered the lake shoreline by digging out the marina inlet and creating the point with the fill. Prior to this the shoreline would have been a beach sloping from the northwest to south east. The created inlet is subject to silting from wave action, and every 3 to 5 years dredging is necessary for the marina operation.



The current shoreline is broken into various segments in the conservation area. The section of shore west of the marina entrance is about 155m long. It is hardened and is made up with 4 groynes of various lengths jutting out into the lake and the placement of large rocks and boulders along the shore in-between. The largest section of shore approx. 1300m is the marina itself with a composition of mostly sheet pile walls and some small sections made up of large armour stone. The next section to the east of the Marina entrance forms a crescent shaped bay in-between two large groynes. It is about 250m

long. There is a small section of sand beach associated with the outlet for Fifty Creek while the rest is armoured. The armouring was recently updated following damage from recent high-water levels on the lake. Further shoreline restoration is being planned to revegetate areas and relocate some of the trail further away from the top of slope. The next section of shore is about 275m long and forms the outer edge of the artificial point and is entirely armoured with very large boulders to resist the heavy erosion forces found along this section. The final section is made up of a sand beach that has formed in the shadow of the point. The section within Fifty Point is about 250m long with the rest extending onto the neighbouring federal lands.



WC 13 outlets near the divide between HCA and the Federal property. Due to the nature of this watercourse and its interaction with the beach its location moves about. The small barrier beach wetland feature is contained on our property in the NW corner behind the beach. The future management of Fifty Point's beach and associated natural areas will prioritize conserving and restoring the natural features of this area while providing appropriate day use areas. Defined pedestrian access and walkways to the beach (formalized trails or boardwalks for example) through the natural areas are one method of management.

.2 WC11

Watercourse 11 is an intermittent creek and is almost entirely contained within Fifty Point. It drains the western side of Fifty Point beginning in the SW corner flowing along the internal Fifty Point road north between the road and the neighbourhood to the west. In the area of the marina the creek flows through the center of the western woodlot diagonally exiting into private property where it is confined to a concrete channel for its final 88m journey to Lake Ontario. An environmental assessment was conducted on this watercourse in 2018 the results of which recommended diverting the upper 2/3rds to the pond (Fifty Creek/WC12) through a created wetland to help alleviate some flooding of the private properties. The restoration designs for the watercourse diversion and wetland creation were undertaken in 2021 with construction proposed later in 2022.

.3 Fifty Creek/WC12

Fifty Creek is the largest of the 3 watercourses in the Conservation Area. It originates on top of the Niagara Escarpment from many tributaries that flow through an agricultural landscape and come together in the area of Hwy 8 to form the main channel of the creek.

The creek flows north through some additional rural lands but once it crosses the Railway tracks it enters future development lands. It then crosses the QEW and then Baseline Road before entering Fifty Point Conservation Area. Within Fifty Point, the creek flows through the woodlot next to the entrance gate along the property line with 1497 Baseline Rd. It flows under the internal loop road of the CA through 4 Corrugated Steel Pipe culverts.

From there it flows through the wooded area along the Eastern side of the pond. It crosses a second internal road through 2 CSP culverts and continues north in the woodlot to the lake with a final culvert before entering the beach and lake. The creek is intermittent though it is close to perennial in nature given it can flow for most of the year. Within Fifty Point it receives flows from the pond and a series of landscape drainage features from the north east area of Fifty Point. There is also a small borrow pit pond/wetland associated with these landscape drainages as well. Within the conservation area, beaver activity is very prevalent and several beaver dams are located along the creek.



Most are found within the section that runs parallel to the pond. These dams have converted some of the floodplain to more of a swamp like area enhancing its ecological diversity. Monitoring of beaver activity per the HCA Wildlife Management Strategy and this master plan is required by the HCA to evaluate their direct and indirect impacts to the ecosystem and Fifty Point's infrastructure (roads, bridges, planted trees etc.). See Section 7.3 Fish and Wildlife Management for more information.

.4 WC13

Watercourse 13 starts south of the QEW and flows almost entirely along Kelson Ave. It only enters the Fifty Point for short stints in the north east corner in the area of the beach. The watercourse is a deeply excavated artificial channel cut into the Clay till soils. In the area of Fifty Point it is approximately 2m deep at the upstream end and as much as 3+m deep as it runs towards the lake. Around the end of the Kelson Road right-of-way the soils transition from the till to sand. At this point a small barrier wetland is formed from the sand dunes created by wave action. The creek cuts a temporary channel to the lake when it has enough flow and then will become cut off when the wave action of the lake deposits more sand than the creek can transport. The nature of this means the outlet to the lake through the beach will move about each time it cuts a new path through the sand.

.5 Fifty Point Pond

The Fifty Point pond is artificial in origin as it is an abandoned borrow pit from the construction of the QEW. It is 4 hectares in size oriented in a north south direction and split into two lobes. The northern lobe is mostly between 5-6m deep while the southern lobe is mostly 7-8m deep with both lobes having deeper holes, the maximum depth being up to 11.2m deep. The shallow habitat associated with shore is very narrow and only really follows the outer parameter of the pond. Figure 8 is the map produced by NRSI in the report showing the pond contours and noted habitat features. The pond substrate was found to be mostly sand and silt with some noted larger substrates in the middle associated with the bridge area. Figure 6 is a single transect across the northern portion of the pond that shows the depth profile. This also through the water column clearly shows the bowl-shaped nature of the pond. The pond was historically isolated from Fifty Creek. Over time the culvert and berm that separated the creek from the pond failed and the creek and pond became connected features. The HCA became aware of this issue within recent years. As such, a permit to stock the pond could not be obtained and the HCA ceased stocking the pond. This connection is interesting as the flow can move in both directions into the pond from Fifty Creek and from the pond to the creek depending on the time or year and conditions. The pond also receives flows from park drainage ditches, and in the future it will have flows from WC11 added through a new wetland feature being added concurrently with this Master Plan process. See Figure 7 of the new wetland feature map.

Figure 6. Fishing Pond Transect

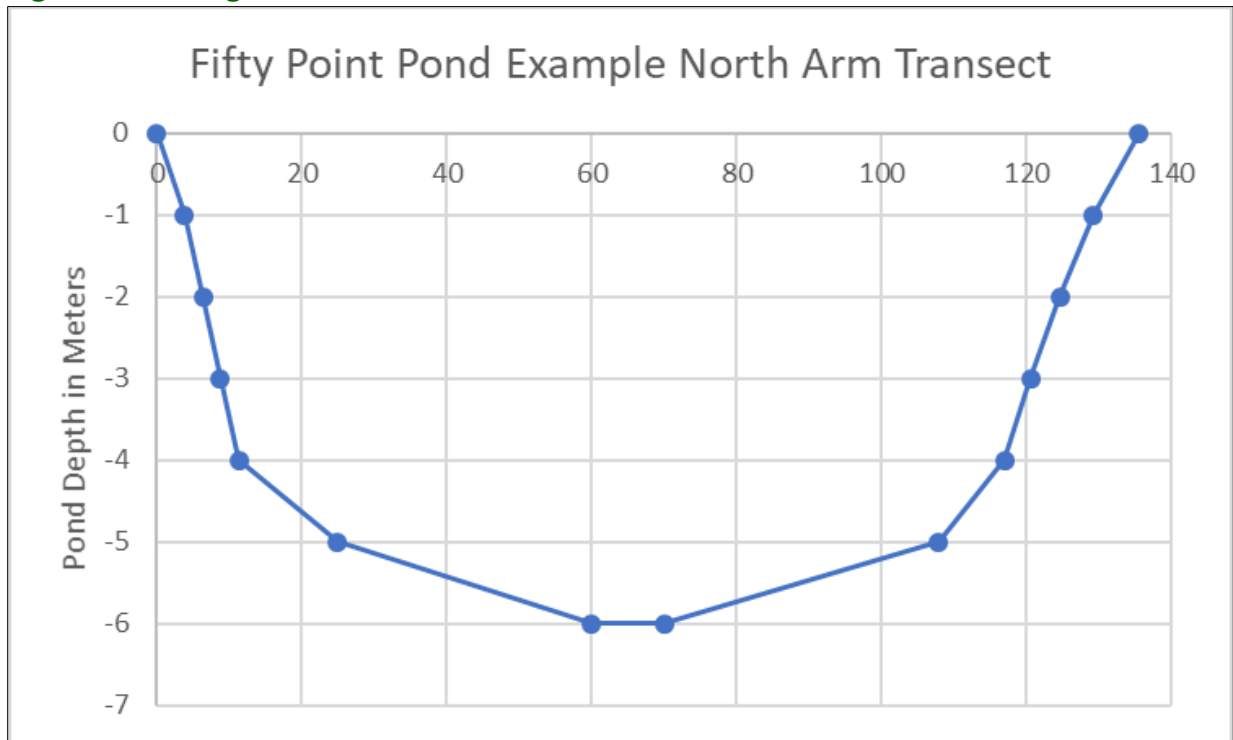


Figure 7. New Wetland Feature

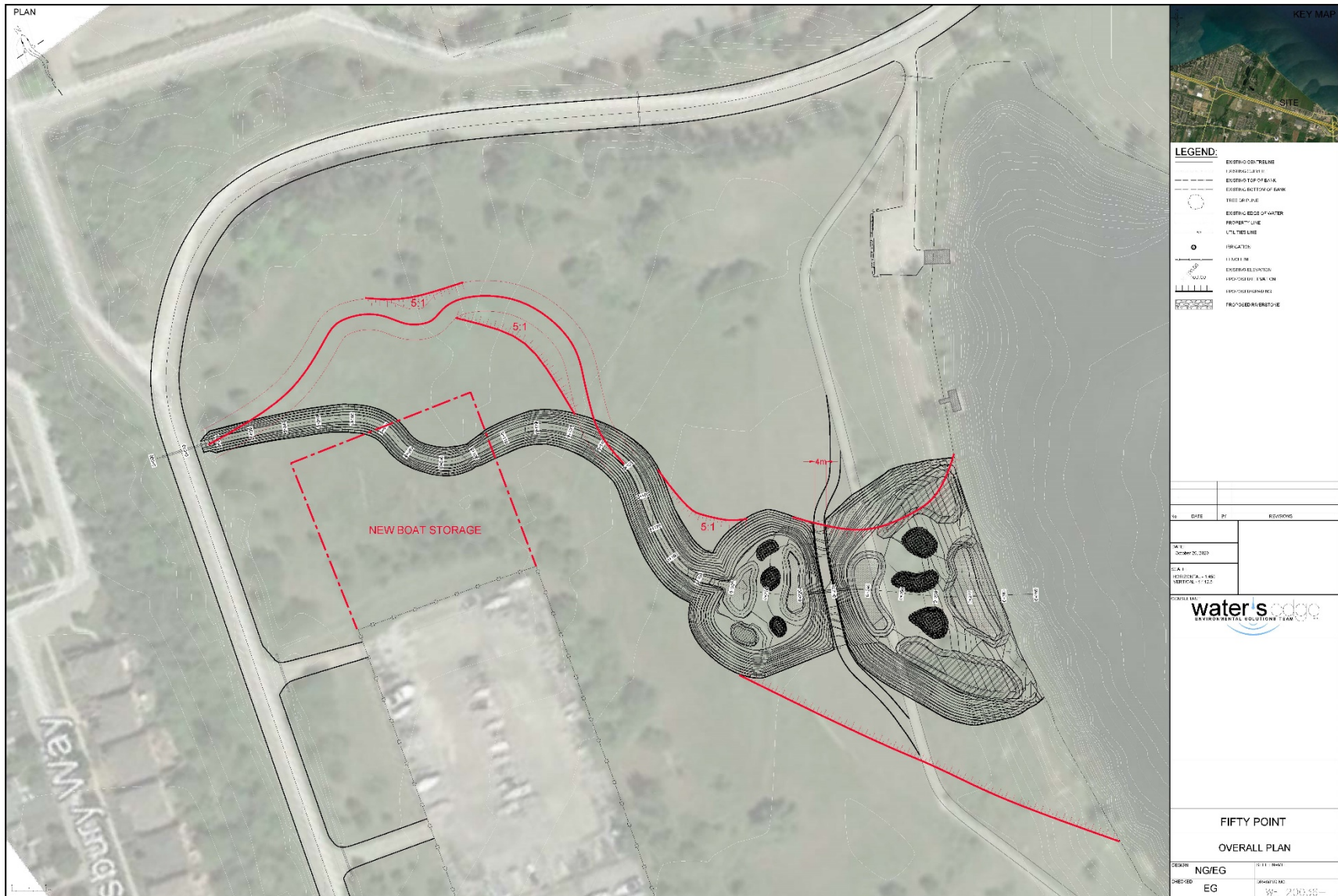
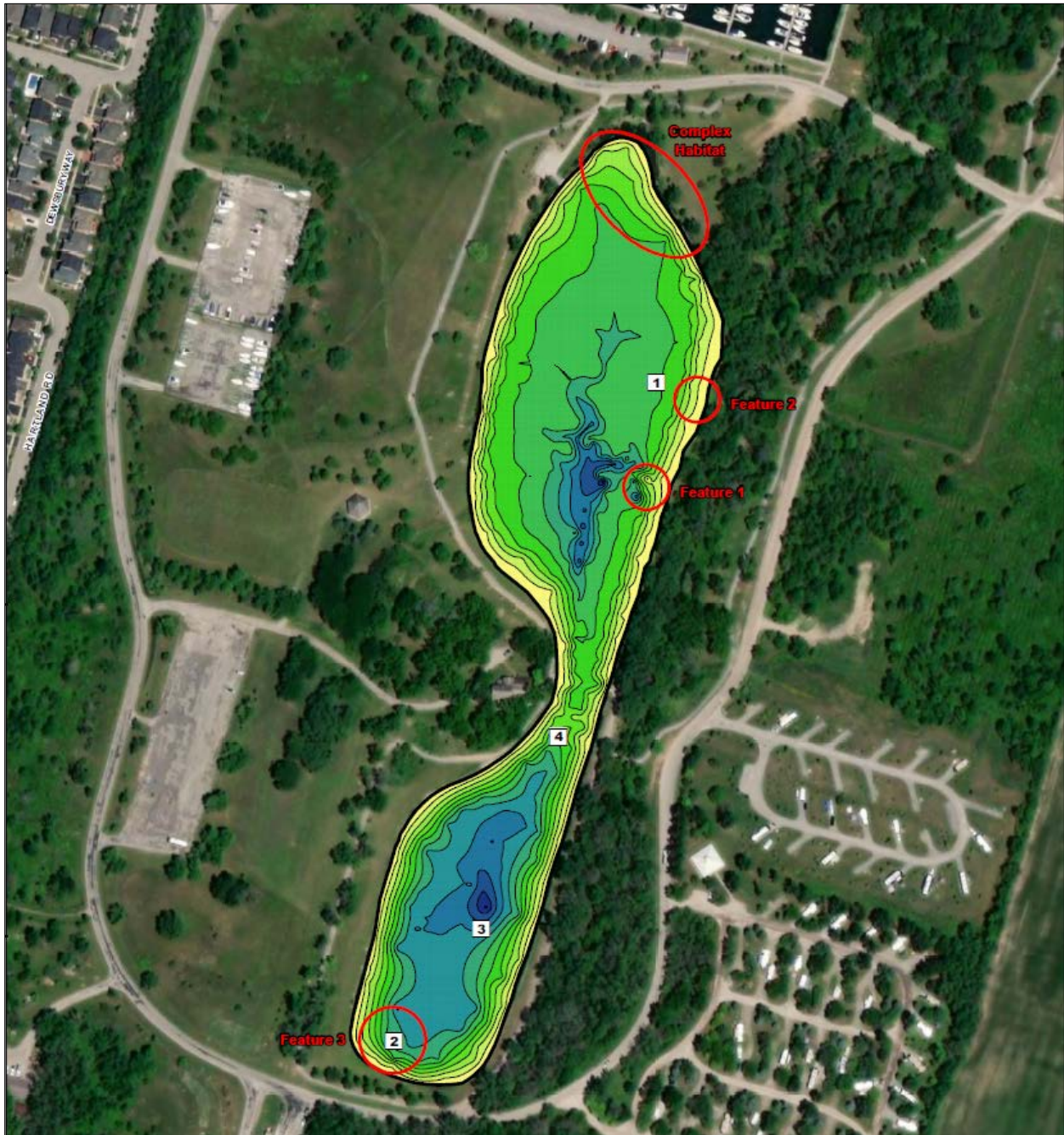


Figure 8. Fishing Pond Map (courtesy NSRI consultants)



.6 Borrow Pit/ Wetland

This small pond on the eastern side of the property near the Kelson Rd. access is an abandoned borrow pit from past excavations. The pond is connected to two drainage swales that drain the field area north of Kelson Rd. This system is isolated from both WC13 and Fifty Creek by earthen fill at the ends of the channels. This gives it a bit of a wetland like appearance in spots. It is most likely to drain via overland flow into WC13 based on site observation but there is also the potential for overland drainage to Fifty Creek from the north western swale across Beach Access 3.

5.4 Biophysical Inventory Methodology

Biophysical inventories completed at Fifty Point Conservation area were mainly restricted to flora and Ecological Land Classification in 2020. Breeding and migratory birds, frog call as well as further incidental surveys were completed in 2021. Surveys completed in 2020 and 2021 are noted in Table 7. Ecological Land Classification was completed across the entire property and is shown on Map 3 in *Appendix 1*. Species lists are included in *Appendix 7*.

Table 7. Summary of Ecological Field Studies at Fifty Point

Survey Type	Dates	
	Year	Day(s)
Floral Inventory	2020, 2021	September 9, 2020, May 6 2021 and concurrent with ELC surveys
Breeding Bird Surveys	2021	June 2 and July 7 2021
Migratory Bird Surveys	2021	April 14, 16, 20, 22, 27, 29, and May 4, 6, 11, 14, 18 and 20 2021
Frog Call Surveys	2021	April and May 2021
Ecological Land Classification (ELC)	2020	July 6, 7, 9, 27, 30, August 6, 11, 12, 14, September 9,
Backpack Electrofishing of Fifty Creek	2021 2020 2019 2018 2016 2015 2014 2013 2012	July 21 August 7 July 26 August 1 August 2 August 6 July 15 July 12 July 5
Raft Electrofishing of Pond	2019	August 8-9
Short Set Gill Netting of Pond	2019	August 8-9
Incidental Wildlife	Recorded when encountered during all visits – 2020 and 2021	

5.5 Ecological Land Classification

The Ecological Land Classification (ELC) system for Ontario was used to describe the vegetation communities at Fifty Point. Staff conducted multi-season inventories of the property in 2020. Details on the canopy, sub canopy, shrub and ground layers of each vegetation community were recorded. Vegetation community boundaries were determined using air photo analysis and further refined in the field.

5.6 Flora/ Botanical Inventory

Botanical inventories were conducted as a part of the Ecological Land Classification surveys of the property. Specific floristic inventories occurred in the fall of 2020 to further identify asters and goldenrod species as they bloom late in the season. An additional survey in the spring of 2021 was conducted to survey for spring ephemerals (early spring flowers). Species in this group die back by mid-summer and therefore are missed when spring surveys are not conducted. Species nomenclature is based on the Natural Heritage Information Centre (NHIC) Plant Species list (updated yearly). Species and community ranks are determined provincially by the Ministry of Northern Development, Mines, Natural Resources and Forestry Natural Heritage Information Centre Database (Srank) and locally via the Hamilton Natural Areas Inventory (Schwetz 2014).



5.7 Fauna Inventory

No specific surveys were conducted for wildlife on the property. All wildlife encounters were incidental while conducting other aspects of field work. These surveys involved general coverage recording all species observations and signs (e.g. tracks/trails, scat, and burrows, dens, browse and vocalizations). Background data including older survey material was used to develop a list of butterflies, mammals and dragonflies that have been recorded by naturalists at Fifty Point Conservation Area over the last 10 years. A summary of the findings is in *Appendix 7*.

Frog call surveys were conducted in 2021, to supplement records on file. These surveys followed the Marsh Monitoring Program protocol. This includes three nights of surveys from April to June when temperatures at night are 5, 10 and 15 degrees respectively.

5.8 Breeding Bird Survey

Migratory bird surveys were conducted over 12 (April – May) visits in order to record species that migrate through this Conservation Area throughout the spring using the methods outlined in the Significant Wildlife Habitat Technical Guide (MNR 2012). Breeding bird surveys were conducted on June 2nd and July 7th 2021 and followed the Ontario Breeding Bird Atlas (Cadman 2010) methodology.

5.9 Ecological Land Classification Results

Field surveys occurred on July 6, 7, 9, 27, 30, August 6, 11, 12, 14 and September 9. The subject property was delineated into 14 vegetation communities (Map 1). Details on community classifications can be found in *Appendix 1* and on Map 1 and Table 8.

Table 8. Vegetation Communities

Community Type	ELC Code	Community Description
Aquatic	OAQ	Open Aquatic
Cultural	Anthropogenic	Anthropogenic
Deciduous Forest	FODM2-2	Dry-Fresh Oak-Hickory Deciduous Forest
	FODM7-3	Fresh-Moist Willow-Lowland Deciduous Forest
	FODM5-3	Dry-Fresh Sugar Maple-Oak Deciduous Forest
	FODM4	Dry-Fresh Upland Deciduous Forest
Meadow	MEGM3-4	Kentucky Bluegrass Graminoid Meadow
	MEMM4	Fresh Moist Mixed Meadow
	MEM	Mixed Meadow
Thicket	SWTM2-1	Red-Osier Dogwood Mineral Deciduous Thicket Swamp
	THDM5-1	Grey Dogwood Deciduous Shrub Thicket
	THDM2-1	Sumac Deciduous Shrub Thicket
Shoreline	SHTM1-1	Cottonwood Mineral Treed Shoreline
Plantation	TAGM1	Coniferous Plantation
Savanna	SVCM1-2	White Pine Coniferous Savanna
Woodland	WOMM3	Dry Fresh Mixed Woodland

.1 Aquatic

Open Aquatic (OAQ)

The open aquatic area on the property is a pond that was constructed during the building of the QEW, see Section 5.3.5. It offers opportunities for recreational fishing and radio control model boat racing, and ice skating in the winter if there is sufficient ice cover. The shoreline is mostly mown grass with patches of cattails.

.2 Cultural – Anthropogenic

Anthropogenic (A)

This area includes the Ingledale house and associated buildings located near the center of the property on the West side of the pond, open parkland extends from the house along the pond to the Marina. The park office and restaurant are located in the North West corner of the property beside the marina. There are four lots along the western side of the property that are used for boat storage and one lot on the north east side that is a

parking lot and former ball hockey arena converted to additional beach parking. The rest of the open parkland area is dispersed throughout the eastern portion from the Kelson Road service lane north to the beach and the south east corner of the property. South of the Kelson Road Service lane are open space picnic sites near the campground, pavilion and open picnic areas, trailer and vehicle parking lots, and roads for access by visitors. These areas are mown grass, with some areas near the pond edge and drainage watercourses left as unmown meadow.

.3 Deciduous Forest

FODM2-2 Dry-Fresh Oak-Hickory Deciduous Forest

This community occurs near the shore of Lake Ontario on either side of the marina. The canopy is dominated by Shagbark hickory and Red oak. Green ash is occasional in the canopy but due to EAB it is now leaving large gaps as more trees die off. The Eastern polygon is more abundant in gray dogwood and jewelweed compared to the Western polygon which has more Green ash regrowth, Poison ivy and Wild geranium. Both have an abundance of Goldenrod and Enchanter's nightshade in the ground layer.

FODM7-3 Fresh-Moist Willow-Lowland Deciduous Forest

A long, narrow lowland forest in the Fifty Creek corridor. Black Willow is abundant in the canopy with components of Silver maple and Black walnut. Green ash and Red osier dogwood are occasional in the understory with Common buckthorn. There was a high diversity of groundcover with Spotted jewelweed, biden's species and Panicked aster being the most abundant. The corridor starts very narrow and gradually widens, the wider area has more aquatic plants including Broad-leaved arrowhead, Water plantain and Broad-fruited burreed. There is also a large invasive sedge species in this area. A small drain flows into Fifty Creek from the trailer camping area, near the culvert there is a patch of the invasive phragmites and some cattails.

FODM5-3 Dry-Fresh Sugar Maple-Oak Deciduous Forest

This is a small community dominated by Sugar maple and Red oak. Grey dogwood and False Solomon's seal were occasional in the understory and ground layer respectively. An English walnut was found here as well, most likely planted due to its proximity to the gate house.

FODM4 Dry-Fresh Upland Deciduous Forest

This community is a mix of Red and Bur oak, Honey locust, Black walnut and Cottonwood with Sweet cherry, White pine and a Tulip tree, none were dominant. Sumac was abundant in the understory with sedges, Garlic mustard and Burdock being abundant on the ground. This area is adjacent to the creek corridor and was most likely planted and managed in the past.

.4 Meadow

MEGM3-4 Kentucky Bluegrass Graminoid Meadow

There are two areas with this type of community. Area A is on the east side of the property near the former ball hockey arena, area B is on the west side near the boat

storage areas. Both are dominated by Kentucky bluegrass with Canada thistle, Common milkweed, Canada goldenrod and vetch species. These areas were mown historically and have been left to grow for several years. Area B has less Canada thistle and more Common milkweed than Area A, it also has more planted shade trees such as Silver maple, White pine and Sunburst honey locust. There is an inclusion next to Area A that is a Forb Mineral Shallow Marsh (MASM2). This community surrounds a small pond and creek corridor with Honey locust, Small green ash, biden's species, Purple-leaved willow herb, rushes and grasses. There are a few cattails and an abundance of mint species.

MEMM4 Fresh Moist Mixed Meadow

This community is a mixture of grass and forb species and is seasonally wet. Canada goldenrod, Canada thistle and Purple-leaved willow herb are occasional as well as planted pear tree species. These pear trees may be part of the original farm. In wetter areas Blue vervain, Bittersweet nightshade, Slender amaranth, Curled dock and Path rush can be found. Trees were planted along the edge on either side of the road in 2019 as part of a restoration project. Some of the species include Red oak, Tamarack, Black walnut, cedar and Black cherry.

MEM Mixed Meadow

This is an undulating community, possibly an old vineyard with wet and dry alternating with the rows. In the historic air photos, the cultivated rows from former vineyard and orchard production are visible. Canada goldenrod and grass species dominant with Red osier dogwood and sumac in clumps throughout. There is some Green ash, Black walnut, Silver maple and a Swamp white oak on the edge of the property. In the wetter areas there is Purple loosestrife, cattails, *Juncas effuses*, *Juncas tenuis*, 3 species of sedge and one small patch of invasive phragmites. A grape species, potentially left from the vineyard was occasional throughout.

.5 Thicket

SWTM2-1 Red-Osier Dogwood Mineral Deciduous Thicket Swamp

This area is temporarily flooded in the spring each year. Red-osier dogwood and Green ash are abundant in the understory and sub-canopy layers respectively. EAB has reduced the green ash in the canopy leaving Black willow occasional. The ground layer was diverse, Poison ivy, goldenrod species, Water pennywort and Rough bedstraw were occasional with two species each of rush and sedge.

THDM5-1 Grey Dogwood Deciduous Shrub Thicket

This community is adjacent to the old vineyard and has some of the same undulation seen in the MEM community. Gray dogwood is abundant throughout with sparse Green ash and White elm. Buckthorn was occasional and large in spots. Ground cover was mostly Canada goldenrod with occasional Poison ivy, grape species, Virginia creeper, Grass-leaved goldenrod and Green ash. There is a patch of invasive phragmites growing in the swale near the trailer camping area.

THDM2-1 Sumac Deciduous Shrub Thicket

This community is dominated by Staghorn sumac. Grass species and Canada goldenrod are abundant under the sumac and in more open areas. There is a mown

path that goes through part of the polygon and separates a monoculture of teasel from the sumac. Along the shoreline there are a few willows, Silver maple and Honey locust.

.6 Shoreline

SHTM1-1 Cottonwood Mineral Treed Shoreline

The shoreline is dominated by both Cottonwood and Black locust in all stages of growth. Red oak was planted

under the canopy near the center of the shoreline as part of an historical restoration project. False indigo and willow species can be found in the understory. The western side is abundant in goldenrod and gradually transitions to American beach grass on the eastern side. Several invasive species can be found under the canopy such as

Knapweed, White sweet

clover, buckthorn, Honeysuckle, Garlic mustard, Common mullein and Black locust.

There is an inclusion on the east end, of a small pond where a creek pools before reaching the lake. It is ringed by willows, cattails, hedge bindweed, Purple loosestrife, Spreading dogbane and the invasive flowering rush. Duckweed is abundant on the water and water plantain is present.



.7 Plantation

TAGM1 Coniferous Plantation

This is a small area of planted white pine. Red oak, Staghorn sumac and gray dogwood are growing on the edge of the plantation with grass and garlic mustard in the ground layer.

.8 Savanna

SVCM1-2 White Pine Coniferous Savanna

This community is a mix of tree plantings and grass that was historically mown. White pine, Honey locust, Green ash and Black walnut make up the canopy. There are clumps of Gray dogwood near the creek and Staghorn sumac near the paved path. Field bindweed and grass species are dominant in the ground layer. Garlic mustard and Cow vetch are starting to spread, however Common milkweed and Wild bergamot are still occasional.

.9 Woodland

WOMM3 Dry Fresh Mixed Woodland

This area was once cultivated and now is a mix of natural regeneration and plantings. Silver maple and Pin oak are plantings, the Green ash and cottonwoods/Trembling aspens and White pine are natural. Gray dogwood and Black walnut are occasional in the understory with Poison ivy, grass species and goldenrod species abundant in the ground layer.

5.10 Flora/Botanical Inventory Results

Over the course of multiple survey dates including ELC surveys, staff identified 201 species of plants. Of these, 125 are considered native plant species (52%) while 76 are non-native species (31%) and there were an additional 41 species identified to genus only. The Hamilton Natural Areas Inventory (NAI), (HCA 2014) indicates that there are 1496 species of plants in the Hamilton-Wentworth jurisdiction. Plant species at Fifty Point Conservation Area represent 13% of that regional flora.

The Floristic Quality Index (FQI) and the Native Mean Coefficient of Conservatism (CC) have been calculated for the entire property. The CC is a measure of the species specificity of habitat requirements, with a coefficient of 0 indicating a plant tolerant of a wide range of conditions and 10 indicating a plant that has the most specific habitat requirements. FQI is a measure of vegetation quality and is based on both the habitat fidelity of each species and species richness. The FQI for Fifty Point Conservation Area is 21.70 and the mean CC value is 1.94. These are considered very low values for FQI and mean CC. This is likely reflective of the urban nature of this Conservation Area and the limited natural habitat.

5.11 Fauna Inventory Results

.1 Breeding Birds and Winter Birds

Breeding bird surveys were conducted at Fifty Point in the spring of 2021. For a small Conservation Area there is a wide variety of habitat. Some notable breeding species for this area include Green Heron, Kingfisher, Wood Duck, Mallards, Northern Flicker, many American Robins and a Blue-Grey Gnatcatcher nest. There was also one pair of Great Horned Owls seen on almost every survey, no nest was found, but the pair were almost always together. Data was collected from ebird and iNaturalist from the past five years in



order to compile species list of birds that have been seen at Fifty Point in the breeding season.

Background research and HCA surveys recorded 69 bird species that are possibly breeding in the Conservation Area. The species list is available in *Appendix 7*. There are also a few species that have been recorded at Fifty Point in the winter. These include Northern Long-eared Owl, Northern Saw-Whet Owl, Snowy Owl and Great Horned Owl. There are also many waterfowl that congregate in Lake Ontario just off the shore, the species found and the importance of this area is described in the section above about the Important Bird Area (IBA) along the western end of Lake Ontario.

.2 Migratory Birds

Migratory bird surveys were conducted over twelve visits in April and May 2021. A total of 105 migratory bird species were recorded over the course of these surveys. An additional 12 birds were added to this list after reviewing the last 5 years of data on eBird. A small number of these birds stay and breed at Fifty Point; the remainder move along to habitats further north. It is anticipated that this number of migrating species is low as 2021 was an unusual migratory year with cool north winds for a few weeks during what would be the peak of migration in May. For comparison in 2015, (the last date information was available) Tommy Thompson Park also on Lake Ontario recorded 175 migrating bird species over 58 days while Long Point on Lake Erie in 2019 recorded 245 migratory species over 74 days. Table 9 contains the results of staff surveys from Fifty Point for migratory birds.

Table 9. Migratory Bird Survey Results, 2021

Date	# of Migratory birds	# of species of migratory birds
April 14	333	31
April 16	307	28
April 20	304	30
April 22	286	33
April 27	411	39
April 29	378	40
May 4	435	48
May 6	496	48
May 11	397	42
May 14	400	53
May 18	425	50
May 20	388	47

.2 Butterflies and Dragonflies

Data was also collected from past Lepidoptera and Odonata surveys completed at Fifty Point. During these surveys, 20 butterfly were recorded on site. An additional 22 species were recorded in the area by the Ontario Butterfly and Moths Atlas'. The only provincially

rare butterfly was the Monarch, while the Gray Comma is considered locally uncommon. In the past, surveys for odonates have identified 22 species in the area. One of these species, the Double-striped Bluet, is considered rare in the province and is ranked S3 with 80 or fewer recorded populations province wide. One of the recorded species is also rare locally and 4 are locally uncommon.

.3 Mammals

All incidental wildlife encounters were recorded while conducting other aspects of field work or from historical surveys conducted for the Natural Areas Inventory. These surveys involved general coverage recording all species observations and signs (e.g. tracks/trails, scat, burrows, dens, browse, and vocalizations). Thirteen mammal species have been recorded for this area. This includes one federal and provincially endangered species, the Northern Long-eared Bat. A family of Beaver have been making a home at Fifty Point for over 5 years. In that time, they and the Emerald Ash borer have created changes to the Fifty Creek wetland corridor. The die off of ash and the felling of these and other trees by beaver has created more open wet meadow habitat within the corridor. There are 5 dams along the creek corridor and one lodge in the pond. The dams have allowed for the retention of water within Fifty Creek for the majority of the summer, when otherwise this creek would dry out at times in the summer due to its intermittent nature.



.4 Herpetofauna

Incidental observations of herpetofauna include 7 different species. Of these, the Red-eared Slider is invasive and snapping turtles are a species of special concern. Two species of frogs and one species of toad were recorded during MMP point counts and incidental during other survey, Northern Leopard Frog, Grey Tree Frog and American Toad. The toads and tree frogs were heard within the creek corridor and the Northern Leporad frogs in the small pond on the east side of Fifty Point. None of the species heard are provincially or locally rare. Other herpetofauna recorded include Eastern Garter Snake, Red-eared Slider, Painted Turtles, Map turtle and Snapping Turtles.

5.12 Aquatic Inventory

Fifty Point contains 3 distinct fishery types including the pond fishery, the watercourse fishery and the Lake Ontario fishery.

.1 Lake Ontario

The Lake Ontario fishery is the responsibility of the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) and as such HCA does not sample the lake as part of its Aquatic Resource Monitoring Program. The Lake fishery is broken into two main types nearshore and offshore. Access to the nearshore fishery in the winter months is via ice fishing in the marina. The marina acts as a sheltered bay allowing for ice formation. The nearshore and offshore fisheries are accessible in summer for our boating clients via the Marina.



For the nearshore environment, the NDMNRF has the goal of – “Protect, restore and sustain the diversity of the nearshore fish community, with an emphasis on self-sustaining native fishes such as Walleye, Yellow Perch, Lake Sturgeon, Smallmouth Bass, Largemouth Bass, sunfish, Northern Pike, Muskellunge, Round Whitefish and American Eel” (Stewart et.al., 2013).

For the offshore environment ,the NDMNRF has the goal of – “Maintain the offshore pelagic fish community, that is characterized by a diversity of trout and salmon species including Chinook Salmon, Coho Salmon, Rainbow Trout, Brown Trout, and Atlantic Salmon, in balance with prey fish populations and lower trophic levels” (Stewart et. al., 2013). As well as “Protect and restore the diversity of the offshore benthic fish community composed of a mix of self-sustaining native species including Lake Trout, Burbot, Lake Whitefish, deepwater ciscoes, Slimy Sculpin, and Deepwater Sculpin” (Stewart et. al., 2013).

.2 WC11

This watercourse is highly modified, is small and intermittent, and no fishery exists due to these conditions.

.3 Fifty Creek/WC12

The fishery in Fifty Creek is monitored through the HCA’s Aquatic Resource Monitoring Program. This includes sampling one site annually for both benthic invertebrates and fish. The sampling site is located in the southern end of Fifty Point downstream of Baseline Rd. in the Woodlot beside the entrance. It is a warmwater fishery composed mostly of foraged fish. It does not support a game fish fishery and is too small to support any type of harvest.

Table 10. Summary of Fish and Crayfish Caught in Fifty Creek through ARMP

COMMON_NAME	SCIENTIFIC_NAME
Creek Chub	<i>Semotilus atromaculatus</i>
Fathead Minnow	<i>Pimephales promelas</i>
Green Sunfish	<i>Lepomis cyanellus</i>
White Sucker	<i>Catostomus commersonii</i>
Calico Crayfish	<i>Orconectes immunis</i>
Northern Clearwater Crayfish	<i>Faxonius propinquus</i>

.4 WC13

This watercourse is highly modified, small and intermittent. No permanent fishery likely exists due to these conditions but given its connection to the lake it will probably contain fish when conditions will support it. It does not support a game fish fishery and is too small to support any type of harvest.

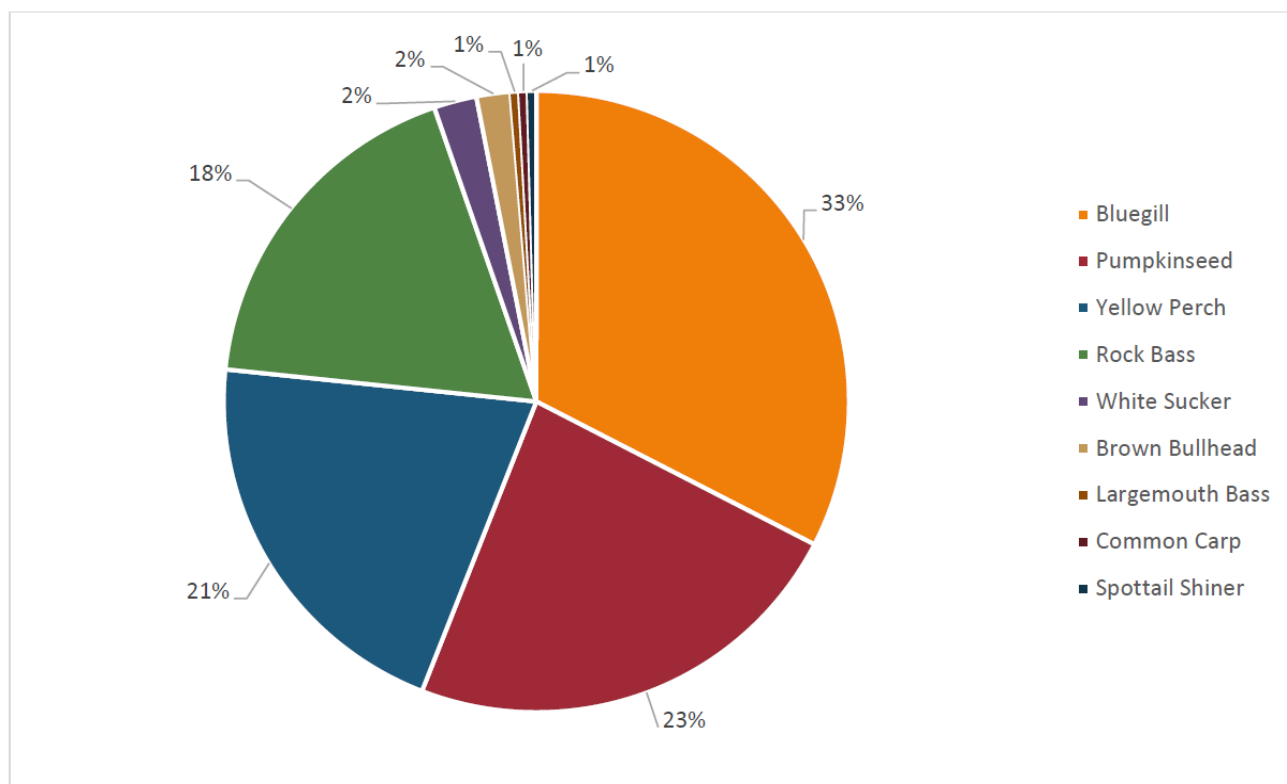
.5 Fifty Point Pond

The pond fishery began as a Put-and-Take Rainbow Trout (*Oncorhynchus mykiss*) Fishery when the pond was isolated from Fifty Creek. In 2018, it was identified that the pond at Fifty Point was connected to Fifty Creek. This necessitated that the Rainbow Trout stocking would no longer be permitted by the MN DMNR. While Fifty Point provides a variety of angling opportunities to conservation area users including in the marina inlet and Lake Ontario the loss of a stocked fishery in the pond was a concern as fishing is popular at Fifty Point and there was interest in continuing to provide fishing opportunities at the pond. HCA staff were given direction to undertake a project feasibility study for the work to transition the Fifty Point Pond to a self-sustaining fishery and then update the board on those findings.

In the summer of 2019, the HCA contracted Natural Resources Solutions Inc. (NRSI) to sample the pond for fish. The fish were sampled using two different techniques. The shoreline habitat was sampled using a raft electrofisher and the deeper waters were sampled with short set gill nets. The sampling captured a total of 227 fish and revealed the pond already contains at least 9 species of fish constituting both a warmwater and coolwater fishery; see Figure 9. The pond does appear to be dominated by 4 species of fish, three of which are considered gamefish and would support the targeted Recreational Fishery.

The pond however currently suffers from a lack of fish habitat features. Only 4 were identified during NRSI's surveys Figure 9, (page 57) Thus, these populations would not likely be able to sustain much fishing pressure. Creating a self-supporting recreational fishery in the pond will necessitate a large habitat enhancement project. One part of this is running concurrently with this Master Plan and the rest will be outlined in the restoration / enhancement opportunities in the Nature Reserve, Natural and Resource Management zones.

Figure 9. Percentage of total catch broken down by species from NRSI report



With the coming pond rehabilitation/enhancement project, a sampling program will need to be developed and added to the Aquatic Resource Monitoring Program. This program should be similar to the reservoirs and include multiple sampling methodologies. The pond also does contain common carp and there may be a need to control them moving forward.

.6 Borrow Pit/ Wetland

This artificial pond and associated landscape drainages are isolated from both WC13 and Fifty Creek and no fishery likely exists due to these conditions.

5.13 Significant Ecological Features

.1 Natural Heritage Designations

.1 Significant woodlands

The creek corridor and woods surrounding the marina and Ingledale House area are considered by the City of Hamilton to be significant woodland. Significant woodlands for the City of Hamilton mean an area which is ecologically important in terms of features (species composition, age of trees and stand history) and function (contributes to the broader landscape because of its location, size or the amount of forest cover in the planning area) (City of Hamilton, 2019).

.2 Environmentally Sensitive Area

The Fifty Creek Valley Environmentally Significant Area is mainly confined to the Fifty

Creek corridor and the western woodlot along Lake Ontario within Fifty Point. The ESA was designated because it meets two of the 2003 ESA criteria including:

1. The area provides habitat for significant species
2. The area provides stopover habitat for migrating birds.

ESA area protected within the rural official plan for the City of Hamilton. No new development is allowed within these features.

.3 West End of Lake Ontario Important Bird Area

This is a globally significant area for congregatory species and waterfowl concentrations. The IBA area is the shoreline of Lake Ontario west of Port Credit around to the Niagara river. Along here the shoreline is relatively protected, erosion rates are low and the prevailing winds are westerly. Since 1990 large congregations of waterfowl (mainly diving ducks) have gathered annually in late winter and early spring with numbers into the tens of thousands. Greater Scaup, White-winged Scoter and Long-tailed Ducks are among the most abundant species. Others include Common Goldeneye, King Eider, Red-breasted Merganser and Surf Scoter. These concentrations are most likely due to the large numbers of Zebra and Quagga mussels that have colonized the shallows.



The shoreline of Fifty Point is part of this IBA. These large concentrations of waterfowl can be seen from shore and bring many birders to the area.

.4 Fifty Mile Creek Non-Provincially Significant Wetland

The Fifty Mile Creek Wetland Complex also occurs along the creek corridor at Fifty Point. This non-provincially significant wetland status was last reviewed in 2004. This wetland evaluation is in the process of being updated by HCA staff and once completed will be reviewed by MNDMNR.

5.14 Biophysical Inventory – Analysis

.1 Species at Risk and Locally Rare Species

.1 Significant Flora

Of the plant species recorded on the subject lands through the 2020 and 2021 field surveys, eight plant species were found to be locally rare and two to be locally uncommon by the City of Hamilton. Giant ragweed, American beachgrass, Low false bindweed, Panicked hawkweed, Great St. john's wort, Tulip tree and Fragrant sumac are all considered locally rare. Necklace sedge is locally uncommon in the area. All but 4 of

these species are considered provincially secure (G5/S5). Great St. John's wort are considered provincially vulnerable (G5/S3) and Panicked hawkweed are considered provincially imperiled (G5/S2). Honey locust is not uncommon or rare locally but is considered possibly imperiled provincially (G5/S2?) when naturally occurring.

.2 Significant Fauna

Eighteen species recorded at Fifty Point Conservation Area, listed in Table 11, are considered species at risk either federally (SARA) or provincially (ESA). These species were recorded at Fifty Pt. at different life stages from migration to breeding as indicated below.

Table 11. Federal and Provincial Species at Risk

Common name	Scientific name	SARA status (Schedule 1)	ESA status	Breeding/ Migratory
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	B
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	B
Canada Warbler	<i>Cardellina canadensis</i>	THR	SC	M
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	M
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	M
Common Nighthawk	<i>Chordeiles minor</i>	THR	SC	M
Bank Swallow	<i>Riparia riparia</i>	THR	THR	M
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	M
Yellow-breasted Chat	<i>Icteria virens</i>	END	END	M
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR	M
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	SC	M
Rusty Blackbird	<i>Euphagus carolinus</i>	SC	SC	M
Wood Thrush	<i>Hylocichla mustelina</i>	THR	SC	M
Monarch Butterfly	<i>Danaus plexippus</i>	SC	SC	B
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	B
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	SC	—	B
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC	B
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	END	END	M

The Barn Swallow and Canada Warbler have been reassessed recently (2020)) and Common Nighthawk (2018) by the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) to Special Concern. Neither status has been changed on Schedule 1 of SARA as of the writing of this Master Plan so they will be treated as SAR in this document.

The Eastern Wood Pewee breed in the larger sections of forest closer to the lake and in the Fifty Creek corridor. Barn Swallows inhabit several different locations of Fifty Point

namely the marina, restaurant decks and pavilions. It is recommended that additional nesting habitat be provided at Fifty Point for this species. Providing Barn Swallow structures may over time encourage this bird species to move away from using the marina restaurant and pavilions as nesting territory. Young fledglings have been noted dead on the concrete floor of the pavilion so helping the birds to breed elsewhere close by would be beneficial to both the species and Fifty Point's visitor services and capital assets.

These species are common at Fifty Point despite being a species at risk. All of the other bird species noted above were recorded on migration either by staff or in eBird by other observers, in a variety of habitats.

Adult Monarchs have been observed throughout the property incidentally. This species is considered a species of "Special Concern" on the Species at Risk in Ontario (SARO) list. This means that the species lives in the wild in Ontario but may become threatened or endangered due to a combination of threats and biological characteristics. In 2016, COSEWIC recommended that this species be up listed to endangered on Schedule 1 of the federal SAR listing. This has not occurred to date.

Snapping turtles, Midland Painted Turtles and one Map turtle have been observed in the creek corridor and in the pond.

The bat species was recorded during the Natural Areas Inventory and staff assume this species likely persists at Fifty Point, however no bat surveys were completed for this Master Plan.

Threatened and endangered species habitat is protected under the Endangered Species Act (provincially) and the Species at Risk Act (federally). Permits may be required for development within the habitat for threatened and endangered species.

2 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical manual (OMNR 2000) along with the Eco regional criteria tables for Ecoregion 7E (OMNR 2015) were used to determine and define significant wildlife habitat (SWH) on the Fifty Point property. SWH includes broad categories of habitats for flora and fauna and has been identified under the provincial policy statement for Ontario. No new development is allowed within identified portions of significant wildlife habitat unless there will be no negative impact to the form and function of this habitat type. The broad categories for significant wildlife habitat include seasonal concentration areas of animals, rare vegetation communities or specialized habitat for wildlife, habitats for species of conservation concern and animal movement corridors. Seasonal concentration areas of animals are areas where wildlife species occur annually in aggregations (groups) at certain times of the year (Ontario 2015). This can include single species concentrations or aggregations of multiple species.

.1 Land bird Migratory Stopover Areas

These are areas with woodlots or forests within 5km of either Lake Ontario or Lake Erie that migratory birds, especially song birds, use as rest stops before or after crossing the great lakes during migration. They are used by migratory land birds as a place to stop, rest and refuel and in particular nearshore coastal habitats are very important. Land



Bird Migration should be studied in woodlots two to five hectares in size where woodlots are rare in the area of shoreline (Ontario 2015). Studies are needed to confirm the use of the habitat by > 200 birds/day and with > 35 species with at least 10 bird species recorded on at least 5 different survey dates (Ontario 2015). As seen in the results sections for migratory birds there was more than one day in which the migratory birds recorded exceeded 35 species and 200 birds. The highest recorded day was May 14 with 53 species and 400 birds. This abundance and diversity of migrant bird species is considered above average and significant. Staff recorded 66% more species than the criteria and 50% more birds overall than the criteria. Fifty point also meets the secondary criteria of at least 10 birds recorded on 5 different survey dates. In summary there were multiple days in which Fifty Point met or exceeded the criteria for Significant Wildlife Habitat under Land Bird Migratory Stopover.

All habitats were surveyed during each visit. All forest, treed and shrub areas were highly used by migratory birds and therefore significant. These areas of Fifty Point are very important for migratory land birds. In a larger landscape context this area combined with the military lands to the east and the Grimsby lagoons are one of the largest intact natural areas remaining along the Canadian south shore of Lake Ontario. As birds move up the lake towards Hamilton there is very little habitat for migration stop overs. Enhancement of Fifty Point to create more habitat for migratory birds to stop and rest in the spring and fall is recommended. Migration occurs in the spring from April – May and then again from late July – October.

.2 Turtle Wintering Areas

The large pond at Fifty Point could be considered SWH as a turtle wintering area. Snapping turtles, Midland Painted Turtles and Map Turtles have been observed around this pond and due to the lack of habitat elsewhere in the area it is likely here these species overwinter. An area is designated SWH if there is the presence of 5 or more overwintering Midland Painted Turtles, one or more Map Turtles or Snapping Turtles. As both Snapping Turtles and Map Turtles have been observed in this pond it should be treated as SWH for overwintering turtles even though man-made ponds are not typically included in this designation.

.3 Special Concern and Rare Wildlife Species

For the special concern species identified at Fifty Point, their habitat is also considered significant wildlife habitat. This includes the habitat for the Eastern Wood Pewee, Double striped Bluet, Monarch Butterfly, Rusty Blackbird, Snapping Turtle, Midland Painted Turtle and Northern Map Turtle. This habitat overlaps with the identification of SWH for migratory birds as this is the majority of natural and naturalized areas at Fifty Point. It also includes the large pond as the habitat of the three turtle species as well as their likely overwintering habitat.



Habitat for species of conservation concern includes wildlife that are listed provincially as species concern or are rare and declining. One provincially rare dragonfly species have been identified, the Double-striped Bluet. As this species was not observed by staff the specific location of breeding and feeding habitat cannot be identified at this time. This species uses small streams and fishless ponds for the majority of their life cycles. Any development around these types of habitat should consider this dragonfly species

.3 Invasive Species at Fifty Point

Invasive species are wide spread throughout Fifty Point. The species detailed below are a threat to the biodiversity and conservation values. The recreational trails at Fifty Point are movement pathways for a number of invasive species. Recommendations for invasive species management, restoration and enhancement opportunities are as follows:

.1 Common buckthorn

Common Buckthorn is a small tree or shrub that was introduced to Ontario from Eurasia. It was widely planted in farm hedgerows and fencerows as a wind break. It can survive in a wide range of conditions making it very good at invading a variety of habitats (Invading Species Center 2019). Birds and small mammals feed on the berries of this plant and have spread it across Fifty Point. This shrub/small tree is growing in all the wooded areas, but is less in the Shagbark hickory-Red oak forests close to the lake. The highest concentration is in areas that have been left to regenerate and near the workshop. An effort will need to be under taken for the reduction in the dominance of this species within the conservation area. The focus should begin on all fruiting female trees. These fruiting females can be treated with herbicides and the remaining smaller stems removed through volunteer events and work days. The larger tree-like shrubs may require the cut-stump method of removal. Replanting may also be required in areas where there is significant ash die off to prevent new invasions by this species.

.2 Phragmites

This species of common reed from Eurasia is a perennial grass. It is not clear how it was transported to North America. It is an aggressive plant that spreads quickly and out competes other native species in wetland habitats (Nichols, 2020). It forms large mono cultures that decrease plant biodiversity and create poor habitat for wildlife.

Ten patches of this species were found. These patches are small and spread around the property in different drains and wet areas. The priority will be to keep these small patches from growing and spreading to the large pond and new wetland creation.

Effective control strategies would likely include drowning of stems when water levels are high (June) or pesticide application in dry periods for these wetland communities (September/October) (Nichols, 2020). Drowning stems involves cutting them in June at the base of the plant, in at least 30 cm of water. This combined with pesticide application on the dry stems should be an effective treatment for this species. This should be a high priority as stands are small in size currently.

.3 Black, Brown and Spotted knapweeds

Knapweeds were introduced to North America over 100 years ago in contaminated agricultural seed and soil in discarded ballast water (Sherman and Powell, 2017). It spreads easily by seed.

Knapweeds were found along the beach. This species reduces habitat for other meadow species as it becomes dominant. This would impair the population of native American beach grass that has been established along the beach.

This species forms a tap root and can be controlled with cultivation to a depth of 18 cm or hand removal. Persistent hand removal (pulling or digging) can control this species if the upper 7.5 cm of the crown portion of the plant are removed before it produces seeds (Sherman and Powell, 2017). A targeted mowing in early August could prevent seed production and keep the knapweed from spreading further. Removal along trails would be a priority to keep the species from spreading further to other meadows at Fifty Point. Finally, knapweed can be shaded out, tree planting in some meadows where this plant is starting to dominate could help reduce its presence.

.4 Garlic mustard

This species was introduced in the 1800's from Europe as an edible herb for early pioneers in the spring. It is a biennial plant that produces seed in its second year. It can grow in a variety of conditions making it a very good invader in a variety of habitats (Anderson, 2012). It easily outcompetes other native ground cover and can change the soil environments to favour its growth over others. There is not a lot of garlic mustard at Fifty Point Conservation Area. Active removal of this species is fairly straight forward with hand picking between April and June, before the plant goes to seed. With a dedicated effort over 5 years, removal of this species can be achieved.

.5 Flowering Rush

Flowering rush is a perennial aquatic species introduced from Eurasia in the late 1800's most likely as an ornamental (Simkovic, 2020). It can grow as an emergent or submergent plant depending on water depth and is a prolific seeder. It can also spread by root when sections are relocated making it difficult to control.

There is only a small population located on the east side of the beach. Mechanical removal is currently the only method of control (Simkovic, 2020).. Stems can be cut below the water surface repeatedly to suppress growth. Plants can also be dug out, but care must be taken to remove all root fragments.

.6 Cut – leaved Teasel

A perennial plant that occurs in a variety of habitats including meadows, waste areas and roadsides. Teasel has high seed production and can spread and take over areas. In its first year it is a large rosette and by its second year can grow up to 2m high, shading out other meadow species (MDA, 2021).

It can be found in most of the meadows at Fifty Point in low numbers, however there is a large monoculture growing on the point. This monoculture does not provide habitat or food for other species. This has had one cut from a mower already in June 2021 Continued yearly mowing of this patch for several years will be required for management. Native plants should then be planted to push out the remaining teasel. The rest of the teasel in the meadows would need to be cut before seeds are produced in late August. Cutting would need to be continued until the seed bank was depleted (MDA, 2021).

.7 Canada Thistle

Another perennial plant of waste places and fields, the Canada thistle has been in North America since the early settlers (MDA, 2021). It is mostly a pest to crops but can invade and take over other nearby meadows. The plant is a prolific seeder producing up 5000 seeds a season, however the seeds don't spread very far. It is through vegetative cloning of the root that allows this plant to spread and push out other species. It is very important to follow clean equipment protocol as even the smallest piece of root can regrow.

The most common control method is tilling prior to flower bud break, to deplete the root reserves (MDA, 2021). Pulling is not as effective as it would have to be done for several years, all root pieces would need to be removed and it would need to be disposed of properly. Herbicide and mowing are other alternative methods of control.

8. Wild Parsnip

This plant was brought to North American by European settlers as a food plant. Since that time, it has escaped cultivation. This species is also a biannual that grows as a rosette in its first year and then flowering in the second year and dying (Ontario, 2021). It spreads quickly and can form dense stands in meadows. Seeds are easily dispersed by mowing. This plant contains a sap that can cause burns to the skin and care must be taken with its removal.

Digging up the tap root is an effective method of control for this species. Follow up monitoring to ensure the entire plant was removed is required. Mowing can also be effective in combination with chemical use. Mowing should occur just after peak

blooming but before seed set in the late summer. Black plastic can also be used to cover the mown plants to kill the remaining plants through solarization (Ontario, 2021).

This species has been found in small scattered populations at Fifty Point. Digging for each stem discovered has occurred.

9. Non-native Reed Canary Grass

The Reed canary grass that has become invasive in Ontario is thought to be a Eurasian cultivar brought to Ontario as forage for cattle, (Anderson 2012). It displaces native wetland plants and can decrease biodiversity. This plant can grow in a range of habitats and spreads quickly in wetlands. It spreads by both seeds and rhizomes. This species can be shaded out through the addition of trees and shrubs to invaded areas. Mulch can also be used to suppress the growth of Reed canary grass. Areas invaded with Reed canary grass in the Fifty Creek corridor should be planted with trees and shrubs. These plantings will need to be monitored a few times during the growing season to remove any grass that grows onto them to prevent smothering. Wood chips could be used in conjunction with planting to suppress the reed canary grass and giving the trees and shrubs space to grow.

An overall invasive species management plan should be developed for Fifty Point. Various methods can be employed to control these species including manual and chemical means to achieve a reduction in invasive species throughout the property.

5.15 Managed Forest

A Managed Forest Plan was completed for HCA properties within the watershed in 2018. This is a 20-year plan that covers 1,018 hectares of HCA owned lands. A restoration plan should be developed to encourage natural regeneration in all forest areas at Fifty Point, and to control invasive species. See *Appendix 6* for more information.

5.16 Natural Areas Recommendations

The natural habitat features at Fifty Point have been evaluated for restoration opportunities and invasive species removals. Restoration in certain areas of Fifty Point can assist with buffering the natural habitats from the impacts of moderate to high levels of visitor use. Priorities for natural areas conservation and restoration in this Master Plan are as follows:

.1 Conservation Targets for Fifty Point Conservation Area (Nature Reserve Zone)

Biodiversity conservation targets are a limited number of species or ecological communities that ecologists select to represent the biodiversity of a protected area, and that therefore serve as the focus for conservation investment. Thus, conservation targets are simply those ecosystems, communities, or species upon which we focus planning and management efforts. Because we use only a handful of targets to plan for biodiversity conservation,

selecting the appropriate suite of targets is crucial to successful conservation planning and adaptive management. A course filter/fine filter approach was used when analyzing and describing conservation targets for Fifty Point. For Fifty Point conserving and enhancing habitat for migratory birds was chosen as a conservation target, due to the significance of the location on the Lake Ontario migratory routes. Addressing this conservation target will benefit many other species that utilize Fifty Point. This target was also used in the next section to prescribe appropriate restoration and enhancement opportunities for Fifty Point.



.2 Restoration/enhancement Opportunities in the Nature Reserve, Natural and Resource Management zones

The existing natural habitat features at Fifty Point have been evaluated for restoration opportunities. Restoration in certain parts of this property can assist with enhancing habitat for migratory song birds and other species that utilize this conservation area. This will need to be balanced with the high level of visitor use at this conservation area.

Priorities for natural areas restoration are as follows:

.1 Migratory birds and butterflies

The overall goal is to enhance migratory bird habitat at Fifty Point to support both spring and fall migrations. All planting projects for Fifty Point shall consider migratory birds. The Audubon Society (Audubon 2021) provides a general list of plant species for different types of migratory birds which has been summarized in Tables 12 and 13.

Table 12. Plants recommended to enhance migratory bird habitat in the spring

Insect eaters	Nectar and sap drinkers	Ground birds	Birds that eat buds
Oaks – Bur and swamp white	Choke and black cherry	Dead leaves left in place	Elm species
Hawthorns	Hawthorns		Ironwood
Hickories	Sugar maple		
Hackberry	Birch		
	Wild columbine		
	Woodland phlox		
	Beardstongue		

Table 13. Plants recommended to enhance migratory bird habitat in the fall

Insect and seed eaters	Fruit eaters	Nectar drinkers
Asters both field and woodland	Viburnums (other than highbush cranberry)	Lobelia's
Coneflower	Spicebush	Turtlehead
Woodland sunflower	Red cedar	
White and blue vervain	Alternate-leaved dogwood	
Brown-eyed Susan	Ninebark	
Little and big bluestem		
Sideoats grama		
Joe pye weed		
Additional flowering plants and trees include		
Canada tick trefoil	Butterfly weed	Sycamore
Swamp milkweed	Wild bergamot	
Common mountain mint	Grasses and sedges	

There are many areas within Fifty Point where habitat enhancement through plantings of trees and shrubs and herbaceous plants could occur. Connecting the treed habitat along the main beach with the small area of pines to the west would improve natural connections across the property. It is recommended that the land-spit / point be planted in a mix of the above noted species. A trail through this area to provide access to bird watchers is also recommended. Planting a diversity of herbaceous plants into the meadows at Fifty Point would enhance them for both migratory birds and butterflies. Actively planting Common milkweed into these meadows would provide more habitat to the Monarch butterfly. As stated previously all non-manicured areas at Fifty Point are used by migratory birds. The open fields that have been left to naturalize had the least use by migratory birds. These areas are recommended for active restoration into a mix of shrubs, tree and herbaceous plants.

.2 Fifty Mile Creek Corridor

The majority of trees in the southern portion of this wetland and significant woodland are Ash. The majority of them have died due to the impacts of emerald Ash Borer. As these trees are removed as hazard trees, new trees and shrubs should be planted. A variety of willows and dogwoods could be planted that can withstand occasional pruning by Beaver. Other trees to be planted such as Swamp white oak, Sycamore, Red maple should be caged from the beavers. Staff will need to monitor all plantings and adapt strategies as needed to protect the plantings from the beavers and their associated impacts to the natural environment such as damming and flooding portions of the vegetated creek corridor. Non-native Reed canary grass is beginning to form dense mats within the wetland. When restoration tree plantings do occur, space will need to be

cut within the stands of Reed canary grass to allow the trees/shrubs to establish. Ongoing removal of reed canary grass from the new plantings will be required. Without active planting this area will overtime become a reed canary grass monoculture and much less suitable as migratory bird stopover habitat.

.3 Pond Area Restoration/Enhancement

Following the closure of the put-and-take Rainbow Trout Fishery in the pond in 2018, the HCA Board of Directors directed staff to investigate the pond to determine the feasibility of establishing a natural self-sustaining fishery. HCA staff undertook this study in 2019 and it was determined a natural fishery does already exist in the pond but it is limited by a lack of habitat due to the current pond profile. This man-made pond, a borrow-pit for the QEW construction, was not constructed with habitat in mind. To rectify this, additional habitat features in the pond, as well as shoreline naturalization, will need to be introduced in phases, keeping in mind access to the pond required by park visitors and organizations such as the model sailing boat group. The first and largest phase, the new wetland project, is underway concurrent with this Master Plan. This wetland was recommended in the 2000 Master Plan. An Environmental Assessment (EA) subsequently completed to address water flow from WC11 to the pond, and review potential for downstream flooding to adjacent residences confirmed the merits of a wetland at this location. Objectives of this project are noted in the following section. Additionally, all pond restoration projects intended to improve habitat diversity within the proposed areas, support the core conservation target of supporting migratory bird habitat.



.4 New Wetland/Watercourse Area

This project combines two objectives:

1. The diversion of the upper reaches of WC11 to the pond through a wetland in the north east corner. The falls within the area proposed for a wetland addition to the pond in the 2000 Master Plan.
2. The construction of additional fish habitat for the pond to help facilitate a natural self-sustaining fishery to replace the lost put-and-take Rainbow Trout fishery. The wetland specifically adds additional spawning and rearing habitat along with additional space. This project also proposes to complete some shoreline works within the original pond as well for further habitat diversification but the extent of this is undetermined at the time of writing.

.5 Shoreline Naturalization and Enhancement

.1 Riparian Area Projects

These projects are scalable and some are perfect for volunteers and community groups to participate in.

- Riparian vegetation planting along the shoreline to reduce bank erosion and enhance fish habitat.
- Naturalization of the east side of the pond north of the pedestrian bridge where the pond and creek are connected.
- Riparian plantings at the pond edge to reduce bank erosion and enhance fish habitat.
- Restoration of tree and shrub cover near the pond and for the new wetland through a robust annual tree and shrub planting program.
- Protective fencing of newly planted areas to keep geese and beavers out, monitoring of newly planted areas, and annual assessment of the grow-in to set priorities and goals for successive planting projects over the life of this plan.

.2 Fish Habitat Projects

These projects for the fishing pond are scalable and some are perfect for volunteers and community groups to participate in.

- Boulder/cobble/gravel cluster additions
- Woody debris and root wad additions
- Large bank habitat additions
 - These could be similar to what was done at Christie Lake with the addition of large woody materials to the shore and littoral sections of the pond. This would increase biodiversity along the pond shore by breaking up the perfectly manicured shoreline that is present due to how the pond was left following the fill extraction.
- Christmas Tree towers
- Aquatic vegetation plantings
- Sunken log cribs
- Fallen tree additions

.3 Common Carp Management

Common Carp are present in the pond and there may be a need for control to facilitate the restoration and self-sustaining fishery success. This will be assessed through the Master Plan timeline and implemented if needed.

.4 Fishing Dock installations

For the put-and-take rainbow trout fishery the pond edge was mowed to provide access to the water. This plan proposes to vegetate the shoreline which will reduce angler access and also to protect vegetation we will want to direct the anglers away from using the shoreline. The best way to do this is add in docks around the perimeter and restrict fishing to them.



- Install 5-7 docks around the perimeter to facilitate access to the pond for people to fish.
- Identify and manage trails to the docks minimizing impact to the vegetation community.
- Provide a dock and small boat ramp at the north end of the pond close to an improved parking area, that would allow canoe and kayak access into the pond for fishing and recreation.

.5 Signage

- Install more interpretive signage to educate visitors about the ecological importance of Fifty Point and projects HCA is undertaking visible from the main activity areas and along the trails.
- Install signage at the pond to educate visitors about preventing the spread of invasive species into the pond. Particularly targeted at the angling community to avoid the introduction of unwanted species to the pond.

See Section 7.0 for additional conservation area management recommendations.



6.0 OVERALL SITE CONCEPT

This Master Plan for Fifty Point balances the need to conserve the natural environment with the need to accommodate visitors and generate revenue. The property will continue to be divided between the protected natural areas, marina, camping, beach and day-use areas.

This section outlines the key concepts for this Master Plan that have come out of public and stakeholder consultation, staff workshops, meetings, detailed design sessions and inventory results. See *Appendix 1* for more information.

6.1 Marina

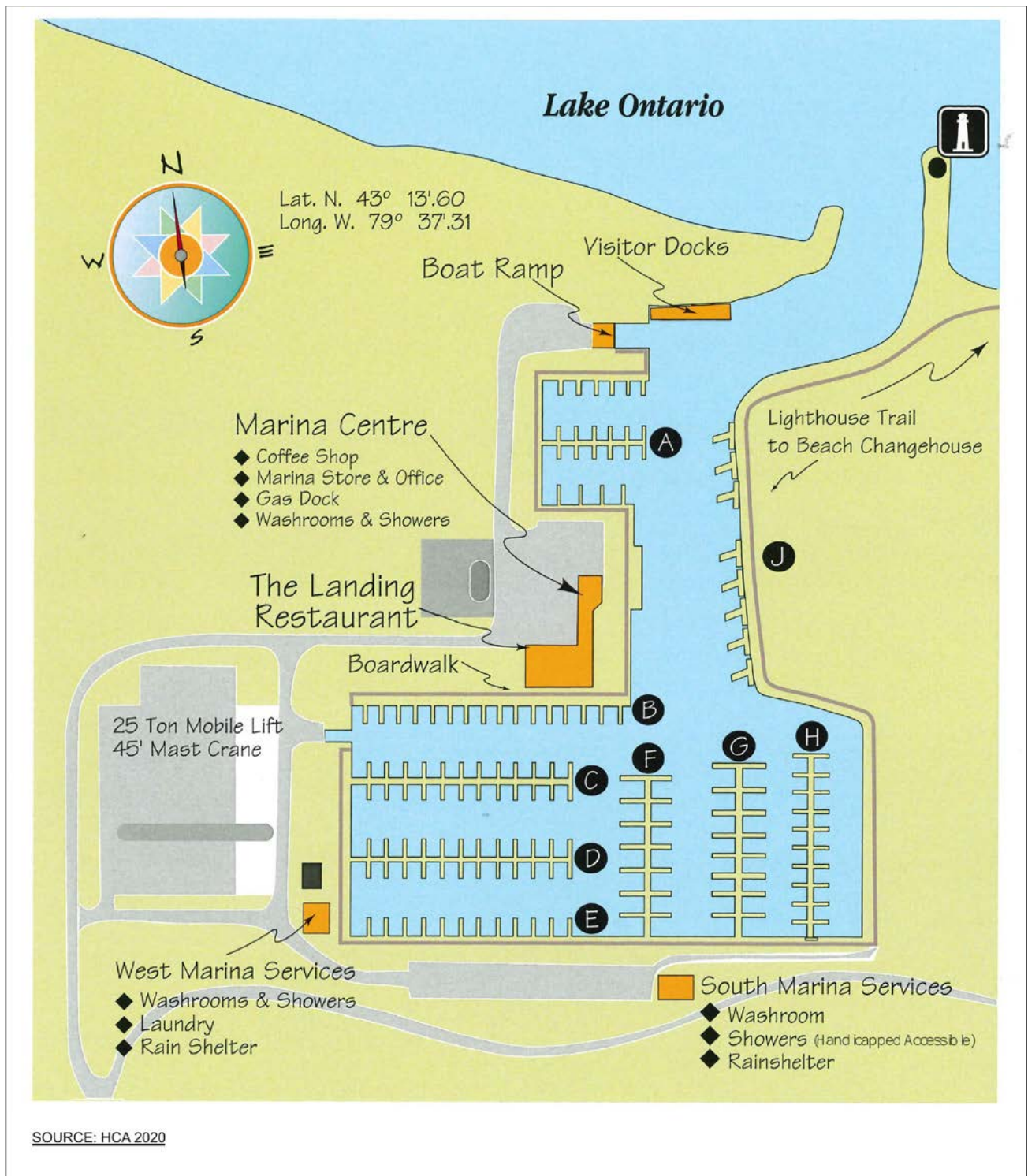
The Fifty Point marina was constructed in the 1980's and has consistently run at full capacity serving western Lake Ontario. The marina has docking spaces for 340 boats and a double boat launch. Marina facilities include a boat lift, fully serviced gas dock and pump-out station, visitor docks, hydro hook-ups, water, showers, washrooms, laundromat, restaurant and winter dry dock storage facilities. See Figure 10 for more information.

It is worth noting that the basin layout and inlet channel depth limit the size of boats in the marina. The marina is best suited for boats in the 30ft to 35ft range. There is limited space available for boats over 35ft, with a one-to- two-year wait list for slips. There has been interest over the years to expand the facility, however this is not expected to happen in the life of this plan given the other capital investments required to sustain the operation. See Section 9 for more information.

Fifty Point Marina has been honoured with the achievement of a Five Green Anchor Diamond rating under the Ontario Clean Marine program. This environmental program recognizes marine businesses that follow best environmental practices to reduce and prevent water, air and land pollution associated with recreational boating activities in Ontario. Marinas voluntarily join the program to participate in a 220-point assessment. Scores from the assessment are converted into an Eco-Rating system from one to five Green Anchors, with Gold, Diamond and Platinum as the highest achievements. Re-assessments are mandatory every four years with self-assessments conducted annually.

The Fifty Point Yacht Club is a not-for-profit club that has been in operating at Fifty Point since the opening of the marina in 1984. The Yacht Club organizes a number of family fun filled activities in and around the marina and cruises to various port on Lake Ontario. The FPYC also allows members to receive reciprocal privileges with other Yacht Clubs on Lake Ontario and beyond. Membership dues are channelled back into the marina to help HCA purchase items used by the boaters. The Yacht Club is a valued marina partner and their ongoing support is appreciated.

Figure 10. Marina Features



Source: HCA 2020 'Welcome to Fifty Point Marina' information package. Please note that the restaurant at the marina at the time of writing this master plan is Limani at Fifty Taverna

The Grimsby Auxiliary Marine Rescue Unit (GAMRU) uses the Fifty Point marina as a dispatch point for marine search and rescue operations. GAMRU South Shore Search and Rescue is the only dedicated marine search and rescue operation on the south shore of Lake Ontario between Hamilton and Port Weller. This not-for-profit organization is a member of the Canadian

Coast Guard Auxiliary (Central and Arctic). GAMRU has a storage locker and dock space in the marina, HCA welcomes their operation out of Fifty Point.

In general, although the marina operation is not proposed to expand during the life of this plan, it will continue to be a major source of revenue for HCA. Separate from this master plan, for the marina to sustain success, a strong annual business and operational plan is essential. Major maintenance of the marina will always be ongoing to sustain HCA's market share. When it comes time to replace the major infrastructure (such as the aging docks) a business analysis of the boating market is highly recommended, as well as third party consultation to review the dock layouts with detailed marine design recommendations. See Section 9 for more information.

6.2 Campground

The Fifty Point campground has 76 fully serviced sites (sewer, hydro and water), and offers a comfort station equipped with individual showers, an accessible shower, washrooms and laundry facilities. Campers are encouraged to utilize other zones of the park. For example, the marina restaurant, marina and boat ramp. A unique feature of Fifty Point's campground is the permitted storage of trailered boats in designated areas. Docking and camping packages are available, and the camping season runs from April to November. See *Appendix 1 Mapping*.

Fifty Point is one of two campgrounds located on Lake Ontario between Hamilton and Niagara Falls. Competing campgrounds in the area are located inland and offer patrons a different camping experience. Demand for campsites is growing and on trend to continue for the life of this plan. The pandemic has revitalized the recreational vehicle (RV) and trailer market, sales of units have skyrocketed and campsites in Ontario are benefitting with full bookings. The campsites at Fifty Point have been consistently fully booked for a number of years, and there is growing demand for more seasonal and monthly booking options.



The original campground design for 150-sites was endorsed by the Town of Grimsby and planned to be self-sufficient with respect to basic facilities. It is recommended that for the life of this plan, the existing campground be improved upon as shown on the appended zoning and development maps.

As noted in Section 3.4 Site Concept/Philosophy and on Map 6, *Appendix 1*, upon future development of lands to the east, the campground sites will need to be buffered. Adjacent development without adequate perimeter security (fencing) and visual buffers (landscaping) would negatively affect the camping experience appreciated by our visitors.

As noted in Section 5.2, the soils on site are not well suited for sewage tile beds. If municipal water and sewage lines could be accessed this ,would allow HCA to upgrade services for both the campground and beach area, as was done at the marina. At the very least, winterizing of all service lines in the campground is recommended in the capital plan. Since some water lines are currently set too shallow and limit the length of the operating season. No change to the group camping sites is anticipated for the life of this plan. See Section 10 for more information.

6.3 Day Use

Fifty Point's day use areas include the Lake Ontario shoreline swimming beach, separate pet friendly beach, scenic lookout points, picnic areas, beach facilities, the fishing pond, pond bridge, barrier free fishing platform, the recreational trail system, group and individual picnic areas, a soccer field, as well as two picnic pavilions available for rental.

Fifty Point is recognized as a bird watching hot spot in the Golden Horseshoe area. It is in the middle of an internationally recognized Important Birding Area and the landform that juts out into Lake Ontario is known as a wonderful spot to watch for migrating waterfowl and pelagic (sea) birds. A lookout platform, benches, educational interpretive signs, and picnic tables are in this area for bird watchers and park visitors.

South of the beach area is a 3.2-hectare open space that has been developed with parking areas. This entire area of the site is proposed to be re-developed to optimize day use parking for the day use beach.



Over the years, manicured grass areas have been reduced in the conservation area, and naturalized areas that have evolved have been supplemented with plantings by volunteers and HCA staff. Tree planting will continue to be a priority to supplement trees lost to disease and age, for the park natural areas and picnic areas. See section 7 for more information.

West of the fishing pond are partly naturalized areas and open space for free play. HCA is currently working on design plans for a small wetland area to be situated at the north west side of the pond, to provide natural habitat and handle site drainage items raised in a recent EA report, see Section 5 for more information.

For more information on proposed plans for the day use area, see Section 10 and *Appendix 1, Map 5 Site Concept*.

6.4 Marketing

There are marketing and communications activities for Fifty Point provided by HCA including promotion through print, and on various social media platforms.

During public engagement for this Master Plan, three Visitor Surveys were conducted to gather information from our Day Use, Campground, and Marina visitors. From May 27th to August 15th 2021 over 400 surveys were submitted by the public, with the majority coming from day use visitors. See *Appendix 5* for survey highlights. These surveys will be reviewed by marketing staff when preparing marketing materials for Fifty Point during the lifespan of this plan.

Key marketing items from the surveys and staff workshops to be addressed in the lifespan of this Master Plan include the following:

.1 Day Use:

A significant number of our day use visitors who submitted surveys live in the nearby community and within a 15 minutes drive. The beach and trails are the primary draw, and staff observe increased walk-in traffic and repeat visitation. As evidenced by HCA trail counters, a significant amount of walk-in traffic came in the main park entrance. With the two pedestrian gates closed at the Lake Pointe community during the covid pandemic, an overwhelming number of comments in the survey were to request re-opening of these gates for access. As noted in Section 3.3 Objectives, access for the visitor is a high priority item. HCA is moving to automated gate systems across the watershed to fairly and efficiently collect payment to enter conservation areas. It is recommended that all pedestrian gates existing or proposed at Fifty Point follow suit, and be configured to allow for swipe card access to enter. Marketing of the HCA annual membership pass to the day use visitor will assist with this initiative.

.2 Campground:

HCA's online camping reservation system is used by a majority of the visitors to reserve their campsite. There is strong demand for seasonal trailer sites and trailer storage. A move to seasonal sites is being recommended in this plan, to not only alleviate traffic at the main gate seen with campsite turnover, but fit the camping experience offered in this relatively small area. Expansion of the campground (see Section 3.4 Site Concept/Philosophy), modification of the campsites, and introduction of new camping features such as cabins, if implemented, would need to be marketed accordingly and accommodated in the camping reservation system.

.3 Marina:

The marina office handles all boater inquiries, the majority of boaters are repeat customers and/or have heard of the marina through word of mouth. Many of Fifty Point's boaters live in the nearby community, and enjoy the opportunity of the boating lifestyle close to home.

Word of mouth in the boating community brings in most of the customers. It is worth noting that there is a 1 to 2 year wait list for boats between 31 feet and 38 feet needing a dock slip. Boats of this size are the target market for the marina, given the inlet configuration, water depth, and dockage suited to the basin. Further review of the boating market, and competing interests of similar marinas is recommended to be explored further with the capital improvement plan.

It is recommended that at a minimum, marketing objectives for Fifty Point include the following:

- Market Fifty Point as an affordable, quality, family day-trip destination.
- Market visitation at non-peak times, shoulder seasons to extend capacity to serve the growing community.
- Increase education and awareness of Fifty Point's natural environment and heritage.
- Review the survey and trail count data in this plan when developing market surveys.
- Leverage tourism partnerships to identify tourism and marketing trends.
- Market new features in this plan to help attract interest, drive revenue, target user groups, reach out to stakeholders, and serve the community.



7.0 CONSERVATION AREA MANAGEMENT

7.1 Land and Water Management

.1 Management Planning

Land and water management planning will be accomplished through adherence to the guidelines of the conservation area zones noted in this Master Plan, and through additional resource management plans developed by HCA as necessary during the life of this Master Plan. The overall intent will be to ensure protection and conservation of the significant natural areas at Fifty Point noted as Nature Reserve (Wetland) and Natural Zones on Map 4 appended.

Significant natural heritage features identified at Fifty Point include Environmentally Significant Areas (ESA) and wetlands. These areas are identified in the City of Hamilton Official Plan as Cores Areas and part of the Natural Heritage System. The Official Plan provides for the protection of such features, and no new development or site alterations are permitted within or adjacent to ESA's unless it can be shown, through an Environmental Impact Statement (EIS) that there will be no negative impacts on the ecological features or functions of the ESA. The floodplain associated with Fifty Mile Creek is also protected from development under both provincial and HCA policies.

All sewage from washrooms on septic holding tank systems will continue to be disposed of off site . Municipal services are currently provided to the marina area. It would be desirable to extend municipal services to other areas of the property, particularly the day use beach area and campground, as the soils on site are not suitable for tile bed septic systems. Waste consisting of natural materials will be reused or composted inside the conservation area where feasible and appropriate. Otherwise, all solid waste will be removed from the conservation area for recycling or disposal.

Wherever possible, new development or redevelopment will be undertaken so as not to disrupt natural drainage. Zone resource management plans will seek to restore natural drainage where it has been disrupted by past or present development.

.2 Public Infrastructure – Utilities, Trails and Transportation

Public infrastructure such as utility corridors (watermains, storm and sanitary sewers, natural gas or oil pipelines, hydro and communication corridors), trails (footpaths, boardwalks) and transportation links may cross conservation area lands. These uses may also have associated rights-of-way, land use agreements, licenses of occupation, permits etc. that are to be considered in the management of the conservation area and when implementing items from this Master Plan.

When new public infrastructure projects are proposed within conservation area owned lands, such uses will be subject, but not limited to the following criteria:

- The need for the project, area of construction disturbance, and potential site

disruption such as soil erosion, flooding, and vegetation loss.

- To maintain or where possible improve or restore key ecological linkages, habitat, and wildlife movement corridors.
- The potential public benefits of the project for research, education, or recreation in the conservation area.
- HCA may require detailed environmental assessments, studies, and resource management plans in order to support such land uses.

7.2 Vegetation Management

Where active management is required for a particular plant or animal species, it will be accomplished through an acceptable HCA resource management strategy considering the guidelines outlined in this Master Plan, and in accordance with policies of all governing agencies.

Forest plantations will be managed in accordance with the MDMNRF approved Managed Forest Plan for Fifty Point. Forest plantations and treed areas will also be managed to remove hazard trees in areas of public use such as recreational trails and picnic areas. Hazard tree removal is only to be done in the winter (December to March) outside of migratory bird breeding season.

Invasive species are in the conservation area and HCA places a high priority on invasive species management to maintain biodiversity and conservation values at Fifty Point. See Section 5.14 for more information on invasive species vegetation management.

Additional non-native plant species will not be deliberately introduced into the conservation area. Introduction of any new plant species by HCA will consider the core conservation targets noted in Section 5.16, biodiversity of this site and contiguous surroundings, historical data of species present in the area, native species research findings, and additional relevant species inventories, within an approved restoration and stewardship strategy. In this Master Plan “non-native” means species not native to Ontario as well as species native to Ontario but not to Fifty Point. If established non-native plant species threaten natural heritage values, a program for their eradication will be developed subject to specific guidelines noted in the natural heritage inventory of this Master Plan.

Vegetation may be mowed only:

- Along the conservation area boundary, where mowing would assist in clearer boundary identification.
- In the development zone of this Master Plan to support public usage of the open space, and only to the extent necessary.
- As required along roadways and recreational trails for safety.

- To assist in the control of invasive species, trees and brush may be cut and pruned only.
- To enable resource management or facility development specifically authorized by this Master Plan or an HCA approved resource management or other implementation plan.
- To ensure public safety.
- In service easements i.e., Utility corridors, subject to specific service agreements.

Trees may not be cut for the sole purpose of providing firewood. Trees and brush cut in nature reserve and natural zones outside of the forest plantations will be left to deteriorate naturally as close as possible to where they have been felled, or if that is not feasible, may be used for firewood or wood chips in the conservation area.

Native insects and diseases affecting vegetation will be allowed to progress naturally, except where they threaten significant natural heritage values in nature reserve and natural zones, or significant aesthetic and infrastructure values in development zones. Non-native insects and diseases will be controlled where feasible. Where controls are undertaken, it will be directed as narrowly as possible to the specific insect or disease so as to have minimal effects on the surrounding environment. Biological controls will be used whenever possible.

Fires in the day use area are not permitted. Fire pit areas and fires may be considered by HCA with the campground operation.

Chemical fertilizers, herbicides, pesticides and suppressants will not be used for any vegetation management purpose except:

- Insect and disease control under the conditions set out in this section of the Master Plan.
- Eradication of non-native species where it has been demonstrated other methods are not feasible.
- Control of poison ivy in development zones.

7.3 Fish and Wildlife Management

Where applicable on the Conservation Area property, fisheries management will seek to maintain and enhance native, self-sustaining fish populations. Where applicable, waters in nature reserve zones may be closed to angling temporarily or permanently for fisheries or wildlife research or management purposes.

See Section 5.12 for more information on the fishery, policies, and practices for the pond and creek.

For Terrestrial Flora and Fauna there is no harvest allowed within the Conservation Area to protect the populations with an exception for Research (see Section 7.7)

For wildlife/human conflict, HCA has developed the Hamilton Conservation Authority Wildlife Conflict Management Strategy (WCMS). This strategy outlines the process and methods staff are to follow when dealing with any animal related issues in the Fifty Point Conservation Area. This document was produced by the Hamilton Conservation Authority Wildlife Management Committee (WMC). The WMC was a special committee of the Hamilton Conservation Authority (HCA) that was established in May 2014 based on HCA staff recommendation and at the direction of the HCA Board of Directors. The purpose of the WMC was to develop best management protocols and practices for the management of wildlife on HCA lands.

As noted in Section 5.3, there is a resident beaver population that has had impacts on the natural systems on site. HCA is monitoring this population and taking action to remove dams as necessary to protect park capital assets (roadways, bridges etc.) Other management actions, in accordance with the WCMS, may also be required such as vegetation management and landscape planning to assist in managing impacts. As noted in Section 5.14.1.2 Significant Fauna, strategies will also be required for birds such as barn swallows nesting in park pavilions and buildings. All capital assets in the park are recommended to be inventoried for wildlife impacts and best management practices and strategies developed that address both wildlife management and capital asset protection.

Additional non-native animal species will not be deliberately introduced to the conservation area, with the exception of animals brought into the heritage village area for educational and interpretive purposes. If already established, non-native species threaten the conservation area values, a program for their eradication may be developed if feasible and practical. Missing native species may be re-introduced, and existing populations replenished if feasible and acceptable to HCA.

7.4 Cultural Heritage Management

Significant cultural heritage features, such as the Ingledale House, will be protected from incompatible development in the conservation area. Incompatible resource uses and recreational activities will be restricted or prohibited where necessary to protect cultural heritage resources. The cultural heritage zone set out in this plan for the Ingledale House is intended to define the area on site where this protection is to be enforced by HCA.

Archaeological and historical artifacts may only be removed, and heritage landscapes altered, as part of an HCA approved cultural heritage research or management plan.

Archaeological studies have not been completed at Fifty Point. Further historic research and archaeological study is encouraged. Management strategies for any archaeological sites found in the future may range from allowing the sites to remain without interference, to research, excavation, and rehabilitation. Protection and management will be undertaken in consultation with all governing agencies and first nations.

7.5 Conservation Area Operations

HCA will provide staff with information and resources as required to operate the conservation area on a day-to-day basis. This will include specific direction for the management and operation of all facilities and activities and address such topics as budgets, staffing, maintenance, enforcement and emergency services. The operation plan will be reviewed annually and updated as required.

Self-serve facilities may be developed, and individual volunteers and partner organizations may be involved in conservation area programs as approved by the HCA.

The HCA has the right to suspend operations of any facilities or services due to funding limitations, but in so doing will ensure that heritage values are not impaired and customer service standards are affected as little as possible.

New business practices may be introduced into the conservation area operations in accordance with HCA policy such as:

- Improving operating efficiency and controlling costs.
- Contracting out some operating functions.
- Improving customer service standards.



7.6 Education

Education in the conservation area is intended to develop visitors' awareness and appreciation of Ontario's natural and cultural heritage, fostering a commitment to protect that heritage for all generations. Education opportunities are meant to be educational and recreational, formal and informal, and accessible to all. Information, education, and outdoor recreation are the three main components of education in the conservation area. The level of service provided at Fifty Point will be determined by its significance and visitation.

7.7 Research

The Fifty Point Conservation Area, like all of HCA's properties, provide in essence an opportunity for living laboratories. HCA Ecologists monitor the health of lands using established protocols and can, when needed, develop special research programs to answer resource related questions.

Outside Research by qualified individuals that contributes to the knowledge of natural and cultural history and to environmental and recreational management will be encouraged by HCA staff.

All research projects will require authorization from HCA and authorization is obtained by contacting the staff ecologists who administer the process and issue letters of permission.

7.8 Recreation

Entry to Fifty Point will be controlled year-round, and HCA will enforce the collection of entrance fees from visitors. Day use parking spaces are provided on a first come, first serve basis and visitors may be restricted from entering the conservation area when the parking areas are full.

The following motorized recreational activities will not be permitted in the conservation area:

- All-terrain vehicle use
- Motor bikes on trails
- Snowmobiling
- Unmanned aerial vehicle (UAV)
- All motor powered watercraft on the fishing pond

The following recreational activities are permitted in the conservation area:

- Boating (marina)
- Non-motorized boating: canoeing, kayaking, paddleboarding (pond)
- Camping
- Birdwatching
- Hiking
- Cycling
- Fishing
- Swimming
- Picnicking
- Winter Activities: Cross Country Skiing, Snowshoeing, Ice Skating (pond).
- Geocaching
- Model Boat Sailing (pond)



A long-term goal of this Master Plan is to provide visitors with appropriate, high quality, sustainable recreational experiences. Recreational opportunities are to be provided that are appropriate to the conservation area and Master Plan zones outlined in Section 3.

7.9 Partnerships

HCA values the community support from area residents and landowners, businesses, service clubs, interested First Nations, volunteers, and volunteer organizations that currently or could contribute in a variety of ways at Fifty Point. The HCA will continue to nurture existing support and will seek out new opportunities for partnerships. Current support provided by the Hamilton Conservation Foundation, Fifty Point Yacht Club, Fifty Point Model Sailing Group, Hamilton Naturalists' Club and GAMRU is encouraged and welcomed. Collaborative partnerships are welcomed to help HCA efficiently achieve its goals and objectives at Fifty Point.

HCA also values the relationships with neighbouring landowners and working cooperatively to manage natural areas and the species that utilize and inhabit Fifty Point's natural areas. HCA Stewardship Action Plans, public consultation, and stewardship work are examples of this and are to be encouraged for the life of this Master Plan.



Volunteers are governed by volunteer policies set by HCA. Volunteer programs shall be maintained and developed to provide for recruitment, orientation, training, supervision, health and safety instruction, evaluation and recognition. Volunteer programs shall be considered in all business decisions made by HCA in the operation of this conservation area.

7.10 Paid Staff

A supplemental operation plan is recommended to be developed for Fifty Point by HCA staff once this Master Plan is adopted.

Fifty Point, similar to staffing at other conservation areas, includes full time permanent employees and a number of part time casual employees to undertake its operations.

In addition, staff from other departments at HCA are involved in varying capacities with the management and operation of Fifty Point. Staff may also be involved in supervising the activities of outside consultants, partners, or contractors retained by HCA.



8.0 FINANCIAL

8.1 Attendance and Revenue Forecasts

Visitor attendance, and operating revenue and expenses for Fifty Point are listed in *Appendixes 4 and 5*.

Visitation to Fifty Point has remained stable over the past five years, and during the pandemic day use beach visitation increased significantly. Visitation is anticipated to remain strong for the life of this plan, as population growth and development transform the surrounding area. The majority of visitors hear about Fifty Point by word of mouth, live within a one-hour drive of the conservation area, and are returning visitors. Further analysis of the visitor data is in Section 8.4 Business Model.

Fifty Point's financial success is expected to continue to rely heavily on the marina, with opportunity to increase revenue by enhancing the under-utilized day use areas away from the beach. Day use visitation offers opportunities for increased revenue generation through special events and programs and enhancing existing features in the day use area will also help to attract and retain repeat visitors.



8.2 Capital Projects

The capital development priorities list in *Appendix 2* provides preliminary estimates for the development envisioned in the Master Plan. As noted in Sections 3.7, 5.16 and 6.0, the following capital development priorities are proposed for the next ten years at Fifty Point:

.1 Replace Significant Park Features

High water levels in Lake Ontario in recent years have necessitated major capital work projects to repair the shoreline and floating docks and boardwalks at the marina. The marina pilings need to be extended and expanded to handle high lake levels; and docks, boardwalks, as well as adding new docks and replacing the lookout platforms at the fishing point within the next ten years. HCA staff are monitoring and repairing these features for public safety until replacements can be implemented.

Increased visitation, larger and heavier vehicles / trailers/ and boats have put greater demands on the main roadway system in the park. Roadway dust blowing into the marina is also of concern to the marina patrons. Road resurfacing or full road reconstruction is recommended as a high priority project in the capital plan.

.2 Add New Park Features

The park entrance at Baseline Road is targeted as a priority area for new capital development to drive revenue and improve customer service. New capital investment to improve traffic flow, site security, and pedestrian and cyclist access are targeted for this area. See *Appendix 1 Mapping* for more information.

Access improvements at the Kelson Road service entrance are proposed to improve visitor access into the day use beach area during peak holidays and weekends, relieving the traffic demands on the main park entrance. New capital investment for fencing, gates, gatehouse, roadways, culverts, and signage is recommended to be phased in with the main entrance improvements.

The area north of the campground that is currently unutilized, was reviewed for potential campground expansion. Further site investigation is required to determine suitability of this area for campsite development. The cost/benefit of expansion into this area, weighing other recreation or naturalizing options for the area as well as day use pressures and marina operational requirements will need to be considered. Improvements to the existing campground are recommended as a first step before expansion. Consequently, the park zoning maps show this area as a resource management zone, which would allow for both natural areas restoration and passive recreation use. Passive recreation could include, for example, recreational trails in this area for nature appreciation while the area is being reviewed for future potential development opportunities.

.3 Enhance Existing Park Features

Rounding out the capital improvements for this Master Plan is enhancement of existing park features for improved customer service.

Site improvements west of the main park entrance are recommended to create a separate staff and service entrance. This work area includes the rental house, service buildings, and work yard. Security gates and fencing, road works, and various building projects will need to be phased in the annual capital development plan.

Various fencing projects will need to be implemented to improve security of the park perimeter, access points, and added boat storage areas for the marina. This includes retrofitting of the existing pedestrian access gates for swipe card use.

Various restoration projects will need to be implemented in the natural and resource management areas, including invasive species management, and restoration works at the new wetland site and fishing pond. Existing and new built structures and pavilions will also need to be designed to avoid conflicts between visitors and wildlife (such as Barn Swallows). See Section 5.16 Natural Areas Recommendations for more information. These initiatives are noted in the capital plan, costs for these projects are to be refined through further ecological review

and recommendations.

A number of capital improvements are recommended to support the existing day-use activities. These include improvements to all the parking areas, expanding the beach washrooms, adding public washrooms at the fishing pond, adding a park pavilion at the campground, shade structures at the Ingledale day use area, improving pond access including replacement and new docks, and trail improvements between all parking lots and activity areas. These projects are recommended to be phased in the annual capital development plan. Some of these projects such as a park pavilion could be good donor projects with which the Foundation could assist.

Capital projects should not be started until a long-term strategy with timelines and costs for each project are clearly stated and sufficient resources are available to complete them. As well, the additional operational costs for each item should be factored into the capital strategy.

8.3 Funding Sources

Historically funding was available from the Federal government for recreational harbours and marina infrastructure development, which allowed for the development of the marina facilities we see today at Fifty Point. Other funding sources, such as from the Ontario Lottery and Gaming Corporation allowed for the barrier free fishing dock to be built. Recently, corporate donations flowing through the Hamilton Conservation Foundation resulted in the trail system and pedestrian bridge installed at the pond in 2016 - 2017.

HCA's operation of Fifty Point is entirely self-funded. Financial statements are audited every year and are available to the public once approved by the HCA Board of Directors.

Revenue is generated through gate admissions (gate and pre-sold tickets), vehicle passes, boating and marina services, camping reservations and camping services, the restaurant, coffee shop, day-use concessions (food, novelty sales etc.) and miscellaneous items as outlined in Appendix 4. Special events and programs help bring new visitors to the conservation area, with word-of-mouth advertising bringing most visitors to Fifty Point. Fifty Point has operated for over fifty years in the community and has a number of visitors who have returned faithfully over the years with their families.



Financing for special projects and annual capital development will continue to be provided through grants, sponsorship, corporate donations and

private donations. The Hamilton Conservation Foundation also provides funding for specific projects. There is good potential for increasing donor funding, donor recognition is also a key element that needs to be sustained.

User and membership fees will continue to be the primary funding source for the operation of Fifty Point. Since the marina drives most of the revenue, HCA will need to wisely manage available resources to efficiently serve boaters in this competitive market, while protecting and managing the natural areas and attending to the needs of campers and day-use visitors on the property.

8.4 Business Model

Fifty Point has succeeded in becoming an affordable, quality, boating, camping and day-use destination for families, their visiting friends and relatives, and tourists. Its product has multi-market appeal, and operates on a strategic principal of “user-pay” to break even or realize net operational revenue for recreational programs.

HCA recognizes that the marina, publicly accessible shoreline and swimming beach, and near urban location of Fifty Point are significant factors in the popularity and success of the conservation area. Consequently, supporting sustainable management and operation of these features are to be addressed in all business decisions for the implementation of this Master Plan. The goals outlined in Section 3.2 are provided to help guide this process.

Increasing revenue at Fifty Point will require HCA to refine their marketing, business, and development strategies to:

- Continue to attract boaters, campers and day use visitors, and provide quality recreational facilities and services so they will be encouraged to return.
- Continue to market the HCA membership pass card for repeat visitors, and provide card swipe access to capture revenue from larger numbers of pedestrians and cyclists entering the conservation area.
- Diligently sustain the natural resource value of the conservation area by limiting activities to the zones prescribed in this Master Plan.
- Continue to invest in the marina and campground facilities to keep pace with recreational trends and improve operational efficiency.
- Continue to promote Fifty Point as a natural recreation area offering families open space for unstructured play, nature appreciation, swimming and picnicking.
- Provide visitors with opportunities to spend more money when on site.



- Continually monitor customer service, and conduct on-site and market research campaigns as necessary to measure customer satisfaction.
- Continue to explore pilot projects (such as Ingledale House programs, camping cabins and food service options), and best management practices as means of growing revenue and operating effectively.
- Continue to leverage tourism industry partnerships, public relations, community outreach, and corporate sponsorship.

Cost recovery is a prime requirement for all services and programs delivered at Fifty Point. In the development of programs, the following factors will be considered: anticipated attendance, income sources, market, volunteer resources, HCA staffing requirements, advertising, insurance, administration, operation costs and maintenance expenses.

Concepts embodied in this Master Plan are to be weighed against the marketing demands for increased performance, attendance, programming, market penetration, awareness and ultimately financial return.



9.0 MARINA MANAGEMENT

9.1 Boating Market

From the 2000 Master Plan it was determined that marina expansion at Fifty Point would not be financially viable. Consequently, this master plan does not propose expansion of the marina basin. A cursory review of capital costs indicates minimal cost/benefit to HCA to proceed with expansion and disrupt the current operation. In addition, capital costs to repair and replace the aging infrastructure (piling, boardwalks, docks) over the next ten years will stretch HCA's capital budgets. See *Appendix 2*.

When the marina was constructed at Fifty Point, a number of other marinas were built on Lake Ontario to support a growing seasonal recreational boating market. HCA has on hand boating market reports and analysis that were completed during that time to evaluate the potential for the Fifty Point marina. Over the past thirty years the boating market has fluctuated with the economy, but Fifty Point's location has allowed it to run at capacity despite dips in the market. The marina is in a financially strong position, there is demand for boat storage, and an annual waiting list for dock slips has demand exceeding supply. Despite the observed recreational trend to larger and larger boats (40ft and larger), staff operational analysis indicates the marina operation can be financially sustained serving the 30 to 35-foot recreational boat market. See *Appendix 4*.

Table 14, Marina Facilities, presents a picture of the current marina supply/demand scenario.



Table 14. Marina Facilities

Location	Name	Slips	Water	Power	Fuel	Pumpout	Ramp	Haul-out	Washrm	Shower	Laundry	Food	Storage
Mississauga	Port Credit Harbour Marina	550	X	15/30	X	X	X	X	X	X	X		X
	Port Credit Yacht Club	386	X	30/50	X	X		X	X	X		X	
	Lakefront Promenade Marina	175	X	15/30	X	X		X	X	X	X	X	X
	Credit Village Marina	56	X	15/30					X	X	X	X	
	Mississauga Sailing Club	-					X		X	X			X
Oakville	Bronte Harbour Yacht Club	80	X	30			X	X	X	X		X	X
	Bronte Outer Harbour Marina	420	X	15/30/50	X	X		X	X	X		X	X
	Oakville Powerboat Club	260	X	30	X	X			X	X			
	Oakville Yacht Squadron	76	X	X				X	X	X		X	X
Burlington	Burlington Sailing/Boating Club	-				X		X	X	X		X	X
	Lasalle Park Marina	219	X	X		X	X		X				
Hamilton	Harbour West Marina	350	X	30/50/100	X	X		X	X	X	X		X
	Royal Hamilton Yacht Club	126	X	X	X	X	X	X	X	X	X	X	X
	Macassa Bay Yacht Club	110	X	30					X	X		X	
	Newport Yacht Club	250	X	30		X			X	X	X		
	50 Point Marina	340	X	30	X	X	X	X	X	X	X	X	X
Grimsby	Foran's Marina	125	X	X	X	X	X		X	X			
	Lakecourt Marine	80	X	X			X						
Lincoln	Jordan Harbour Marina	80	X	X	X	X	X		X	X	X		
St Catharines	Dalhousie Yacht Club	112	X	X	X	X	X	X	X	X		X	X
	Port Dalhousie Pier Marina	400	X	15/30		X		X	X	X		X	X
	St Catharines Marina	185	X	15/30	X	X		X	X	X	X	X	X
Niagara-On-The-Lake	NOTL Sailing Club	193	X	30	X	X	X	X	X	X			
	Smuggler's Cove Boat Club	55	X	X					X				
Niagara Falls	Niagara Parks Marina	110	X	X	X	X	X		X	X		X	
Lake Erie	Buffalo Yacht Club	123	X	X		X	X		X	X	X		
	Bertie Boating Club	161	X	X		X	X		X	X		X	
	Sugarloaf Harbour Marina	400	X	30/50	X	X	X	X	X	X	X	X	X

A cursory review of Table 14 reveals a significant supply of recreational boating slips in the western Lake Ontario area. It should be noted that the Bronte, Beacon, and Port Dalhousie marinas have Federal government donated breakwaters costing several million dollars each, and that Hamilton has invested significant dollars in floating breakwaters for its marinas.

Significant operating expenses for the Fifty Point marina includes the need to dredge the inlet every three to five years. There is no foreseeable way to overcome this through design or alteration of the shoreline, so dredging will be an ongoing capital expense for HCA.

An opportunity exists, however, to improve the marina operation and financial bottom line when the time comes to replace the floating docks. It is recommended that a detailed design study be conducted of the marina dock configuration and alternative layouts be reviewed. See section 9.2 for more information.



9.2 Boating Facilities

The boat launch is very active and capital plans are in place to improve the facility. The personal watercraft market is growing. Trends show increased sales of non-motorized craft (SUP, canoe, kayak) and motorized small pleasure craft. In recent years Fifty Point has seen an increase in jet ski use at the launch and on the lake. A segment of the jet ski community coming into the marina off the lake has caused some conflicts with our marina patrons. HCA is reconsidering whether to permit jet ski access at the marina. There are other boat launch areas along the shoreline for jet skis to use. It is recommended that all boat ramp operations be further reviewed for HCA to better determine the types of boats to be permitted in the marina annual operation plan.

During the early period of the COVID-19 pandemic, a number of the marina services were shut down including the restaurant, coffee shop, and washroom buildings. During this down time HCA evaluated the health and safety protocols necessary to re-open the coffee shop and cost/benefit of doing so. It may be more cost effective to close the coffee shop and provide alternative food and beverage options in select locations on site, to augment the food services already provided by the restaurant. Further evaluation is recommended to determine the best use of the marina building space before committing capital funds.

A high priority item and revenue generator for the marina is dry sail storage. Fifty Point's boat storage market is expanding but not all of the storage areas are fenced. It is recommended that additional fencing be provided to expand the current boat storage areas, and a new fenced area be created in a portion of the parking lot by the Ingledale House.



10.0 RECREATION MANAGEMENT

10.1 Campground

Fifty Point currently offers 76 campsites, with electrical and water hookups, group camping areas, and is open to all members of the public looking for a vacation experience, rather than a seasonal residence. See *Appendix 1*, Map 6 for more information.

Campsites allow for up to six people, three shelters, and one camper unit per site. One vehicle is free with the camping permit, and up to two vehicles are allowed per site. More overflow vehicle parking is happening in the campground from campsite visitors, this camping trend is expected to continue. As well, campers bring storage trailers and trailered boats that are accommodated in designated storage areas of the campground. The majority of campers arrive with trailers over 20ft, and seasonal sites are in high demand and fully-booked through the camping season. With the recreational trend to larger trailers, a comprehensive review of the campground layout is recommended, with an eye to improving all current campsites to accommodate trailers over 20ft.

With the seasonal campers who have family and friends visiting, there has been demand to have an area where groups could visit without disturbing adjacent sites. It is recommended that a pavilion be constructed near the washroom building, dedicated for this purpose and available for rental by campground patrons.

The camping season runs approximately from the May Long Weekend to Thanksgiving. Visitors surveyed tend to stay 2-3 nights, camp 2-3 times per year, and reserve their camp sites in advance through online booking, as noted in the visitor survey comments in *Appendix 5*. Camping check-in is from 2pm and check out is before 1pm. Quiet hours are enforced from 10:30pm to 8:00am.



Fifty Point campers value the opportunity to camp seasonally, in a family friendly atmosphere, within a close drive to home. Some campers have Fifty Point as a summer seasonal residence and travel south to a winter residence. Although the pandemic has interrupted this travel for “snowbirds”, a resurgence in recreational trailer camping is on trend and trailer sales are high. This trend has brought new campers into the market seeking trailer sites, and it is anticipated campground bookings will remain strong for the life of this plan.

Campground expansion has been reviewed in this plan, see Section 3.4 Site Concept/Philosophy for more information. Expansion will be reviewed further in the life of this plan, weighing other recreation or naturalizing options for the area north of the campground, day use pressures, and marina operational requirements.

Of note, staff are also seeing greater demand at the campground and marina for more services such as enhanced wi-fi for mobile device use. HCA will need to stay abreast of the market needs and adapt the suite of park services necessary to sustain market share.

Trailer storage within the campground during the off-season is also recommended, to free up other areas in the conservation area for boat storage.

10.2 Education and Interpretation Programs

Fifty Point offers a limited number of education and interpretation programs to campers and day-use visitors as staff time and resources allow. HCA also supports partnerships with outside agencies to run children's day-camps and camping programs. A small number of visitors are becoming interested in helping with program delivery, and could be recruited as volunteers with training and supervision. From our public outreach for this plan, visitors indicated they would like to see more interpretive programs and activities provided in the park. Suggestions included live interpretive shows, guided nature hikes, geocaching, and camp crafts.



The Ingledale House is a centrally located historical landmark. It could serve as an interpretive centre for education programs both on-site and off-site. With input from HCA's Westfield Heritage Village staff, area historical groups, organizations, and interested citizens, great potential exists for the Ingledale House to be a hub for public interpretive programs/tours and special events.

Education and interpretive programs are also an opportunity to entice new visitors, and provide variety for repeat visitors. Opportunities range from self-guided tours with interpretive signs along the trail system, to hands-on activities, educational demonstrations, live shows, workshops, and more. Some potential themes that could be explored include:

- Water management
- Fish and wildlife
- Tender fruit agriculture
- Wineries
- The Niagara Escarpment
- Local history
- Role of Conservation Authority

All programs should relate to HCA's strategic value of providing outdoor learning experiences, and increasing knowledge and awareness of the value of our environment and heritage.

10.3 Day Use

Picnic areas are to be enhanced with additional shade tree planting and shade structures that may be reserved by groups. The Ingledale House area should be targeted for these improvements to bring more visitors into this area of the site. Washrooms for the Ingledale area are also a priority item for the same reason. Other considerations should be given to whether the soccer field should remain. With the new wetland project underway near this location, and recommendations for improved parking and docks at the fishing pond, there will be more visitors wanting to park nearby and access this space. More detailed design is recommended to improve the parking, trail access, and passive recreational amenities for this space.

All day use areas are intended to provide flexible open space for unstructured outdoor recreational activities and programs, allowing people to experience the natural environment. HCA has been moving away from providing large play structures, and playground infrastructure due to the high maintenance and land requirements for these features. These features are provided in the area municipal parks.

Fifty Point has five group picnic areas: Willows, Ironwoods, Poplars, Walnuts and Pears that may be reserved. Additional tree planting for these areas is recommended.



The beach area will continue to be a strong draw for visitors and a number of capital improvements are recommended for this area to handle the demand. Washrooms, parking, and trail access improvements are the highest priority. The beach area is also an important habitat for birds and the resource management zones in this area should be targeted for habitat enhancement. Volunteer planting projects would help with this initiative. Shoreline hardening work has already been completed and a trail reroute near the pet friendly beach is being planned.

10.4 Facility Rentals

Fifty Point will continue to offer group camping areas and the Winona and Lakeside Pavilions for rental. Additional picnic pavilions are proposed to be added to the fishing pond day-use area for rental as noted in Section 10.3.

HCA receives income from renting the Ingledale House and the Baseline Road house. As noted in Section 6.1, these agreements are recommended for review with the goals of this Master Plan.

Fifty Point has been used as a filming location, and filming on site will continue to be supported with strict procedures so the integrity of the site is not sacrificed.

Wedding parties may use the site for outdoor service, photographic opportunities, outdoor reception and more. School and community groups are welcomed to reserve use of the property for day-use camps etc.

The beach concession which operated as a store in the past, is not intended to operate as such in the life of this plan. Concession services may be provided by alternative means such as vending machines. The future use of this space will need to be reviewed in more detail, to assess the potential for facility rental or other use.



11.0 SUMMARY

Fifty Point has been successfully operating for over 50 years, offering generations of boaters, campers, and day use visitors' access to Lake Ontario.

This Master Plan identifies the natural features of the property to be protected, natural area management recommendations, and land use zones intended to help guide future planning, development, and management of the conservation area.

As the surrounding area continues to develop and grow, Fifty Point will remain a green oasis of nature and recreational open space. It is the overall intent of the HCA to wisely manage the conservation area and undertake supplementary management and operating plans and initiatives to support the goals and objectives of this Master Plan within the next ten years.

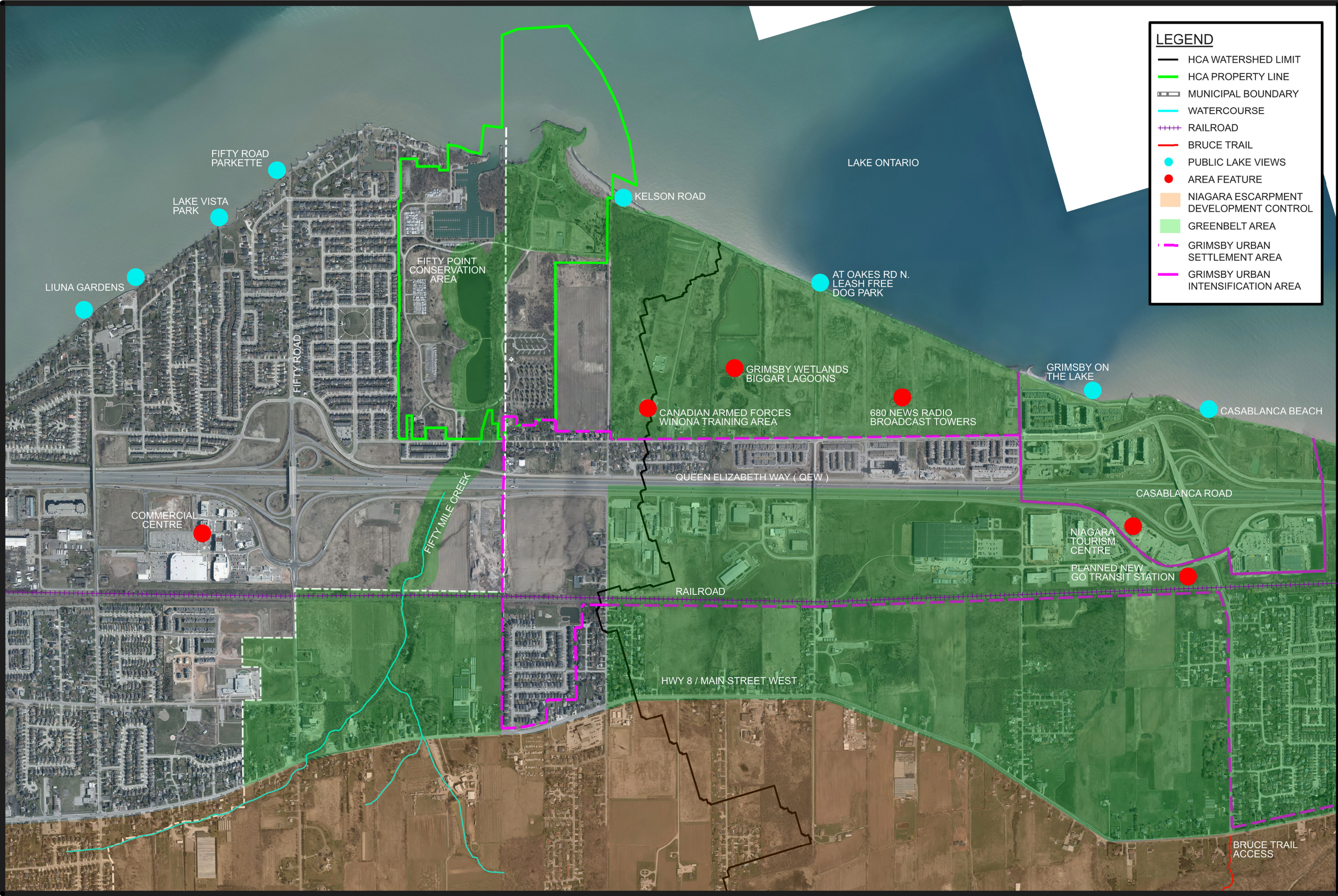


12.0 APPENDIX CONTENTS

APPENDIX 1	Mapping	98
APPENDIX 2	Capital Development Priorities.....	107
APPENDIX 3	Heritage Conservation Guiding Principles.....	110
APPENDIX 4	Operating Revenue and Expenses.....	112
APPENDIX 5	Visitor Data: Attendance, Visitor Surveys	114
APPENDIX 6	Managed Forest Plan Recommendations 2020 – 2030.....	122
APPENDIX 7	Natural Inventory – Species Lists, References.....	131
APPENDIX 8	References.....	146

APPENDIX 1

Figure 1	Context Map A
Figure 2	Context Map B
Map 1	Ecological Land Classification
Map 2	Conservation Area Zones
Map 3	Site Concept Map
Map 4	Campground
Map 5	Marina Activity Zone
Map 6	Building Map



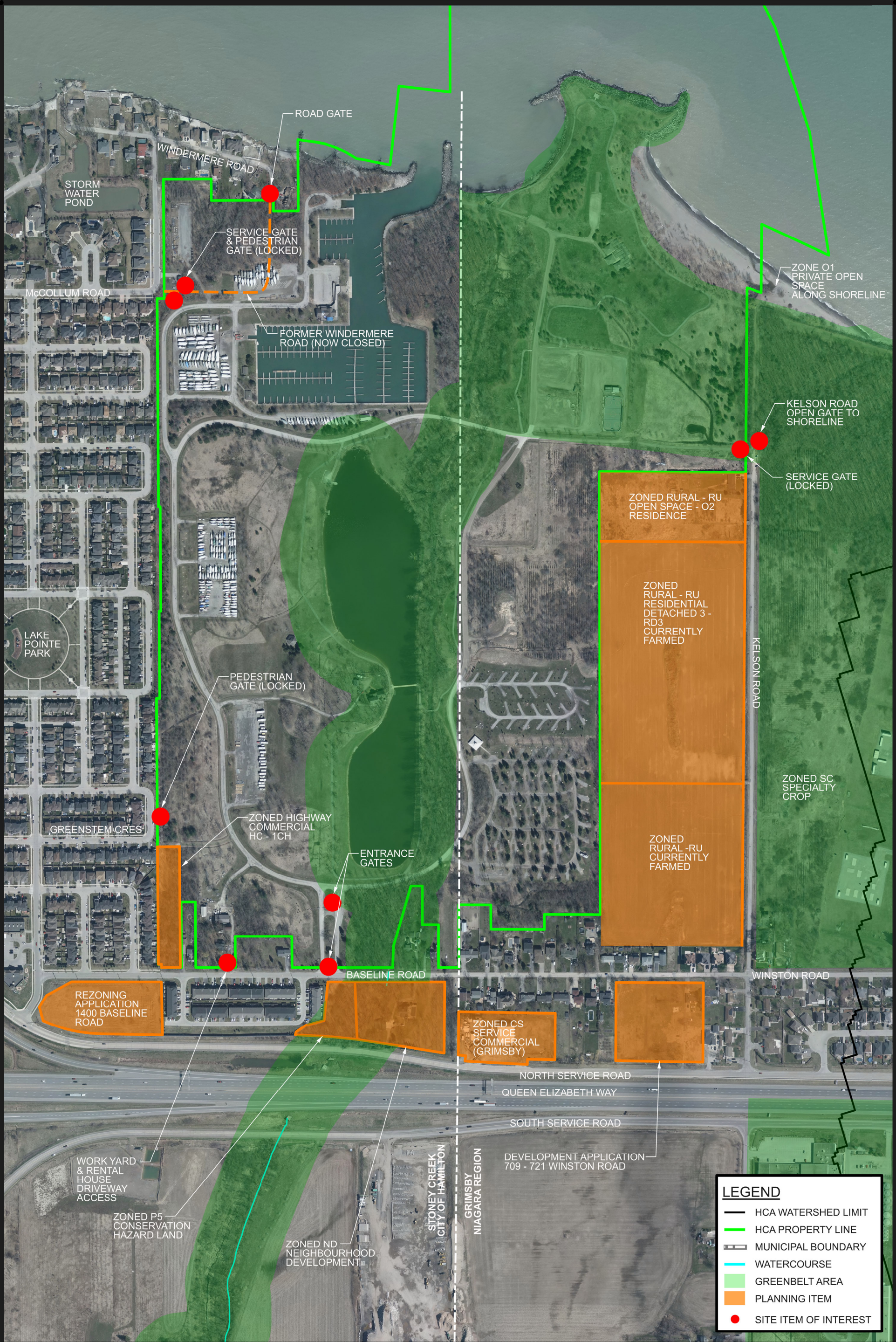
LEGEND

- HCA WATERSHED LIMIT
- HCA PROPERTY LINE
- MUNICIPAL BOUNDARY
- WATERCOURSE
- RAILROAD
- BRUCE TRAIL
- PUBLIC LAKE VIEWS
- AREA FEATURE
- NIAGARA ESCARPMENT DEVELOPMENT CONTROL
- GREENBELT AREA
- GRIMSBY URBAN SETTLEMENT AREA
- GRIMSBY URBAN INTENSIFICATION AREA

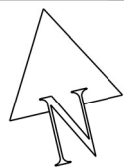


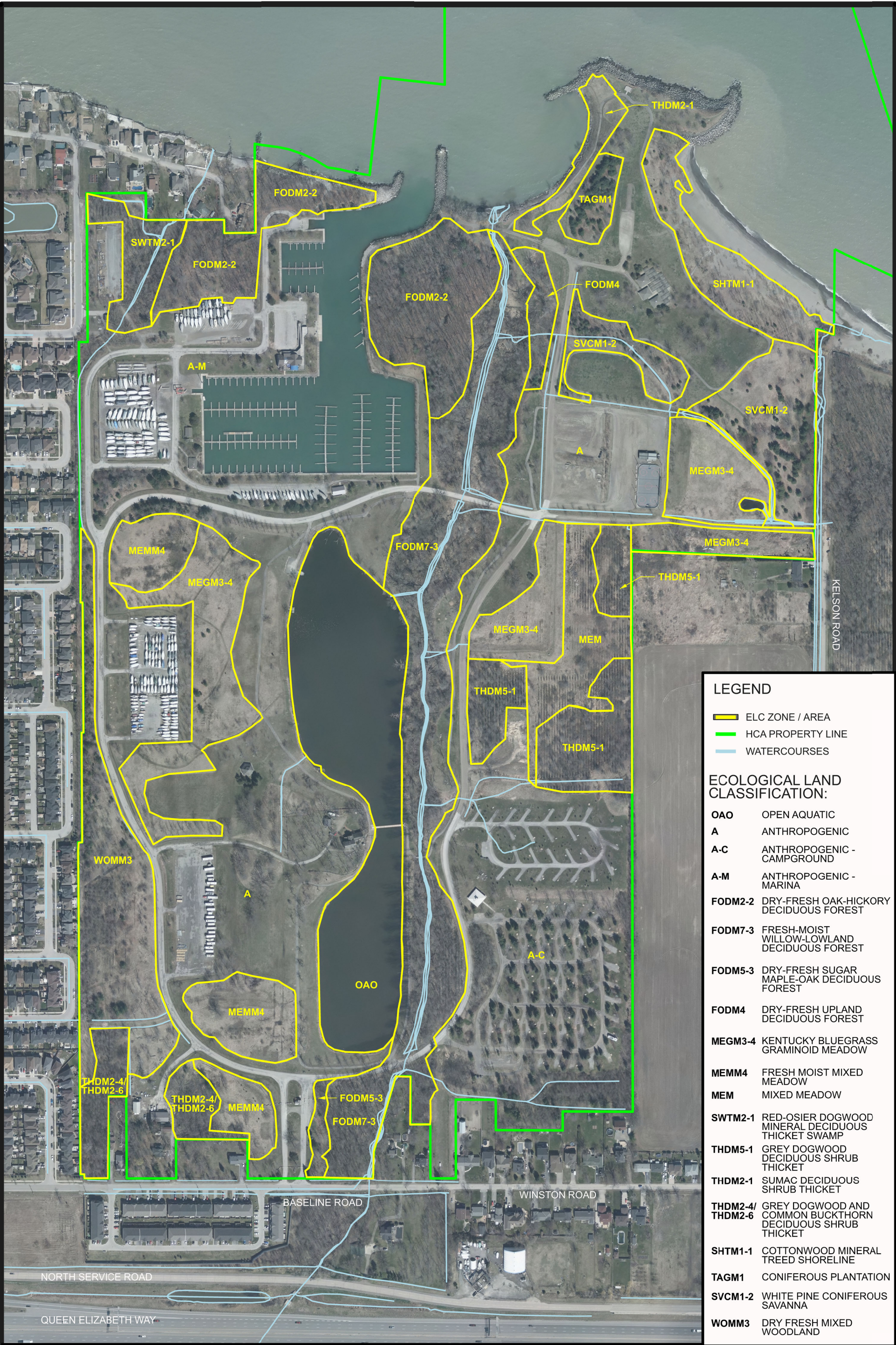
DATE: 2021/10/25

SITE CONTEXT MAP 'A'
FIFTY POINT MASTER PLAN



SITE CONTEXT MAP 'B' FIFTY POINT MASTER PLAN





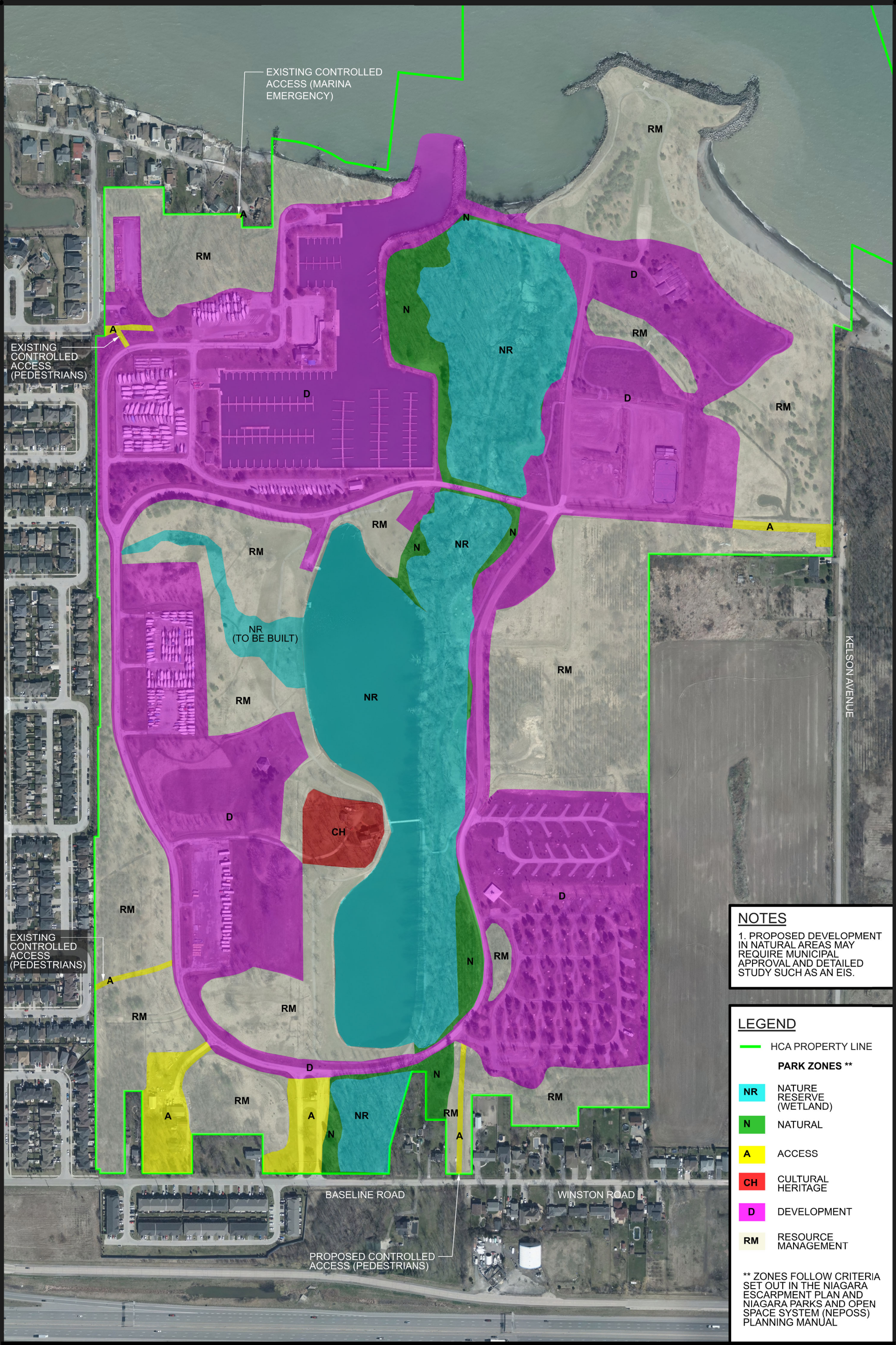
LEGEND

- ELC ZONE / AREA
- HCA PROPERTY LINE
- WATERCOURSES

ECOLOGICAL LAND CLASSIFICATION:

- OA** OPEN AQUATIC
- A** ANTHROPOGENIC
- A-C** ANTHROPOGENIC - CAMPGROUND
- A-M** ANTHROPOGENIC - MARINA
- FODM2-2** DRY-FRESH OAK-HICKORY DECIDUOUS FOREST
- FODM7-3** FRESH-MOIST WILLOW-LOWLAND DECIDUOUS FOREST
- FODM5-3** DRY-FRESH SUGAR MAPLE-OAK DECIDUOUS FOREST
- FODM4** DRY-FRESH UPLAND DECIDUOUS FOREST
- MEGM3-4** KENTUCKY BLUEGRASS GRAMINOID MEADOW
- MEMM4** FRESH MOIST MIXED MEADOW
- MEM** MIXED MEADOW
- SWTM2-1** RED-OSIER DOGWOOD MINERAL DECIDUOUS THICKET SWAMP
- THDM5-1** GREY DOGWOOD DECIDUOUS SHRUB THICKET
- THDM2-1** SUMAC DECIDUOUS SHRUB THICKET
- THDM2-4/ THDM2-6** GREY DOGWOOD AND COMMON BUCKTHORN DECIDUOUS SHRUB THICKET
- SHTM1-1** COTTONWOOD MINERAL TREED SHORELINE
- TAGM1** CONIFEROUS PLANTATION
- SVCM1-2** WHITE PINE CONIFEROUS SAVANNA
- WOMM3** DRY FRESH MIXED WOODLAND





NOTES

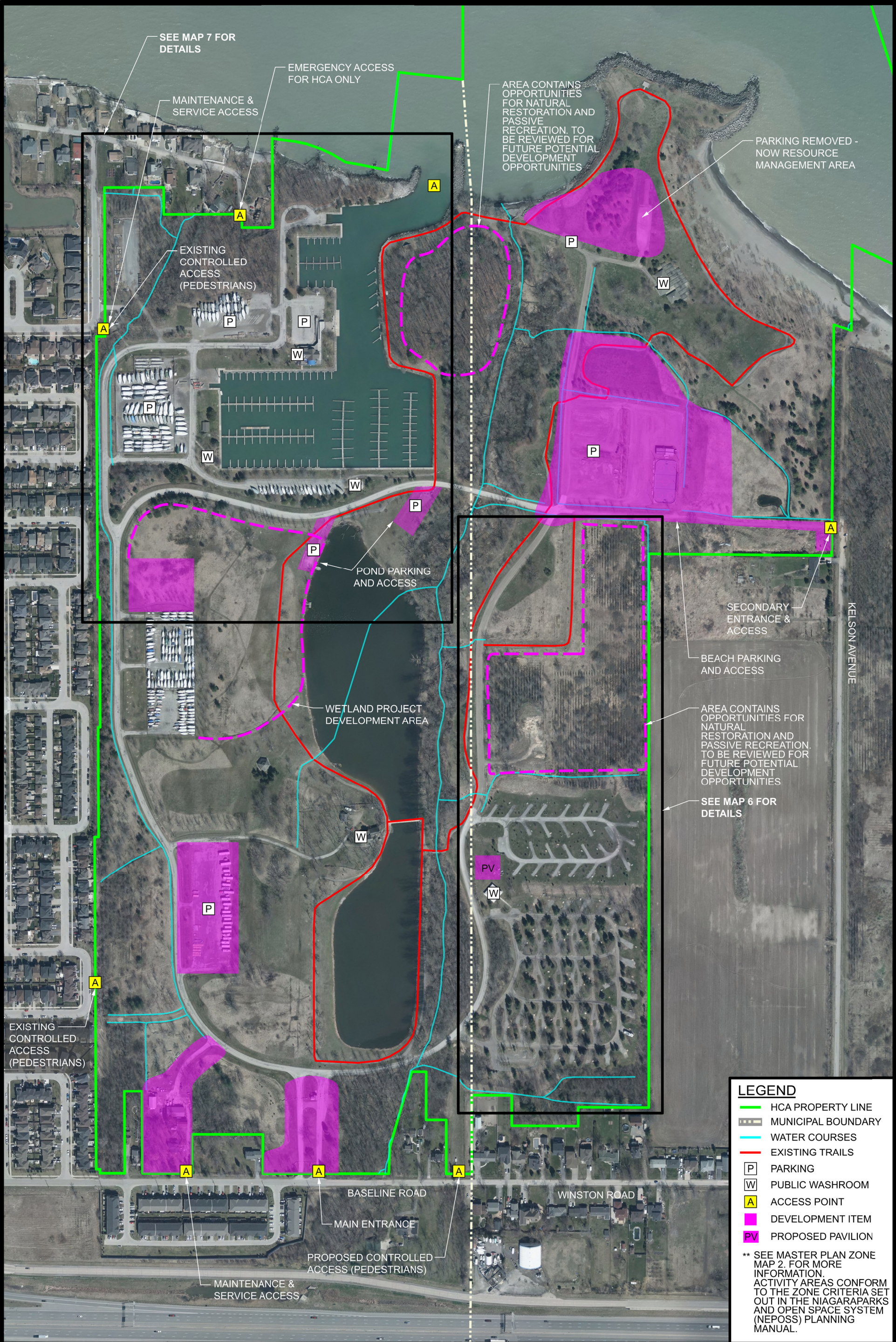
1. PROPOSED DEVELOPMENT IN NATURAL AREAS MAY REQUIRE MUNICIPAL APPROVAL AND DETAILED STUDY SUCH AS AN EIS.

LEGEND

- HCA PROPERTY LINE
- PARK ZONES ****
- NR NATURE RESERVE (WETLAND)
- N NATURAL
- A ACCESS
- CH CULTURAL HERITAGE
- D DEVELOPMENT
- RM RESOURCE MANAGEMENT

** ZONES FOLLOW CRITERIA SET OUT IN THE NIAGARA ESCARPMENT PLAN AND NIAGARA PARKS AND OPEN SPACE SYSTEM (NEPOSS) PLANNING MANUAL





LEGEND

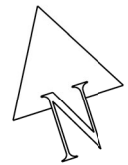
- HCA PROPERTY LINE
- MUNICIPAL BOUNDARY
- WATER COURSES
- EXISTING TRAILS
- PARKING
- PUBLIC WASHROOM
- ACCESS POINT
- DEVELOPMENT ITEM
- PROPOSED PAVILION

** SEE MASTER PLAN ZONE MAP 2. FOR MORE INFORMATION. ACTIVITY AREAS CONFORM TO THE ZONE CRITERIA SET OUT IN THE NIAGARAPARKS AND OPEN SPACE SYSTEM (NEPOSS) PLANNING MANUAL.



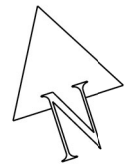
**SITE CONCEPT MAP
FIFTY POINT MASTER PLAN**

DATE: 2021/12/14



SITE CONCEPT MAP - MAP 5.







LEGEND

HCA PROPERTY LINE

MUNICIPAL BOUNDARY

1

GATEHOUSE

2

RENTAL HOUSE

3

GARAGE FOR RENTAL HOUSE

4

WORKSHOP

5

STORAGE SHED

6

WINONA PAVILION

7

INGLEDALE GARAGE

8

INGLEDALE HOUSE

9

CAMPGROUND WASHROOM

10

SOUTH MARINA SERVICES

11

WEST MARINA SERVICES

12

PAVILION

13

MARINA CENTRE AND RESTAURANT

14

LIGHTHOUSE

15

DAY-USE WASHROOM

16

LAKESIDE PAVILION

DESIGNATED HERITAGE BUILDING PROTECTED UNDER THE ONTARIO HERITAGE ACT



APPENDIX 2

DRAFT – FIFTY POINT CAPITAL DEVELOPMENT PRIORITIES: 2022 - 2032**A. Site Concept Improvements** ***Budget (2.78 M)**

A1	Baseline Road Main Park Entrance, Secondary Public Access Point	300,000
A2	Baseline Road Staff / Service Entrance	350,000
A3	Kelson Road Secondary Entrance	250,000
A4	Passive Recreational Improvements	300,000
A5	Beach Area Parking Expansion, Restoration	300,000
A6	Ingledale/Winona Area Parking Enhancements	250,000
A7	Boat Storage Compound Additions	300,000
A8	Beach Washroom Enhancements	150,000
A9	Ingledale Area Washroom Improvements	50,000
A10	Fishing Pond Area Parking, Pond Access Improvements	150,000
A11	Beach Trail Access Improvements	30,000
A12	Kelson Road Allowance Buffer Enhancements	50,000
A13	Park Pavilion, Shade Structure Additions	150,000
A14	Campground Facility Improvements	150,000

B. Conservation Area Improvements ***Budget (6.325 M)**

B1	Perimeter and Security Fencing	100,000
B2	Perimeter Service Gates	25,000
B3	Perimeter Pedestrian Gates	25,000
B4	General Building Improvements	250,000
B5	Road, Parking, Bridge Improvements	750,000
B6	Site Signage	50,000
B7	Existing Trail Improvements	75,000
B8	Site Service Improvements	150,000
B9	Marina Dredging (3 estimated)	450,000
**B10	Marina Piling Extension and Expansion	1,000,000

Appendix 2.

**B11 Marina Boardwalk Replacement	500,000
**B12 Marina Dock Replacement, Reconfiguration	2,000,000
***B9 Natural Areas Restoration	100,000
***B10Resource Management Restoration	100,000
***B11Wetland Project, Pond Area Restoration	750,000

* Budget costs are in 2021 dollars, projects and budgets to be reviewed annually.

** Major capital item.

*** Costs subject to ecological findings and recommendations.

APPENDIX 3



Eight Guiding Principles in the Conservation of Built Heritage Properties

The following guiding principles are ministry statements in the conservation of built heritage properties and are based on international charters which have been established over the century. These principles provide the basis for all decisions concerning good practice in heritage conservation around the world. Principles explain the "why" of every conservation activity and apply to all heritage properties and their surroundings.

1. RESPECT FOR DOCUMENTARY EVIDENCE:

Do not base restoration on conjecture.

Conservation work should be based on historic documentation such as historic photographs, drawings and physical evidence.

2. RESPECT FOR THE ORIGINAL LOCATION:

Do not move buildings unless there is no other means to save them.

Site is an integral component of a building or structure. Change in site diminishes cultural heritage value considerably.

3. RESPECT FOR HISTORIC MATERIAL:

Repair/conservé - rather than replace building materials and finishes, except where absolutely necessary.

Minimal intervention maintains the heritage content of the built resource.

4. RESPECT FOR ORIGINAL FABRIC:

Repair with like materials.

Repair to return the resource to its prior condition, without altering its integrity.

5. RESPECT FOR THE BUILDING'S HISTORY:

Do not restore to one period at the expense of another period.

Do not destroy later additions to a building or structure solely to restore to a single time period.

6. REVERSIBILITY:

Alterations should be able to be returned to original conditions. This conserves earlier building design and technique.

e.g. When a new door opening is put into a stone wall, the original stones are numbered, removed and stored, allowing for future restoration.

7. LEGIBILITY:

New work should be distinguishable from old.

Buildings or structures should be recognized as products of their own time, and new additions should not blur the distinction between old and new.

8. MAINTENANCE:

With continuous care, future restoration will not be necessary.

With regular upkeep, major conservation projects and their high costs can be avoided.

For more information, please call the Ministry of Culture at (416) 212-0644 or Toll Free at 1-866-454-0049 or refer to the website at www.culture.gov.on.ca.

Spring 2007

Disponible en français

© Queen's Printer for Ontario, 2007.

If credit is given and Crown copyright is acknowledged, this material may be reproduced for non-commercial purposes.

The information contained in this InfoSheet should not be relied upon as a substitute for specialized legal or professional advice in connection with any particular matter.

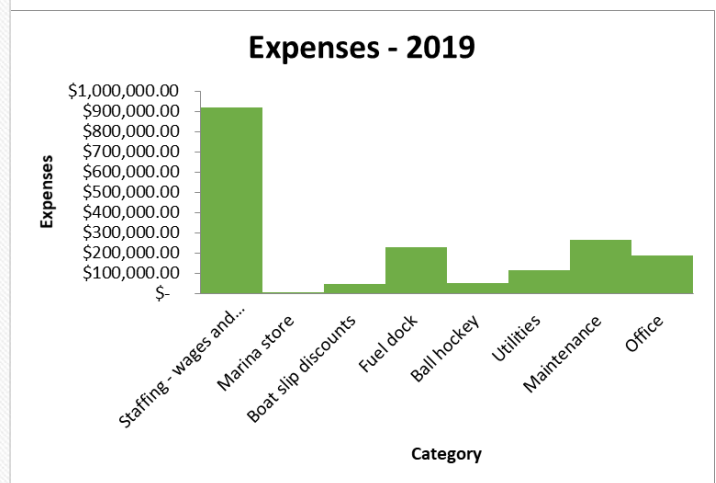
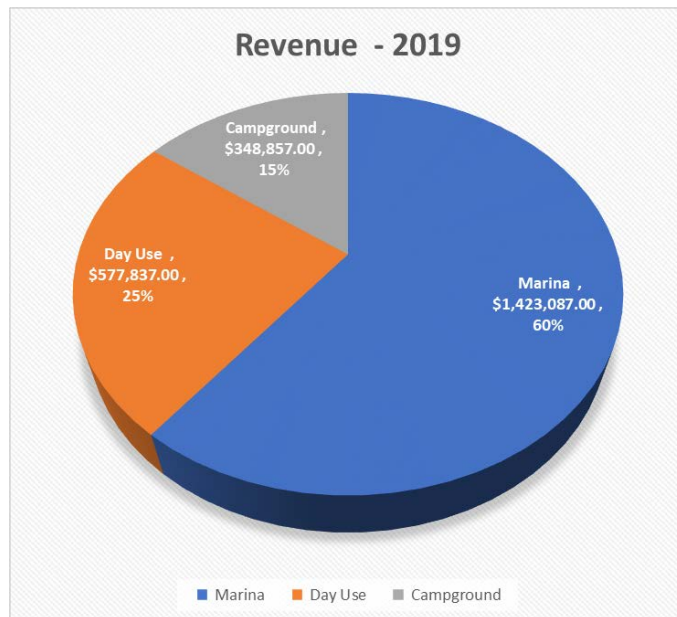
APPENDIX 4

Fifty Point Operation Revenue and Expenses January to December

Appendix 4

<u>Operation Revenue</u>	<u>2020</u>	<u>2019</u>	<u>% of Revenues</u> (2019 Pre-Pandemic)
Marina	\$ 1,251,503	\$ 1,423,087	60%
Day Use	\$ 820,776	\$ 577,837	25%
Campground	\$ 296,380	\$ 348,857	15%
Total Operation Revenue	\$ 2,368,659	\$ 2,349,781	

<u>Operation Expense</u>	<u>2020</u>	<u>2019</u>	<u>% of Expenses</u> (2019 Pre-Pandemic)
Staffing–Wages & Benefits	\$ 836,662	\$ 920,344	51 %
Marina Store	\$ 1,784	\$ 1,412	0.1%
Boat Slip Discounts	\$ 34,418	\$ 44,631	2.5%
Fuel Dock	\$ 176,169	\$ 226,319	12.5%
Ball Hockey	\$ 1,895	\$ 51,537	3 %
Utilities	\$ 173,882	\$ 111,825	6 %
Maintenance	\$ 256,173	\$ 262,464	14.5%
Office	\$ 196,124	\$ 185,540	10.4%
Total Operation Expense	\$ 1,667,107	\$ 1,804,072	
Total Net Income	\$ 691,552	\$ 545,709	

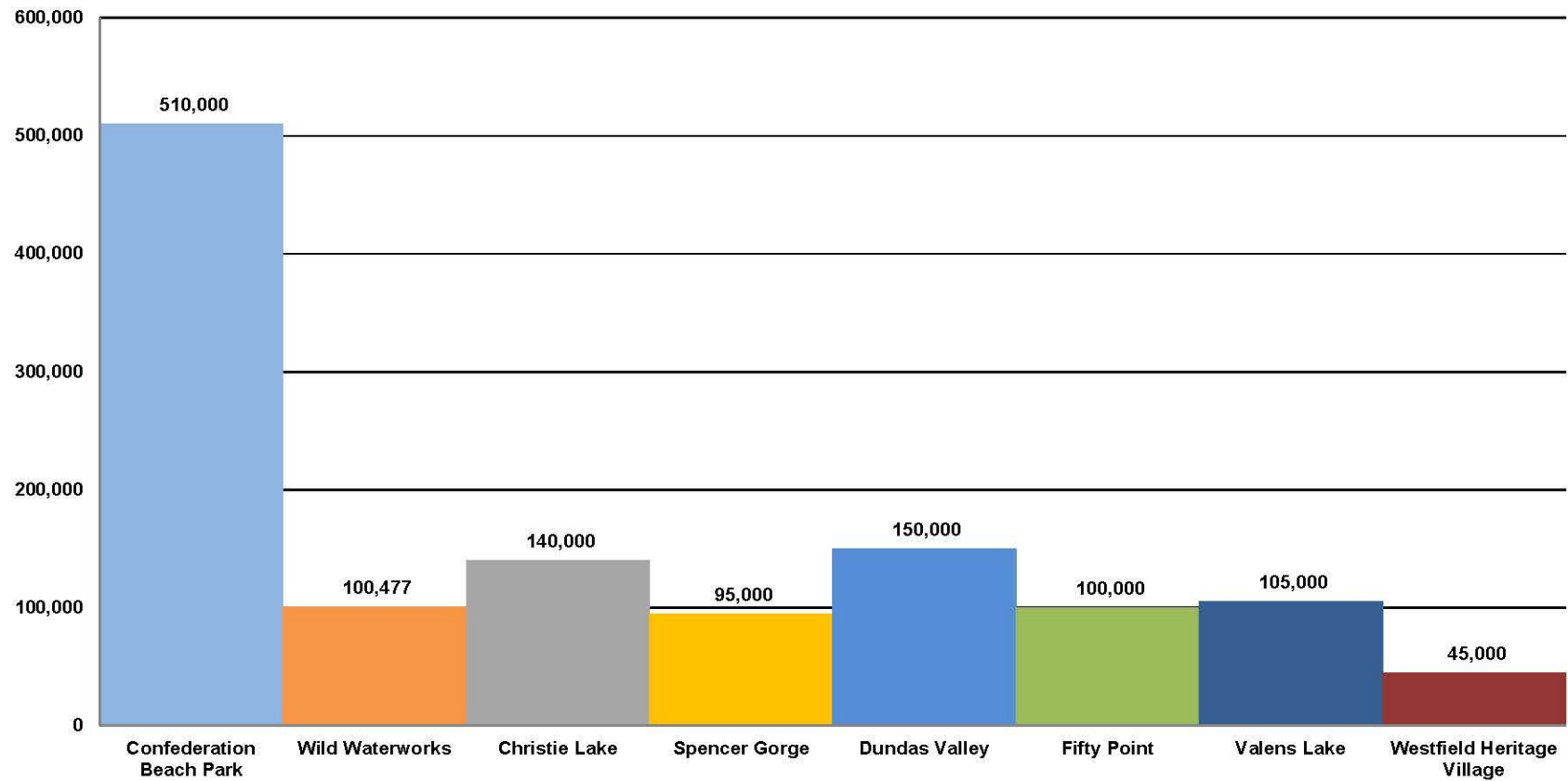


APPENDIX 5

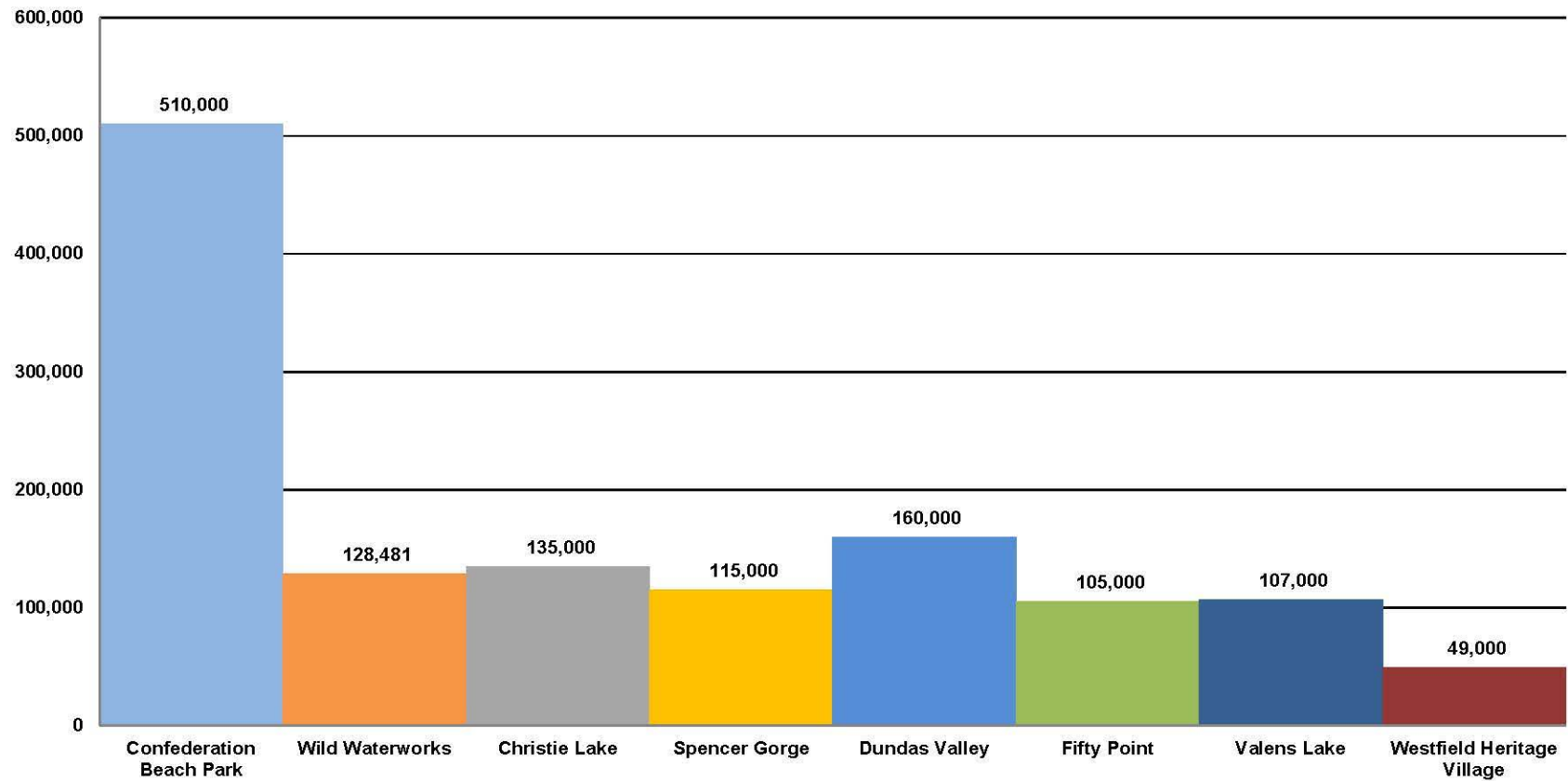
Visitor Data

Appendix 5.1	Attendance Stats 2017 to 2020
Appendix 5.2	Campground Survey Results
Appendix 5.3	Day Use Survey Results
Appendix 5.4	Marina Survey Results

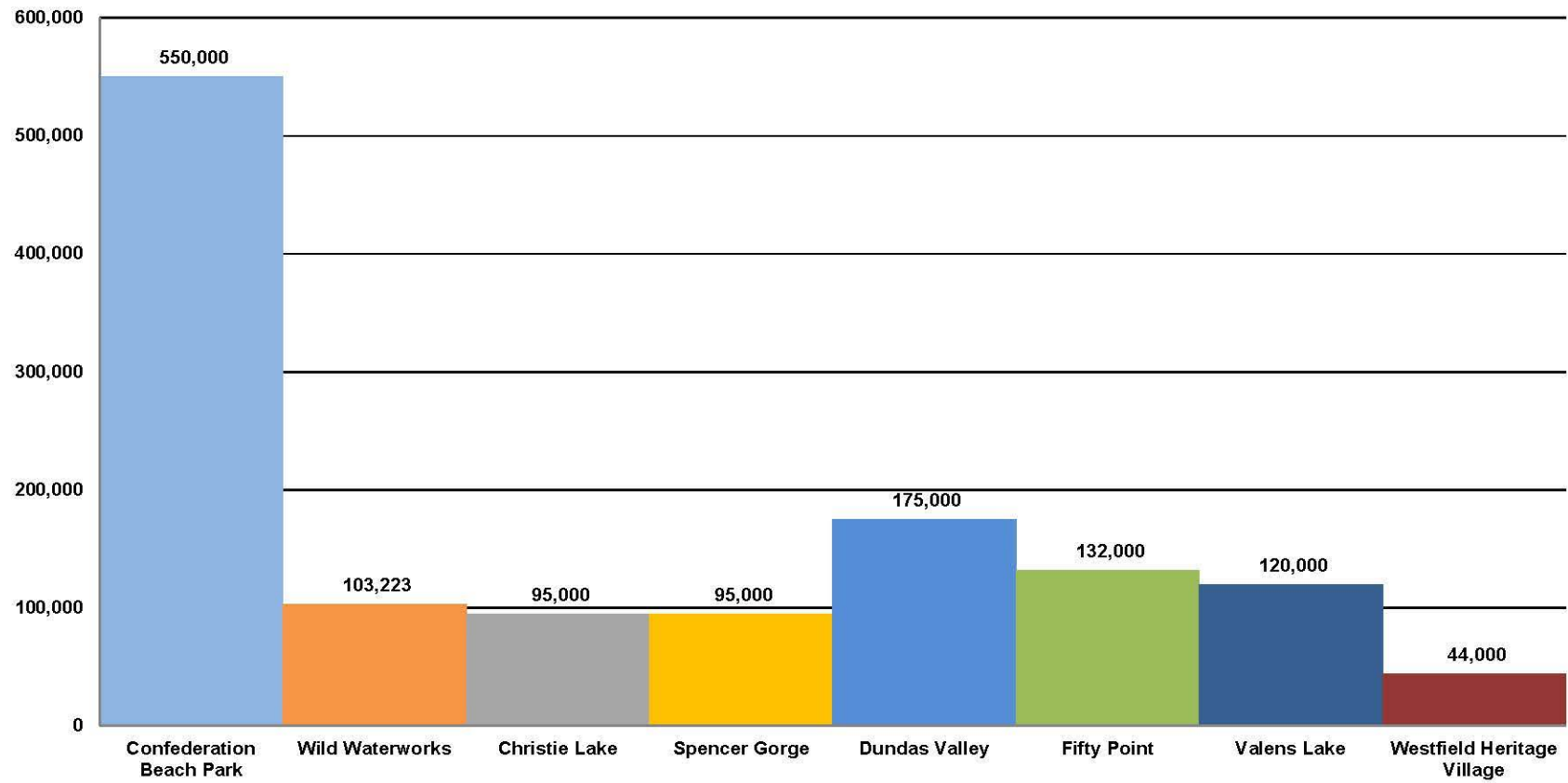
2017 Annual Attendance Estimate



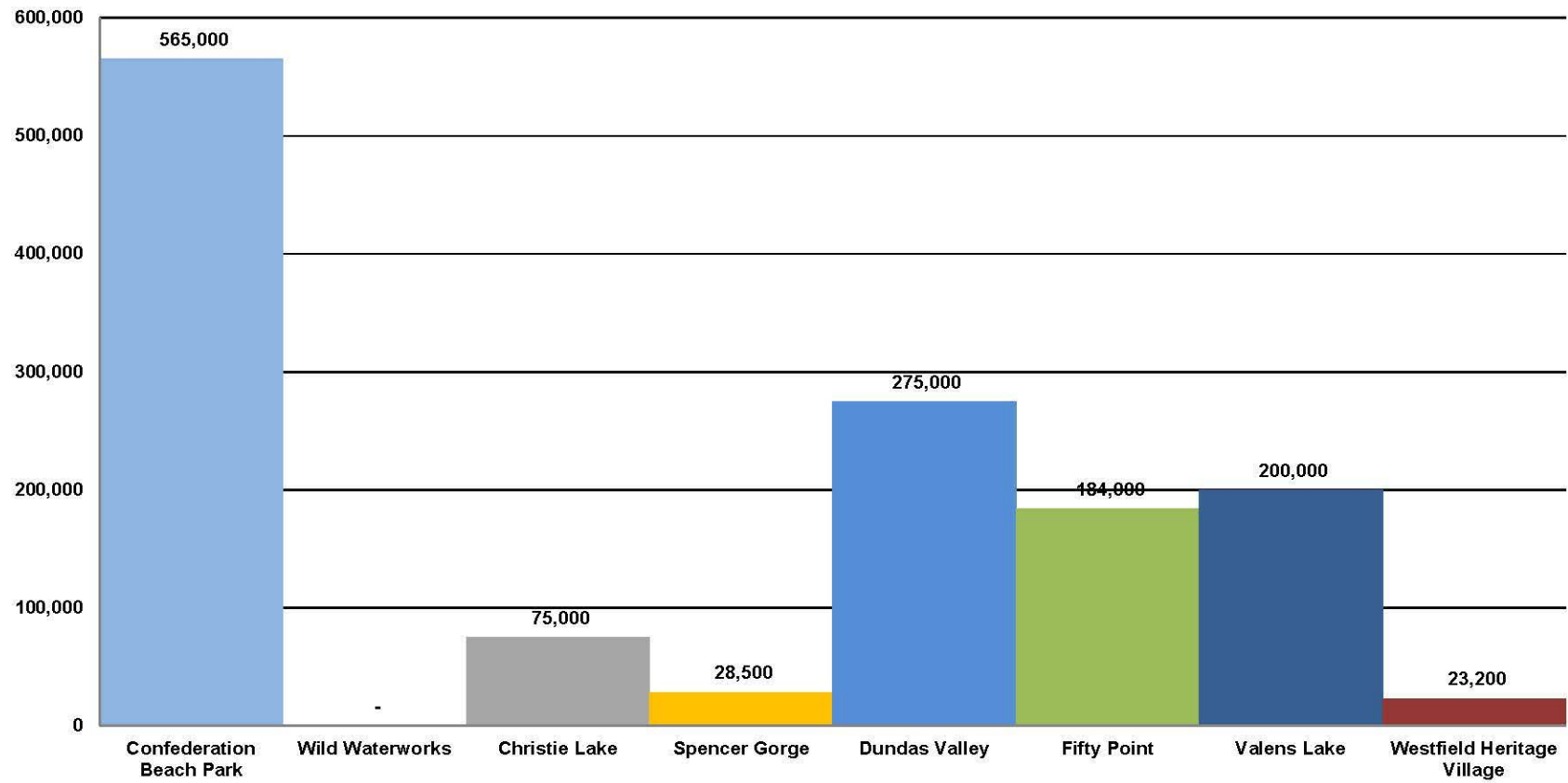
2018 Annual Attendance Estimate



2019 Annual Attendance Estimate

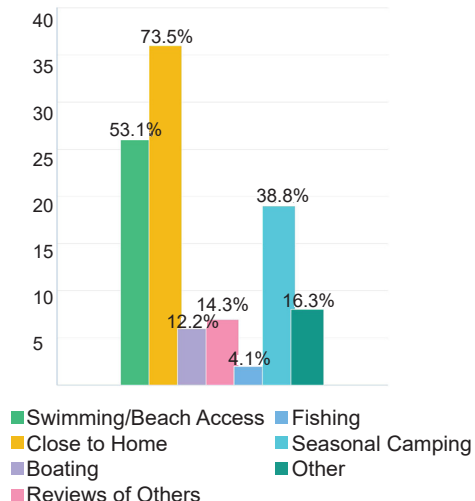


2020 DRAFT Annual Attendance Estimate

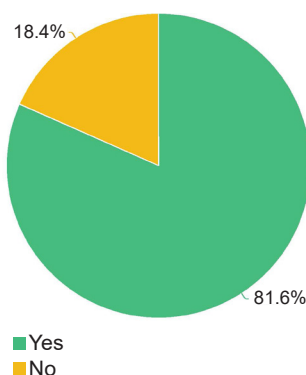


Campground Survey Results Summary

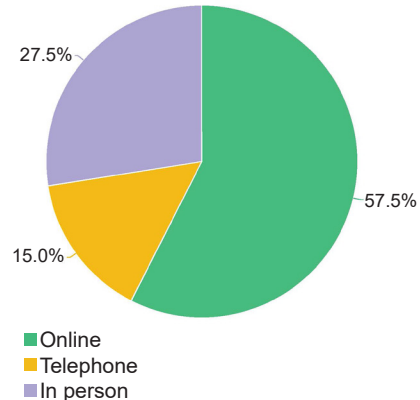
Why did you choose Fifty Point for your camping experience?



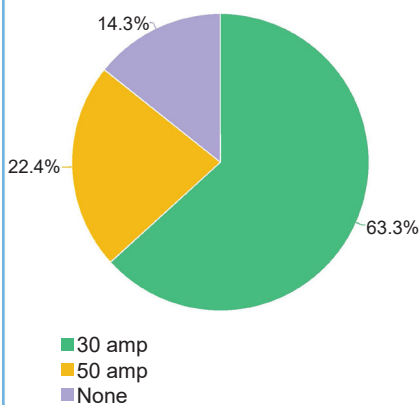
Did you reserve your campsite?



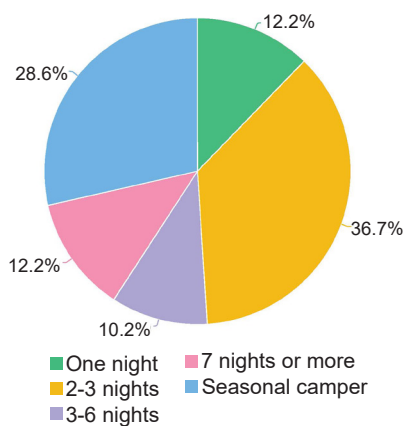
How did you reserve your campsite?



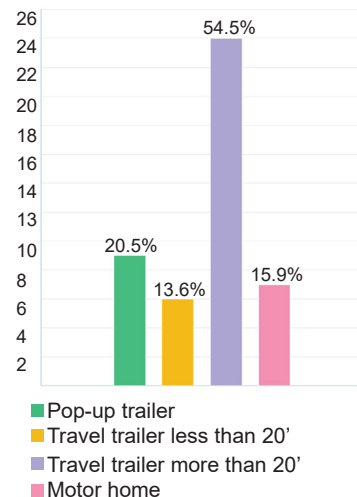
What site hookups did you use during your stay?



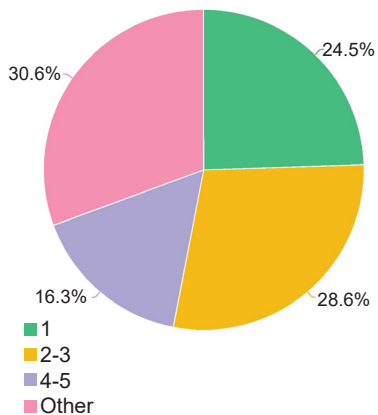
What is the length of your stay?



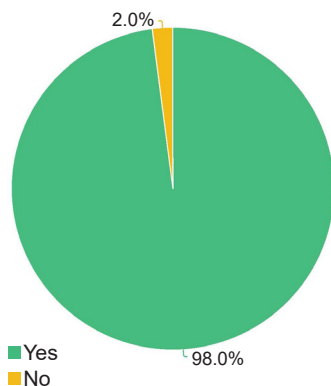
What equipment are you camping with?



How many times a year do you camp at Fifty Point?



Will you camp at Fifty Point again?



What was your favourite thing about camping at Fifty Point?

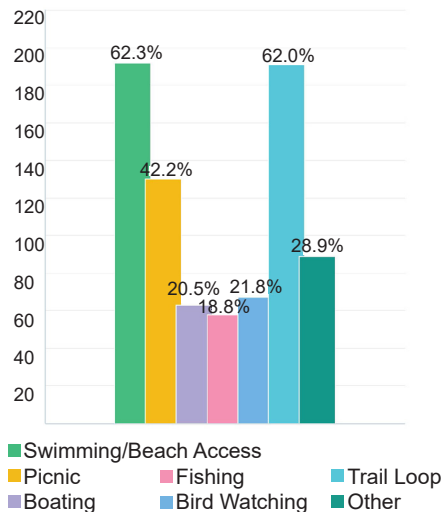
- Close to home
- Beach access
- Campsite size
- Easy access to boating
- Walking trails & being close to nature

What additional camping services would you like to see?

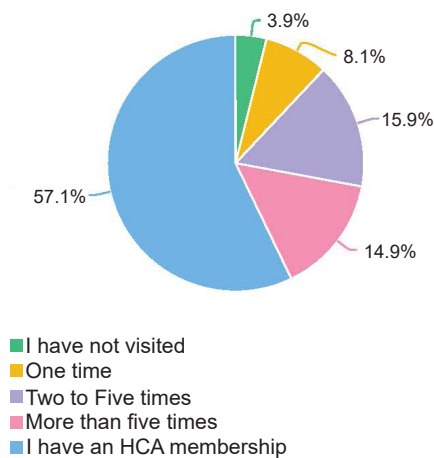
- Fire pits
- Tent camping
- Activities for kids
- More trees between sites
- More washroom facilities

Day Use Survey Results Summary

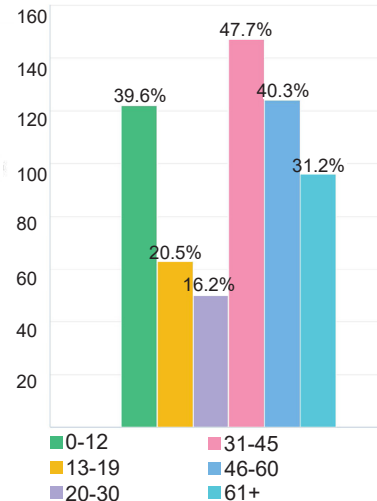
Why did you choose Fifty Point for your day use visit?



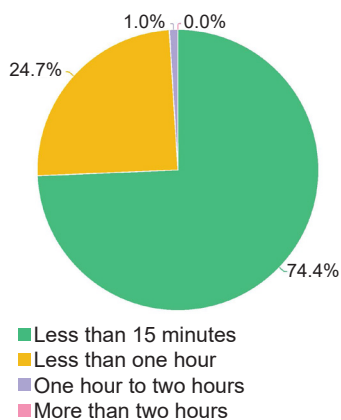
How many times have you visited Fifty Point in the last year?



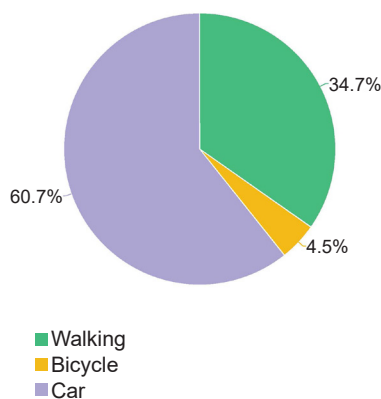
What age groups are included in your group when you visit?



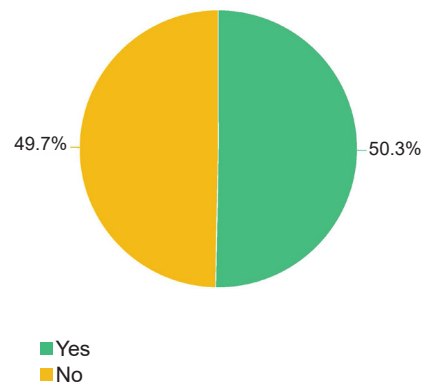
How long does it usually take you to get to Fifty Point?



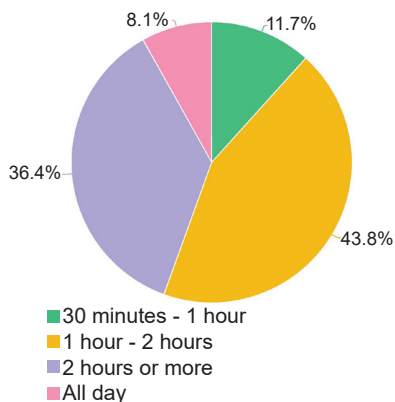
How do you usually get to Fifty Point?



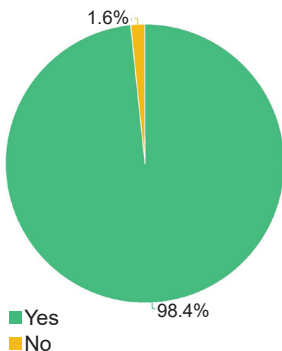
Have you shared your visit on social media?



When you visit, how long do you stay?



Will you come back to Fifty Point?



What was your favourite thing about your stay at Fifty Point?

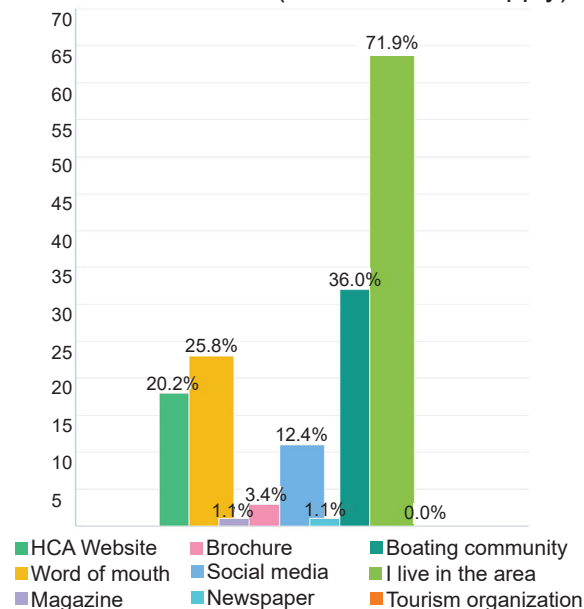
- The boat launch
- Beach access
- Scenic walking trails
- The dog beach
- Being able to walk to the park

What additional services would you like to see?

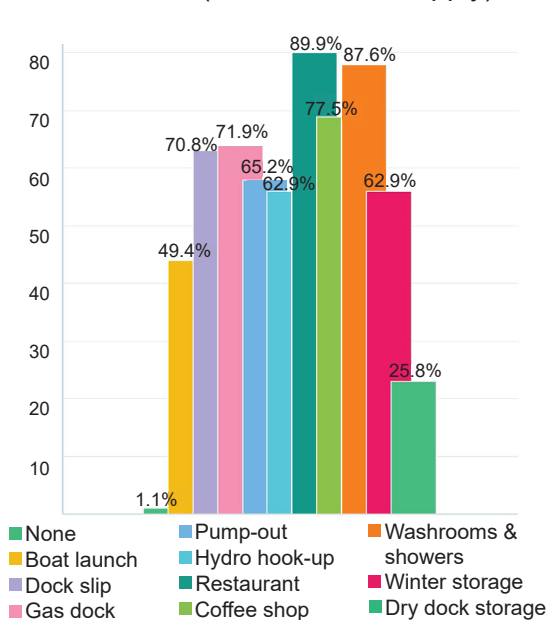
- More walking and bike trails
- Activities for kids
- Watercraft rentals
- A snack shack
- More washroom facilities

Marina Survey Results Summary

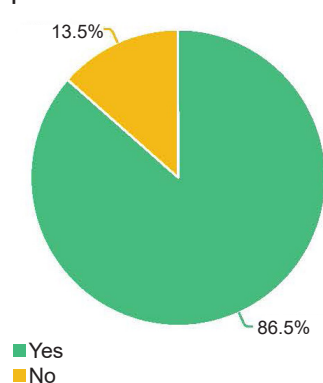
How did you learn about Fifty Point Conservation Area? (Choose all that apply)



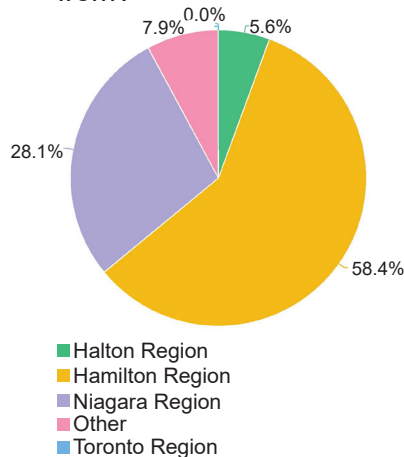
What amenities do you use at the Fifty Point marina? (Choose all that apply)



Are you an HCA Membership pass holder?



Where are you visiting from?



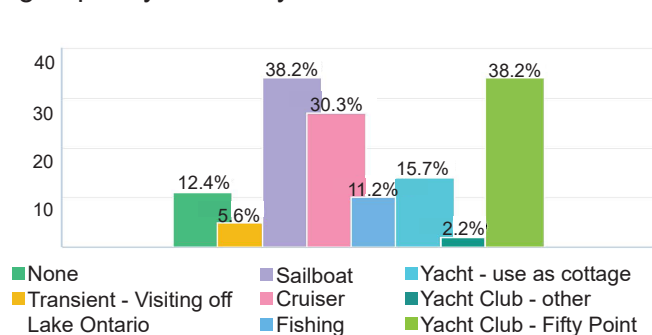
What do you tell family and friends about Fifty Point Marina?

- Beautiful setting
- A hidden gem
- Great staff
- Excellent restaurant
- Lot's of green space

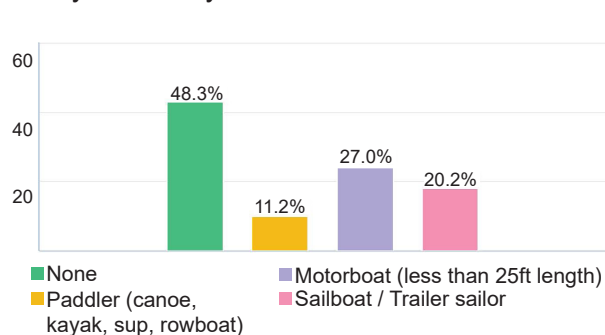
Is there a marina amenity you would like us to provide?

- A swimming pool
- More security
- More pavilions and comfort stations
- Storage for small watercraft
- Better WiFi service

What seasonal boating group do you identify with?



What visiting boating group do you identify with?



APPENDIX 6

6.7 Fifty Point Conservation Area

Fifty Point Conservation Area on Lake Ontario is an 80-hectare park with superb marina facilities in Stoney Creek. Recreational activities include swimming, picnicking, and family camping with 70 fully-serviced campsites. In addition there is a locally significant wetland located within the Conservation Area, a large pond as well as patches of remaining forest are used by migrating passerines and waterfowl.

Source: <https://conservationhamilton.ca/fifty-point/>

Managed Forest Summary

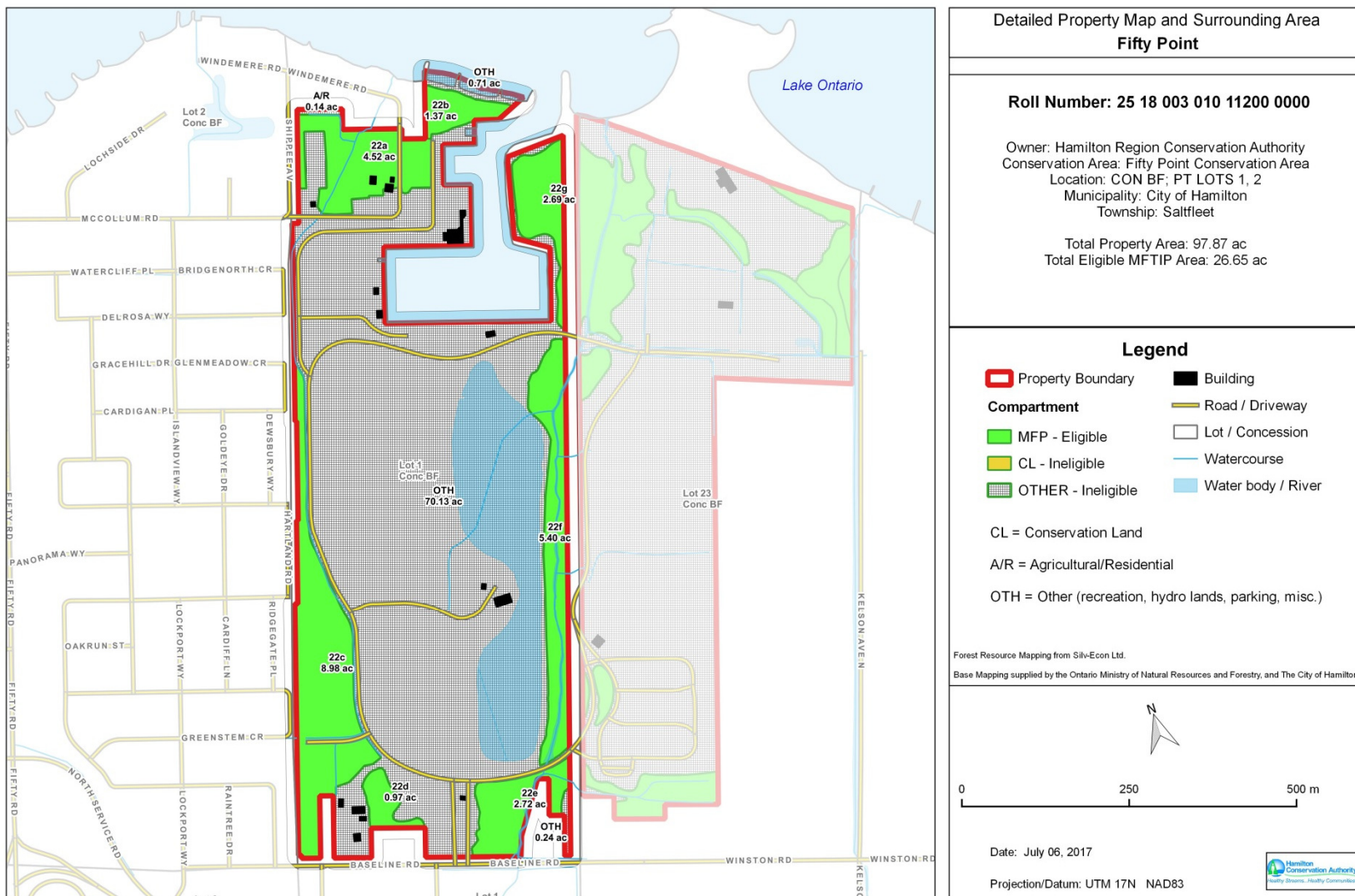
Roll Number (5-digit)	Forest Type 1	Area 1 (ac)	Forest Type 2	Area 2 (ac)	Forest Type 3	Area 3 (ac)	Total Area (ac)
11200	Upland Hardwoods	22.96	Lowland Hardwoods	3.69			26.65
08800	Upland Hardwoods	9.63	Mixed Plantation	2.26	Conifer Plantation	1.61	13.50

Other Vegetation Observed	Invasive Species Observed	Wildlife Habitat Features			
Red-osier dogwood Wild rose	Garlic mustard Buckthorn Manitoba maple	Snags	Cavities	Coarse Woody Debris	Mast Species
		Few	Few	Moderate	Hickory American beech Red oak White oak

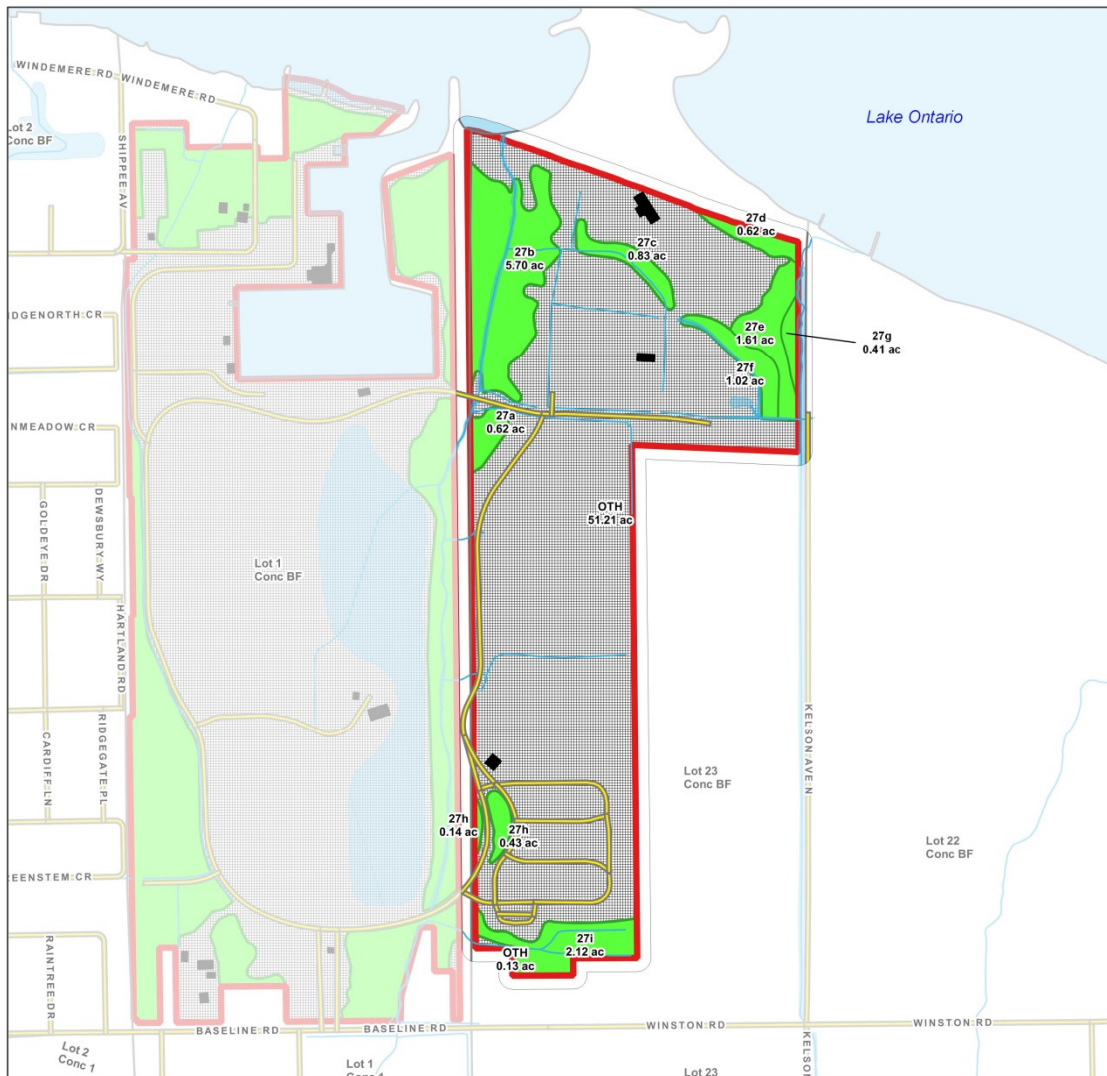
Forest Inventory										
			Trees ≥ 10 cm DBH						Regeneration (advanced > 1m)	
Comp	Area (ac)	Forest Type	Species Composition ¹	Age (yrs)	Height (m)	Avg. DBH ² (cm)	Density (stems/ha)	Basal Area ³ (m ² /ha)	Species Composition	Density (stems/ha)
22a	4.52	Upland Hardwoods	Hi5 Ag2 Be1 Mr1 Or1 (Pa)	45	26	17	568	30	Ag10	5000
22b	1.37	Upland Hardwoods	Hi5 Ag2 Be1 Mr1 Or1 (Pa)	45	26	17	568	30	Ag10	5000
22c	8.98	Upland Hardwoods	Ag2 Or2 Po2 Ap1 (Mm Mn Ps Pw Sn)3	26	18	10	415	10.5	Ce7 Bt3	750
22d	0.97	Lowland Hardwoods	Ag4 El4 Bt1 Wn1	22	12	10	824	10	Bt8 Ag2	4000
22e	2.72	Lowland Hardwoods	Ag8 El1 Wi1	60	23	20	842	36	Mm10	1000
22f	5.40	Upland Hardwoods	Or6 lw3 Ag1 (Po)	65	23	24	1093	44	Cb10	2000
22g	2.69	Upland Hardwoods	Or6 lw3 Ag1 (Po)	65	23	24	1093	44	Cb10	2000
27a	0.62	Upland Hardwoods	Or6 Ag1 Cb1 lw1 Ow1	65	32	25	424	34	Ag7 Mr3	3000
27b	5.70	Upland Hardwoods	Or6 lw2 Ag1 Cb1 (Ow Po)	65	26	24	758	39	Cb4 Ag4 Mr2	2500
27c	0.83	Mixed Plantation	Pw8 Mm2	20	16	5	564	12	none	0
27d	0.62	Upland Hardwoods	Mm10	20	5	28	32	2	none	0
27e	1.61	Conifer Plantation	Pw8 Mm2	20	16	5	564	12	none	0

Forest Inventory										
			Trees ≥ 10 cm DBH						Regeneration (advanced > 1m)	
Comp	Area (ac)	Forest Type	Species Composition ¹	Age (yrs)	Height (m)	Avg. DBH ² (cm)	Density (stems/ha)	Basal Area ³ (m2/ha)	Species Composition	Density (stems/ha)
27f	1.02	Mixed Plantation	Pw6 Wn3 Lh1 (Mn)	22	18	8	818	21	none	0
27g	0.41	Mixed Plantation	Pw5 Wn4 Lh1	25	19	12	1072	30	none	0
27h (2)	0.57	Upland Hardwoods	Or6 lw3 Ag1 (Po)	43	16	23	729	29	Cb10	1333
27i	2.12	Upland Hardwoods	Ag7 Ce2 El1 (Wi)	40	13	23	561	24	Mm10	667

Detailed Property Maps



HAMILTON CONSERVATION AUTHORITY MANAGED FOREST PLAN



Detailed Property Map and Surrounding Area Fifty Point

Roll Number: 26 15 020 022 08800 0000

Owner: Hamilton Region Conservation Authority
 Conservation Area: Fifty Point Conservation Area
 Location: CON BF; PT LOT 23
 Municipality: Niagara Region
 Township: Grimsby

Total Property Area: 64.84 ac
 Total Eligible MFTIP Area: 13.50 ac

Legend

- Property Boundary
- Building
- Compartment**
- MFP - Eligible
- CL - Ineligible
- OTHER - Ineligible
- Lot / Concession
- Watercourse
- Water body / River

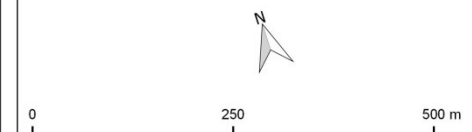
CL = Conservation Land

A/R = Agricultural/Residential

OTH = Other (recreation, hydro lands, parking, misc.)

Forest Resource Mapping from Silv-Econ Ltd.

Base Mapping supplied by the Ontario Ministry of Natural Resources and Forestry, and The City of Hamilton



Date: July 06, 2017

Projection/Datum: UTM 17N NAD83



Section 7 : Ten Year Activity Summary 2018-2027

The following management activities are recommended for the 2018-2027 operating period.

Forest Health & Ecological Diversity

Control Invasive plants

- The Ontario Invasive Plant Council recommends creating a feasible, long-term strategy for managing invasive species. Many of the managed forest compartments have been colonized by buckthorn and other invasive plant species. Buckthorn is particularly problematic because it is the dominant species in the regeneration of a number of the compartments. Managing the buckthorn is an important silvicultural objective in maintaining a healthy and productive forest.

Manage Red Pine Decline

- A number of the red pine plantations are declining as a result of root diseases. The HCA has been thinning these plantations to mitigate the effects of the decline in the overstory and promote natural regeneration. Many of the plantations also lack desirable regeneration and some are heavily colonized by buckthorn. Controlling the buckthorn and restoring regeneration through underplanting is highly recommended.

Monitor Invasive Insects

- Many, if not all, of the mature ash in the managed forest have been affected by Emerald Ash Borer. Fortunately ash is commonly found in the regeneration of many stands and it is unlikely that ash species will disappear from the managed forest.
- Hemlock stands are at risk from Hemlock woolly adelgid (HWA). Hemlock is dominant/co-dominant in Fletcher compartment 1f and Beverly Swamp compartment 4b and is a minor species in several other compartments. These stands should be monitored for signs of HWA and report infected stands to the Canadian Food Inspection Agency (CFIA). Silv-Econ is coordinating a working group of forest managers/owners who have hemlock stands on their properties. The HCA may wish to participate in this working group.

Wildlife & Nature Appreciation

Conserve Habitat Features

- Wildlife habitats can be conserved or enhanced by retaining snags, fallen trees and logs, and trees with cavities.
- Mitigating the impacts from management activities on Species At Risk and other wildlife may require modifications to conventional silvicultural activities, establishing buffers around critical habitat, and seasonal restrictions for undertaking management activities, among other mitigation measures.

Recreation

- There is an extensive network of recreational trails throughout most of the managed forest. Maintaining the trails by trimming vegetation, removing fallen logs and hazard trees, and making repairs when required is recommended.

Forest Products

- A second thinning of the conifer plantations at Christie, Dundas Valley, Mt. Albion, Valens, and Westfield Heritage Village can be considered during the 2018-2027 operating period.
- There are approximately 115 acres of conifer plantations at Fletcher Creek that could also be considered for thinning during the 2018-2027 operating period.

Section 11 : Tree Species & Species Abbreviations

Abbreviation	Species	Abbreviation	Species
Ag	green ash	Mst	Striped maple
Ap	apple	Nb	Nannyberry
Aw	white ash	Ob	bur oak
Bd	basswood	OC	other conifers
Be	American beech	OH	other hardwood
Bf	balsam fir	Or	red oak
Bn	butternut	Ow	white oak
Bt	European buckthorn	Pa	Austrian pine
Bw	white birch	Pb	balsam poplar
By	yellow birch	Pg	large tooth aspen
Cb	black cherry	Ph	hybrid poplar
Cc	choke cherry	Pj	jack pine
Ce	white cedar	Po	poplar species
El	elm	Pr	red pine
Ha	hawthorn	Ps	Scots pine
Hac	hackberry	Pt	trembling aspen
He	eastern hemlock	Pw	white pine
Hi	bitternut hickory	Sas	sassafras
Hs	shagbark hickory	Sb	black spruce
Iw	ironwood	Sc	blue spruce
La	European larch	Sn	Norway spruce
Lb	black locust	Sw	white spruce
Lh	Honey locust	Syc	American sycamore
Mash	mountain ash	Ta	tamarack
Mb	black maple	Tu	tulip tree
Mh	sugar maple	Wi	willow
Mm	Manitoba maple	Wn	black walnut
Mr	red maple		
Ms	silver maple		

APPENDIX 7

Appendix 7.1	Breeding Birds
Appendix 7.2	Spring Migratory Birds
Appendix 7.3	Butterflies
Appendix 7.4	Dragonflies and Damselflies
Appendix 7.5	Herpetofauna
Appendix 7.6	Plants

Breeding Birds						
ELC 2020	BBS 2021-1	BBS 2021-2	eBird 2017-2021	Species Code	OFO Scientific Name	OFO Common Name
X			x	B-AMCR	Corvus brachyrhynchos	American Crow
X	x	x	x	B-AMGO	Spinus tristis	American Goldfinch
			x	B-AMKE	Falco sparverius	American Kestrel
X	x	x	x	B-AMRO	Turdus migratorius	American Robin
X	x	x	x	B-BAOR	Icterus galbula	Baltimore Oriole
X+ nest	x	x	x	B-BARS	Hirundo rustica	Barn Swallow
X	x	x	x	B-BEKL	Megaceryle alcyon	Belted Kingfisher
X	x	x	x	B-BCCH	Poecile atricapillus	Black-capped Chickadee
	x		x	B-BTBW	Setophaga caerulescens	Black-throated Blue Warbler
X	x	x	x	B-BLJA	Cyanocitta cristata	Blue Jay
	x - nest	x	x	B-BGGN	Polioptila caerulea	Blue-gray Gnatcatcher
	X		x	B-BRCR	Certhia americana	Brown Creeper
	x		x	B-BRTH	Toxostoma rufum	Brown Thrasher
X			x	B-BHCO	Molothrus ater	Brown-headed Cowbird
X	x	x	x	B-CAGO	Branta canadensis	Canada Goose
X			x	B-CARW	Thryothorus ludovicianus	Carolina Wren
X			x	B-CATE	Hydroprogne caspia	Caspian Tern
X	x	x	x	B-CEDW	Bombycilla cedrorum	Cedar Waxwing
X			x	B-CHSP	Spizella passerina	Chipping Sparrow
		x	x	B-COGR	Quiscalus quiscula	Common Grackle
X			x	B-CORA	Corvus corax	Common Raven
X			x	B-COTE	Sterna hirundo	Common Tern
	x		x	B-COYE	Geothlypis trichas	Common Yellowthroat
X	x		x	B-DOWO	Dryobates pubescens	Downy Woodpecker
	x	x	x	B-EAKI	Tyrannus tyrannus	Eastern Kingbird
X	x	x	x	B-EAWP	Contopus virens	Eastern Wood-Pewee
X		x	x	B-EUST	Sturnus vulgaris	European Starling
X	x		x	B-GRCA	Dumetella carolinensis	Gray Catbird
X	x		x	B-GCFL	Myiarchus crinitus	Great Crested Flycatcher
	X		x	B-GHOW	Bubo virginianus	Great Horned Owl
X	x	x	x	B-GRHE	Butorides virescens	Green Heron

Breeding Birds						
ELC 2020	BBS 2021-1	BBS 2021-2	eBird 2017-2021	Species Code	OFO Scientific Name	OFO Common Name
X			x	B-HAWO	Dryobates villosus	Hairy Woodpecker
X+ nest	x	x	x	B-HOSP	Passer domesticus	House Sparrow
X	x	x	x	B-HOWR	Troglodytes aedon	House Wren
		x	x	B-INBU	Passerina cyanea	Indigo Bunting
X	x	x	x	B-KILL	Charadrius vociferus	Killdeer
		x	x	B-LEFL	Empidonax minimus	Least Flycatcher
X	x		x	B-MALL	Anas platyrhynchos	Mallard
X	x	x	x	B-MODO	Zenaida macroura	Mourning Dove
X	x	x	x	B-NOCA	Cardinalis cardinalis	Northern Cardinal
X	x	x	x	B-NOFL	Colaptes auratus	Northern Flicker
X		x	x	B-RBWO	Melanerpes carolinus	Red-bellied Woodpecker
	x	x	x	B-REVI	Vireo olivaceus	Red-eyed Vireo
X	x		x	B-RTHA	Buteo jamaicensis	Red-tailed Hawk
	x	x	x	B-RWBL	Agelaius phoeniceus	Red-winged Blackbird
X + nest		x	x	B-RBGR	Pheucticus ludovicianus	Rose-breasted Grosbeak
X			x	B-RTHU	Archilochus colubris	Ruby-throated Hummingbird
	x	x	x	B-SOSP	Melospiza melodia	Song Sparrow
X+ nest	x	x	x	B-TRES	Tachycineta bicolor	Tree Swallow
X	x	x	x	B-WAVI	Vireo gilvus	Warbling Vireo
X			x	B-WBNU	Sitta carolinensis	White-breasted Nuthatch
	x		x	B-WIFL	Empidonax traillii	Willow Flycatcher
	X		x	B-WODU	Aix sponsa	Wood Duck
X	x	x	x	B-YWAR	Setophaga petechia	Yellow Warbler

Spring Migratory Birds				
HCA staff	eBird 2017-2021	Species Code	OFO Scientific Name	OFO Common Name
X		B-AMCR	Corvus brachyrhynchos	American Crow
X		B-AMGO	Spinus tristis	American Goldfinch
x		B-AMKE	Falco sparverius	American Kestrel
x		B-AMRE	Setophaga ruticilla	American Redstart
X		B-AMRO	Turdus migratorius	American Robin
X		B-BAOR	Icterus galbula	Baltimore Oriole
X		B-BARS	Hirundo rustica	Barn Swallow
x		B-BBWA	Setophaga castanea	Bay-breasted Warbler
X		B-BEKI	Megaceryle alcyon	Belted Kingfisher
x		B-BAWW	Mniotilta varia	Black-and-white Warbler
x		B-BLBW	Setophaga fusca	Blackburnian Warbler
X		B-BCCH	Poecile atricapillus	Black-capped Chickadee
x		B-BLPW	Setophaga striata	Blackpoll Warbler
x		B-BTBW	Setophaga caerulescens	Black-throated Blue Warbler
x		B-BTGW	Setophaga virens	Black-throated Green Warbler
X		B-BLJA	Cyanocitta cristata	Blue Jay
x		B-BGGN	Poliophtila caerulea	Blue-gray Gnatcatcher
x		B-BHVI	Vireo solitarius	Blue-headed Vireo
x		B-BOBO	Dolichonyx oryzivorus	Bobolink
x		B-BRCR	Certhia americana	Brown Creeper
x		B-BRTH	Toxostoma rufum	Brown Thrasher
X		B-BHCO	Molothrus ater	Brown-headed Cowbird
x		B-BUFF	Bucephala albeola	Bufflehead
X		B-CAGO	Branta canadensis	Canada Goose
x		B-CAWA	Cardellina canadensis	Canada Warbler
x		B-CMWA	Setophaga tigrina	Cape May Warbler
X		B-CARW	Thryothorus ludovicianus	Carolina Wren
X		B-CATE	Hydroprogne caspia	Caspian Tern
X		B-CEDW	Bombycilla cedrorum	Cedar Waxwing
x		B-CSWA	Setophaga pensylvanica	Chestnut-sided Warbler
X		B-CHSP	Spizella passerina	Chipping Sparrow
x		B-COGR	Quiscalus quiscula	Common Grackle
X		B-COTE	Sterna hirundo	Common Tern
x		B-COYE	Geothlypis trichas	Common Yellowthroat

Spring Migratory Birds				
HCA staff	eBird 2017-2021	Species Code	OFO Scientific Name	OFO Common Name
x		B-DEJU	Junco hyemalis	Dark-eyed Junco
X		B-DCCO	Phalacrocorax auritus	Double-crested Cormorant
X		B-DOWO	Dryobates pubescens	Downy Woodpecker
x		B-EAKI	Tyrannus tyrannus	Eastern Kingbird
x		B-EAME	Sturnella magna	Eastern Meadowlark
x		B-EAPH	Sayornis phoebe	Eastern Phoebe
x		B-EATO	Pipilo erythrophthalmus	Eastern Towhee
X		B-EAWP	Contopus virens	Eastern Wood-Pewee
X		B-EUST	Sturnus vulgaris	European Starling
x		B-FISP	Spizella pusilla	Field Sparrow
x		B-FOSP	Passerella iliaca	Fox Sparrow
X		B-GRCA	Dumetella carolinensis	Gray Catbird
x		B-GBHE	Ardea herodias	Great Blue Heron
X		B-GCFL	Myiarchus crinitus	Great Crested Flycatcher
x		B-GREG	Ardea alba	Great Egret
X		B-GRHE	Butorides virescens	Green Heron
X		B-HAWO	Dryobates villosus	Hairy Woodpecker
x		B-HETH	Catharus guttatus	Hermit Thrush
x		B-HOME	Lophodytes cucullatus	Hooded Merganser
x		B-HOFI	Haemorhous mexicanus	House Finch
X		B-HOSP	Passer domesticus	House Sparrow
X		B-HOWR	Troglodytes aedon	House Wren
x		B-INBU	Passerina cyanea	Indigo Bunting
X		B-KILL	Charadrius vociferus	Killdeer
x		B-LEFL	Empidonax minimus	Least Flycatcher
x		B-MAWA	Setophaga magnolia	Magnolia Warbler
X		B-MALL	Anas platyrhynchos	Mallard
X		B-MODO	Zenaida macroura	Mourning Dove
x		B-NAWA	Oreothlypis ruficapilla	Nashville Warbler
X		B-NOFL	Colaptes auratus	Northern Flicker
x		B-NOPA	Setophaga americana	Northern Parula
x		B-NRWS	Stelgidopteryx serripennis	Northern Rough-winged Swallow
x		B-OSPR	Pandion haliaetus	Osprey
x		B-OVEN	Seiurus aurocapilla	Ovenbird

Spring Migratory Birds				
HCA staff	eBird 2017-2021	Species Code	OFO Scientific Name	OFO Common Name
x		B-PAWA	Setophaga palmarum	Palm Warbler
x		B-PHVI	Vireo philadelphicus	Philadelphia Vireo
x		B-PBGR	Podilymbus podiceps	Pied-billed Grebe
x		B-PISI	Spinus pinus	Pine Siskin
x		B-PIWA	Setophaga pinus	Pine Warbler
X		B-PUFI	Haemorhous purpureus	Purple Finch
X		B-RBWO	Melanerpes carolinus	Red-bellied Woodpecker
x		B-RBNU	Sitta canadensis	Red-breasted Nuthatch
x		B-REVI	Vireo olivaceus	Red-eyed Vireo
x		B-RHOW	Melanerpes erythrocephalus	Red-headed Woodpecker
x		B-RWBL	Agelaius phoeniceus	Red-winged Blackbird
x		B-RNDU	Aythya collaris	Ring-necked Duck
X		B-RBGR	Pheucticus ludovicianus	Rose-breasted Grosbeak
X		B-RCKI	Regulus calendula	Ruby-crowned Kinglet
X		B-RTHU	Archilochus colubris	Ruby-throated Hummingbird
x		B-RUBL	Euphagus carolinus	Rusty Blackbird
x		B-SAVS	Passerculus sandwichensis	Savannah Sparrow
x		B-SCTA	Piranga olivacea	Scarlet Tanager
x		B-SSHA	Accipiter striatus	Sharp-shinned Hawk
x		B-SOSP	Melospiza melodia	Song Sparrow
x		B-SWTH	Catharus ustulatus	Swainson's thrush
x		B-TEWA	Oreothlypis peregrina	Tennessee Warbler
X		B-TRES	Tachycineta bicolor	Tree Swallow
x		B-TRUS	Cygnus buccinator	Trumpeter Swan
x		B-TUVU	Cathartes aura	Turkey Vulture
x		B-VEER	Catharus fuscescens	Veery
X		B-WAVI	Vireo gilvus	Warbling Vireo
X		B-WBNU	Sitta carolinensis	White-breasted Nuthatch
x		B-WCSP	Zonotrichia leucophrys	White-crowned Sparrow
x		B-WTSP	Zonotrichia albicollis	White-throated Sparrow
x		B-WIFL	Empidonax traillii	Willow Flycatcher
x		B-WIWR	Troglodytes hiemalis	Winter Wren
x		B-WODU	Aix sponsa	Wood Duck
x		B-WOTH	Hylocichla mustelina	Wood Thrush

Spring Migratory Birds				
HCA staff	eBird 2017-2021	Species Code	OFO Scientific Name	OFO Common Name
X		B-YWAR	Setophaga petechia	Yellow Warbler
x		B-YBSA	Sphyrapicus varius	Yellow-bellied Sapsucker
x		B-YRWA	Setophaga coronata	Yellow-rumped Warbler
	x	B-BANS	Riparia riparia	Bank Swallow
	x	B-CHSW	Chaetura pelagica	Chimney Swift
	x	B-CCSP	Spizella pallida	Clay-colored Sparrow
	x	B-CLSW	Petrochelidon pyrrhonota	Cliff Swallow
	x	B-CONI	Chordeiles minor	Common Nighthawk
	x	B-EABL	Sialia sialis	Eastern Bluebird
	x	B-WPWI	Antrostomus vociferus	Eastern Whip-poor-will
	x	B-LISP	Melospiza lincolnii	Lincoln's Sparrow
	x	B-OROR	Icterus spurius	Orchard Oriole
	x	B-PUMA	Progne subis	Purple Martin
	x	B-YBCH	Icteria virens	Yellow-breasted Chat
	x	B-YTVI	Vireo flavifrons	Yellow-throated Vireo

Butterflies (from background data)				
ELC 2020	NHIC Scientific Name	NHIC Common Name	DATE	SOURCE
	<i>Cercyonis pegala</i>	Common Wood-Nymph	2016	SQR 17PH18 Ontario Butterfly Atlas
	<i>Vanessa atalanta</i>	Red Admiral	2019	SQR 17PH18 Ontario Butterfly Atlas
	<i>Lethe anthe don</i>	Northern Pearly-Eye	2016	SQR 17PH18 Ontario Butterfly Atlas
X	<i>Danaus plexippus</i>	Monarch	2019	SQR 17PH18 Ontario Butterfly Atlas
	<i>Nymphalis antiopa</i>	Mourning Cloak	2018	SQR 17PH18 Ontario Butterfly Atlas
	<i>Speyeria cybele</i>	Great Spangled Fritillary	2016	SQR 17PH18 Ontario Butterfly Atlas
	<i>Polygonia progne</i>	Gray Comma	2018	SQR 17PH18 Ontario Butterfly Atlas
	<i>Papilio cresphontes</i>	Giant Swallowtail	2015	SQR 17PH18 Ontario Butterfly Atlas
	<i>Colias philodice</i>	Clouded Sulphur	2016	SQR 17PH18 Ontario Butterfly Atlas
	<i>Polygonia comma</i>	Eastern Comma	2018	SQR 17PH18 Ontario Butterfly Atlas
X	<i>Pieris rapae</i>	Cabbage White	2018	SQR 17PH18 Ontario Butterfly Atlas
X	<i>Papilio polyxenes</i>	Black Swallowtail	2016	SQR 17PH18 Ontario Butterfly Atlas
	<i>Vanessa virginiensis</i>	American Lady	2016	SQR 17PH18 Ontario Butterfly Atlas
	<i>Celastrina</i> sp	Azure sp	2016	SQR 17PH18 Ontario Butterfly Atlas
	<i>Lintneria eremitus</i>	Hermit Sphinx	2017	SQR 17PH18 Ontario Moth Atlas
	<i>Darapsa myron</i>	Virginia Creeper Moth	2015	SQR 17PH08 Ontario Moth Atlas
	<i>Spilosoma virginica</i>	Virginia Tiger Moth	2018	SQR 17PH08 Ontario Moth Atlas
	<i>Hyphantria Cunea</i>	Fall Webworm Moth	2018	SQR 17PH08 Ontario Moth Atlas
	<i>Pyrrharctia isabella</i>	Isabella Tiger	2018	SQR 17PH08 Ontario Moth Atlas
X	<i>Euchaetes egle</i>	Milkweed Tussock Moth	2015	SQR 17PH08 Ontario Moth Atlas
	<i>Antheraea polyphemus</i>	Polyphemus Moth	2018	SQR 17PH08 Ontario Moth Atlas
	<i>Estigmene acrea</i>	Salt Marsh Moth	2018	SQR 17PH08 Ontario Moth Atlas
	<i>Caenurgina erechtea</i>	Forage Looper Moth	2016	iNaturalist
	<i>Satyrium calanus</i>	Banded Hairstreak	1991	HCA Database
	<i>Coenonympha tullia</i>	Common Ringlet	2012	HCA Database
	<i>Pholisora catullus</i>	Common Sootywing	1987	HCA Database
	<i>Colias philodice</i>	Clouded Sulphur	2012	HCA Database
	<i>Euphyes vestris</i>	Dun Skipper	1991	HCA Database
	<i>Cupido comyntas</i>	Eastern Tailed Blue	2012	HCA Database
X	<i>Papilio glaucus</i>	Eastern Tiger Swallowtail	2012	HCA Database
	<i>Thymelicus lineola</i>	European Skipper	2001	HCA Database
	<i>Erynnis juvenalis</i>	Juvenal's Duskywing	1990	HCA Database

Butterflies (from background data)				
ELC 2020	NHIC Scientific Name	NHIC Common Name	DATE	SOURCE
	<i>Ancyloxypha numitor</i>	Least Skipper	2012	HCA Database
	<i>Megisto cymela</i>	Little Wood-Satyr	1990	HCA Database
	<i>Wallengrenia egeremet</i>	Northern Broken-Dash	1990	HCA Database
	<i>Colias eurytheme</i>	Orange Sulphur	2012	HCA Database
	<i>Vanessa cardui</i>	Painted Lady	2012	HCA Database
	<i>Polygonia interrogationis</i>	Question Mark	2012	HCA Database
	<i>Phyciodes tharos</i>	Pearl Crescent	1991	HCA Database
	<i>Celastrina lucia</i>	Northern Spring Azure	1991	HCA Database
	<i>Satyrrium liparops</i>	Striped Hairstreak	1990	HCA Database
	<i>Celastrina neglecta</i>	Summer Azure	2001	HCA Database
	<i>Polites themistocles</i>	Tawny-edged Skipper	1990	HCA Database
X	<i>Lophocampa caryae</i>	Hickory Tussock Moth	2020	

Dragonflies and Damselflies (Background data only)			
NHIC ScientificName	NHIC CommonName	Date	Source
Plathemis lydia	Common Whitetail	2019	iNaturalist
Tramea lacerata	Black Saddlebags	2012	HCA Database
Pachydiplax longipennis	Blue Dasher	2012	HCA Database
Argia apicalis	Blue-fronted Dancer	no data	HCA Database
Celithemis elisa	Calico Pennant	2012	HCA Database
Epithea cynosura	Common Baskettail	2012	HCA Database
Anax junius	Common Green Darner	2012	HCA Database
Enallagma basidens	Double-striped Bluet	2012	HCA Database
Perithemis tenera	Eastern Amberwing	2012	HCA Database
Ischnura verticalis	Eastern Forktail	2012	HCA Database
Erythemis simplicicollis	Eastern Pondhawk	2012	HCA Database
Lestes dryas	Emerald Spreadwing	2012	HCA Database
Enallagma civile	Familiar Bluet	2012	HCA Database
Enallagma antennatum	Rainbow Bluet	2012	HCA Database
Tramea onusta	Red Saddlebags	2012	HCA Database
Enallagma geminatum	Skimming Bluet	2012	HCA Database
Lestes congener	Spotted Spreadwing	2012	HCA Database
Enallagma exsulans	Stream Bluet	2003	HCA Database
Coenagrion resolutum	Taiga Bluet	2012	HCA Database
Libellula pulchella	Twelve-spotted Skimmer	2012	HCA Database
Pantala flavescens	Wandering Glider	2012	HCA Database
Sympetrum obtrusum	White-faced Meadowhawk	2012	HCA Database
Libellula luctuosa	Widow Skimmer	2012	HCA Database

Herpetofauna			
2020	2021	SCIENTIFIC NAME	COMMON NAME
X	x	Anaxyrus americanus	American Toad
X		Thamnophis sirtalis sirtalis	Eastern Garter Snake
X		Lithobates clamitans	Green Frog
X		Chrysemys picta marginata	Midland Painted Turtle
X		Lithobates pipiens	Northern Leopard Frog
	X	Lithobates palustris	Pickerel Frog
X		Trachemys scripta elegans	Red-eared Slider
X		Chelydra serpentina	Snapping Turtle

Year	SPECIES_CODE	SCIENTIFIC_NAME_NHIC	COMMON_NAME_NHIC	NATIVE_STATUS	S_RAN_K	COSEWIC_STATUS	SARA_SCHEDULE_E1_STATUS	SARO_STATUS	G_RANK	EXOTIC_STATUS	COEFF_CONSERVATISM	COEFF_WETNES	COEFF_WEEDINESS
2020	P-ACENEGU	Acer negundo	Manitoba Maple	N	S5	no data	no data	no data	G5	no data		0	no data
2020	P-ACEPLAT	Acer platanoides	Norway Maple	I	SNA	no data	no data	no data	GNR	SE5		5	-3
2020	P-ACERUBR	Acer rubrum	Red Maple	N	S5	no data	no data	no data	G5	no data	4	0	no data
2020	P-ACESACC	Acer saccharinum	Silver Maple	N	S5	no data	no data	no data	G5	no data	5	-3	no data
2020	P-ACESASA	Acer saccharum	Sugar Maple	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-ACHMILL	Achillea millefolium	Common Yarrow	N	SNA	no data	no data	no data	G5	SE		3	no data
2020	P-AESHIPP	Aesculus hippocastanum	Horse Chestnut	I	SNA	no data	no data	no data	GNR	SE2		5	-1
2020	P-ALIPLAN	Alisma triviale	Northern Water-plantain	N	S5	no data	no data	no data	G5	no data	1	-5	no data
2020	P-ALLPETI	Alliaria petiolata	Garlic Mustard	I	SNA	no data	no data	no data	GNR	SE5		0	-3
2020	P-AMBARTE	Ambrosia artemisiifolia	Common Ragweed	N	S5	no data	no data	no data	G5	no data	0	3	no data
2020	P-AMBTRIF	Ambrosia trifida	Great Ragweed	N	S5	no data	no data	no data	G5	no data	0	0	no data
2020	P-AMMBREV	Ammophila brevifolulata	American Beachgrass	N	S4	no data	no data	no data	G5	no data	10	5	no data
2020	P-AMOFRUT	Amorpha fruticosa	Shrubby False Indigo	N	SU	no data	no data	no data	G5	no data	5	-3	no data
2020	P-APOANAN	Apocynum androsaemifolium	Spreading Dogbane	N	S5	no data	no data	no data	G5	no data	3	5	no data
2020	P-ARCLAPP	Arctium lappa	Great Burdock	I	SNA	no data	no data	no data	GNR	SE5		3	no data
2020	P-ARCMINU	Arctium minus	Common Burdock	I	SNA	no data	no data	no data	GNR	SE5		3	no data
2020	P-ARITRTR	Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit	N	S5	no data	no data	no data	G5T5	no data	5	-3	no data
2020	P-ARTVULG	Artemisia vulgaris	Common Wormwood	I	SNA	no data	no data	no data	GU	SE5		5	-1
2020	P-ASCININ	Asclepias incarnata ssp. incarnata	Swamp Milkweed	N	S5	no data	no data	no data	G5T5	no data	6	-5	no data
2020	P-ASCSYRI	Asclepias syriaca	Common Milkweed	N	S5	no data	no data	no data	G5	no data	0	5	no data
2020	P-ASPOFFI	Asparagus officinalis	Garden Asparagus	I	SNA	no data	no data	no data	G5?	SE5		3	-1
2020	P-BERTHUN	Berberis thunbergii	Japanese Barberry	I	SNA	no data	no data	no data	GNR	SE5		3	-3
2020	P-BUTUMBE	Butomus umbellatus	Flowering-rush	I	SNA	no data	no data	no data	G5	SE5		-5	-2
2020	P-CALSEPI	Calystegia sepium	Hedge False Bindweed	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-CALSPSP	Calystegia spithamea ssp. spithamea	Low False Bindweed	N	S4S5	no data	no data	no data	G4G5T4T5	no data	7	5	no data
2020	P-CAMRAPU	Campanula rapunculoides	Creeping Bellflower	I	SNA	no data	no data	no data	GNR	SE5		5	-2
2020	P-CARPROJ	Carex projecta	Necklace Sedge	N	S5	no data	no data	no data	G5	no data	5	-3	no data
2020	P-CARVULP	Carex vulpinoidea	Fox Sedge	N	S5	no data	no data	no data	G5	no data	3	-5	no data
2020	P-CAROVAT	Carya ovata	Shagbark Hickory	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-CATSPEC	Catalpa speciosa	Northern Catalpa	I	SNA	no data	no data	no data	G4?	SE1		3	-1
2020	P-CENMACU	Centaurea stoebe ssp. micranthos	Spotted Knapweed	I	SNA	no data	no data	no data	G--TNR	SE5		5	-3
2020	P-CICINTY	Cichorium intybus	Chicory	I	SNA	no data	no data	no data	GNR	SE5		5	-1
2020	P-CIRLUCA	Circaea canadensis ssp. canadensis	Canada Enchanter's Nightshade	N	S5	no data	no data	no data	GNR	no data	2	3	no data
2020	P-CIRARVE	Cirsium arvense	Canada Thistle	I	SNA	no data	no data	no data	G5	SE5		3	-1
2020	P-CIRDISC	Cirsium discolor	Field Thistle	N	S3	no data	no data	no data	G5	no data	9	5	no data
2020	P-CIRVULG	Cirsium vulgare	Bull Thistle	I	SNA	no data	no data	no data	GNR	SE5		3	-1
2020	P-CONARVE	Convolvulus arvensis	Field Bindweed	I	SNA	no data	no data	no data	GNR	SE5		5	-1
2020	P-CORFORA	Cornus racemosa	Gray Dogwood	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-CORSTOL	Cornus sericea	Red-osier Dogwood	N	S5	no data	no data	no data	G5	no data	2	-3	no data
2021	P-CARCONC	Cardamine concatenata	Cut-leaved Toothwort	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-CYDOBLO	Cydonia oblonga	Common Quince	I	SNA	no data	no data	no data	GNR	SE1		0	no data
2020	P-DAUCARO	Daucus carota	Wild Carrot	I	SNA	no data	no data	no data	GNR	SE5		5	-2
2020	P-DIAARME	Dianthus armeria	Deptford Pink	I	SNA	no data	no data	no data	GNR	SE5		5	-1
2020	P-DIELONI	Diervilla lonicera	Northern Bush-honeysuckle	N	S5	no data	no data	no data	G5	no data	5	5	no data
2020	P-DIPFUSY	Dipsacus fullonum	Common Teasel	I	SNA	no data	no data	no data	GNR	SE5		3	no data
2020	P-ECHLOBA	Echinocystis lobata	Wild Mock-cucumber	N	S5	no data	no data	no data	G5	no data	3	-3	no data
2020	P-ECHVULG	Echium vulgare	Common Viper's Bugloss	I	SNA	no data	no data	no data	GNR	SE5		5	-2
2020	P-ELAANGU	Elaeagnus angustifolia	Russian Olive	I	SNA	no data	no data	no data	GNR	SE3		3	-1
2020	P-ELAUMBE	Elaeagnus umbellata	Autumn Olive	I	SNA	no data	no data	no data	GNR	SE3		3	-3
2020	P-ELESMAL	Eleocharis palustris	Creeping Spikerush	N	S5	no data	no data	no data	G5?	no data	6	-5	no data
2020	P-ELYREPE	Elymus repens	Creeping Wildrye	I	SNA	no data	no data	no data	GNR	SE5		3	-3
2020	P-EPICOLO	Epilobium coloratum	Purple-veined Willowherb	N	S5	no data	no data	no data	G5	no data	3	-5	no data
2020	P-EPIHELL	Epipactis helleborine	Eastern Helleborine	I	SNA	no data	no data	no data	GNR	SE5		3	-2
2020	P-ERIANNU	Erigeron annuus	Annual Fleabane	N	S5	no data	no data	no data	G5	no data	0	3	no data
2020	P-CONCANA	Erigeron canadensis	Canada Horseweed	N	S5	no data	no data	no data	G5	no data	0	3	no data
2020	P-ERIPHIL	Erigeron philadelphicus	Philadelphia Fleabane	N	S5	no data	no data	no data	G5	no data	1	-3	no data

2020	P-ASTMACR	Eurybia macrophylla	Large-leaved Aster	N	S5	no data	no data	no data	G5	no data	5	5	no data
2020	P-EUTGRAM	Euthamia graminifolia	Grass-leaved Goldenrod	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-FAGGRAN	Fagus grandifolia	American Beech	N	S4	no data	no data	no data	G5	no data	6	3	no data
2020	P-FRAAMER	Fraxinus americana	White Ash	N	S4	no data	no data	no data	G5	no data	4	3	no data
2020	P-FRAPENN	Fraxinus pennsylvanica	Green Ash	N	S4	no data	no data	no data	G5	no data	3	-3	no data
2020	P-GALAPAR	Galium aparine	Cleavers	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-GALASPR	Galium asprellum	Rough Bedstraw	N	S5	no data	no data	no data	G5	no data	6	-5	no data
2020	P-GERMACU	Geranium maculatum	Spotted Geranium	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-GERROBE	Geranium robertianum	Herb-Robert	I	S5	no data	no data	no data	G5	no data	2	3	-2
2020	P-GEUALEP	Geum aleppicum	Yellow Avens	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-GEUCANA	Geum canadense	White Avens	N	S5	no data	no data	no data	G5	no data	3	0	no data
2020	P-GEULACI	Geum laciniatum	Rough Avens	N	S4	no data	no data	no data	G5	no data	4	-3	no data
2020	P-GLEHEDE	Glechoma hederacea	Ground Ivy	I	SNA	no data	no data	no data	GNR	SE5		3	no data
2020	P-GLETRIA	Gleditsia triacanthos	Honey-locust	I	S2?	no data	no data	no data	G5	no data	8	0	no data
2020	P-HAMVIRG	Hamamelis virginiana	American Witch-hazel	N	S4S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-HELTUBE	Helianthus tuberosus	Jerusalem Artichoke	I	SU	no data	no data	no data	G5	no data	1	0	-1
2020	P-HEMFULV	Hemerocallis fulva	Orange Daylily	I	SNA	no data	no data	no data	GNA	SE5		5	-3
2020	P-HESMATR	Hesperis matronalis	Dame's Rocket	I	SNA	no data	no data	no data	G4G5	SE5		3	-3
2020	P-HIBSYRI	Hibiscus syriacus	Rose of Sharon	I									
2020	P-HIEPANI	Hieracium paniculatum	Panicled Hawkweed	N	S2	no data	no data	no data	G5	no data	10	5	no data
2020	P-HIECANA	Hieracium umbellatum	Umbellate Hawkweed	N	S5	no data	no data	no data	G5	no data	6	5	no data
2020	P-HYDAMER	Hydrocotyle americana	American Water-pennywort	N	S4S5	no data	no data	no data	G5	no data	7	-5	no data
2020	P-HYPASCY	Hypericum ascyron	Great St. John's-wort	N	S3	no data	no data	no data	G4	no data	6	0	no data
2020	P-HYPPERF	Hypericum perforatum	Common St. John's-wort	I	SNA	no data	no data	no data	GNR	SE5		5	-3
2020	P-HYPPUNC	Hypericum punctatum	Spotted St. John's-wort	N	S5	no data	no data	no data	G5	no data	5	0	no data
2020	P-IMPCAPE	Impatiens capensis	Spotted Jewelweed	N	S5	no data	no data	no data	G5	no data	4	-3	no data
2020	P-JUGREGI	Juglans regia	English Walnut	I	SNA	no data	no data	no data	GNR	SE1		5	no data
2020	P-JUGNIGR	Juglans nigra	Black Walnut	N	S4?	no data	no data	no data	G5	no data	5	3	no data
2020	P-JUNEF50	Juncus effusus ssp. solutus	Soft Rush	N	S5?	no data	no data	no data	G5T5	no data	4	-5	no data
2020	P-JUNTENU	Juncus tenuis	Path Rush	N	S5	no data	no data	no data	G5	no data	0	0	no data
2020	P-JUNVIRG	Juniperus virginiana	Eastern Red Cedar	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-LACSERR	Lactuca serriola	Prickly Lettuce	I	SNA	no data	no data	no data	GNR	SE5		3	-1
2020	P-LAPCOMM	Lapsana communis	Common Nipplewort	I	SNA	no data	no data	no data	GNR	SE5		3	-2
2020	P-LARLARI	Larix laricina	Tamarack	N	S5	no data	no data	no data	G5	no data	7	-3	no data
2020	P-LEEORYZ	Leersia oryzoides	Rice Cutgrass	N	S5	no data	no data	no data	G5	no data	3	-5	no data
2020	P-LEOCACA	Leonurus cardiaca ssp. cardiaca	Common Motherwort	I	SNA	no data	no data	no data	GNRTNR	SE5		5	no data
2020	P-LIGVULG	Ligustrum vulgare	European Privet	I	SNA	no data	no data	no data	GNR	SE5		3	-2
2020	P-LIRTULI	Liriodendron tulipifera	Tulip Tree	N	S4	no data	no data	no data	G5	no data	8	3	no data
2020	P-LONDIOI	Lonicera dioica	Limber Honeysuckle	N	S5	no data	no data	no data	G5	no data	5	3	no data
2020	P-LONMORR	Lonicera morrowii	Morrow's Honeysuckle	I	SNA	no data	no data	no data	GNR	SE3		3	-1
2020	P-LONTATA	Lonicera tatarica	Tartarian Honeysuckle	I	SNA	no data	no data	no data	GNR	SE5		3	no data
2020	P-LOTORN	Lotus corniculatus	Garden Bird's-foot Trefoil	I	SNA	no data	no data	no data	GNR	SE5		3	-2
2020	P-LYSNUMM	Lysimachia nummularia	Creeping Jennie	I	SNA	no data	no data	no data	GNR	SE5		-3	-3
2020	P-LYTSALI	Lythrum salicaria	Purple Loosestrife	I	SNA	no data	no data	no data	G5	SE5		-5	-3
2020	P-POLMULT	Polygonatum multiflorum	Eurasian Solomon's Seal	I	SNA	no data	no data	no data	GNR	SE1		0	no data
2020	P-MELALBA	Melilotus albus	White Sweet-clover	I	SNA	no data	no data	no data	G5	SE5		3	-3
2020	P-MENARBO	Mentha canadensis	Canada Mint	N	S5	no data	no data	no data	G5	no data	3	-3	no data
2020	P-MONFIST	Monarda fistulosa	Wild Bergamot	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-MORALBA	Morus alba	White Mulberry	I	SNA	no data	no data	no data	GNR	SE5		0	-3
2020	P-MYOLAXA	Myosotis laxa	Small Forget-me-not	N	S5	no data	no data	no data	G5	no data	6	-5	no data
2020	P-NEPCATA	Nepeta cataria	Catnip	I	SNA	no data	no data	no data	GNR	SE5		3	-2
2020	P-OENBIEN	Oenothera biennis	Common Evening Primrose	N	S5	no data	no data	no data	G5	no data	0	3	no data
2020	P-OSTVIRG	Ostrya virginiana	Eastern Hop-hornbeam	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-PARINSE	Parthenocissus vitacea	Thicket Creeper	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-PARQUIN	Parthenocissus quinquefolia	Virginia Creeper	N	S4?	no data	no data	no data	G5	no data	6	3	no data
2020	P-POLLAPA	Persicaria lapathifolia	Pale Smartweed	N	S5	no data	no data	no data	G5	no data	2	-3	no data
2020	P-POLPERS	Persicaria maculosa	Spotted Lady's-thumb	N	SNA	no data	no data	no data	G3G5	SE5		-3	-1
2020	P-POLVIRM	Persicaria virginiana	Virginia Smartweed	N	S4	no data	no data	no data	G5	no data	6	0	no data
2020	P-PHAARUN	Phalaris arundinacea	Reed Canary Grass	N	S5	no data	no data	no data	G5	no data		-3	no data

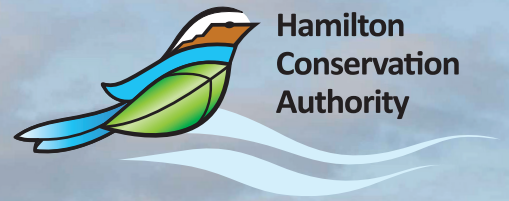
2020	P-PHRAUST	Phragmites australis ssp. australis	European Reed	I	SNA	no data	no data	no data	G5T5	no data		-3	no data
2020	P-PHYOPUL	Physocarpus opulifolius	Eastern Ninebark	N	S5	no data	no data	no data	G5	no data	5	-3	no data
2020	P-PICABIE	Picea abies	Norway Spruce	I	SNA	no data	no data	no data	G5	SE3		5	-1
2020	P-PICGLAU	Picea glauca	White Spruce	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-PICPUNG	Picea pungens	Blue Spruce	I	SNA	no data	no data	no data	G5	SE1		3	NA
2020	P-PINNIGR	Pinus nigra	Black Pine	I	SNA	no data	no data	no data	GNR	SE3		5	-1
2020	P-PINSTRO	Pinus strobus	Eastern White Pine	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-PINSYLV	Pinus sylvestris	Scots Pine	I	SNA	no data	no data	no data	GNR	SE5		3	-3
2020	P-PLALANC	Plantago lanceolata	English Plantain	I	SNA	no data	no data	no data	G5	SE5		3	-1
2020	P-PLAMAJO	Plantago major	Common Plantain	I	SNA	no data	no data	no data	G5	SE5		3	-1
2020	P-PODPELT	Podophyllum peltatum	May-apple	N	S5	no data	no data	no data	G5	no data	5	3	no data
2020	P-POLBIFL	Polygonatum biflorum	Giant Solomon's Seal	N	S4	no data	no data	no data	G5	no data	8	3	no data
2020	P-POLPUBE	Polygonatum pubescens	Hairy Solomon's Seal	N	S5	no data	no data	no data	G5	no data	5	5	no data
2020	P-POPDEMO	Populus deltoides	Eastern Cottonwood	N	S5	no data	no data	no data	G5	no data	4	0	no data
2020	P-POPTREM	Populus tremuloides	Trembling Aspen	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-POTARGE	Potentilla argentea	Silvery Cinquefoil	I	SNA	no data	no data	no data	GNR	SE5		3	-2
2020	P-POTRECT	Potentilla recta	Sulphur Cinquefoil	N	SNA	no data	no data	no data	GNR	SE5		5	-2
2020	P-PRUVULG	Prunella vulgaris	Self-heal	I	S5	no data	no data	no data	G5	no data	0	0	no data
2020	P-PRUAVIU	Prunus avium	Sweet Cherry	I	SNA	no data	no data	no data	GNR	SE4		5	-2
2020	P-PRUSERO	Prunus serotina	Black Cherry	N	S5	no data	no data	no data	G5	no data	3	3	no data
2020	P-PRUVIVI	Prunus virginiana	Choke Cherry	N	S5	no data	no data	no data	G5	no data	2	3	no data
2020	P-PYRCOMM	Pyrus communis	Common Pear	I	SNA	no data	no data	no data	G5	SE4		5	-1
2020	P-QUEALBA	Quercus alba	White Oak	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-QUEBICO	Quercus bicolor	Swamp White Oak	N	S4	no data	no data	no data	G5	no data	8	-3	no data
2020	P-QUEMACR	Quercus macrocarpa	Bur Oak	N	S5	no data	no data	no data	G5	no data	5	3	no data
2020	P-QUEVELU	Quercus velutina	Black Oak	N	S4	no data	no data	no data	G5	no data	8	5	no data
2020	P-QUEPALU	Quercus palustris	Pin Oak	N	S4	no data	no data	no data	G5	no data	9	-3	no data
2020	P-QUERUBR	Quercus rubra	Northern Red Oak	N	S5	no data	no data	no data	G5	no data	6	3	no data
2020	P-RANABOR	Ranunculus abortivus	Kidney-leaved Buttercup	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-RANSCEL	Ranunculus sceleratus	Cursed Buttercup	N	S5	no data	no data	no data	G5	no data	2	-5	no data
2020	P-RHACATH	Rhamnus cathartica	Common Buckthorn	I	SNA	no data	no data	no data	GNR	SE5		0	-3
2020	P-RHUAROM	Rhus aromatica	Fragrant Sumac	N	S4	no data	no data	no data	G5	no data	8	5	no data
2020	P-RHUTYPH	Rhus typhina	Staghorn Sumac	N	S5	no data	no data	no data	G5	no data	1	3	no data
2020	P-RIBRUBR	Ribes rubrum	Northern Red Currant	I	SNA	no data	no data	no data	G4G5	SE5		5	-2
2020	P-ROBPSEU	Robinia pseudoacacia	Black Locust	I	SNA	no data	no data	no data	G5	SE5		3	-3
2020	P-RORPALU	Rorippa palustris	Marsh Yellowcress	N	S5	no data	no data	no data	G5	no data	3	-5	no data
2020	P-ROSMULT	Rosa multiflora	Multiflora Rose	I	SNA	no data	no data	no data	GNR	SE5		3	-3
2020	P-ROSRUGO	Rosa rugosa	Rugosa Rose	N	SNA	no data	no data	no data	GNR	SE1		3	-1
2020		Rosa blanda	Smooth Rose	N	S5	no data	no data	no data	G5	no data	3	3	no data
2020	P-RUBALLE	Rubus allegheniensis	Allegheny Blackberry	N	S5	no data	no data	no data	G5	no data	2	3	no data
2020	P-RUBIDID	Rubus idaeus ssp. idaeus	Common Red Raspberry	I	SNA	no data	no data	no data	G5T5	SE1		3	no data
2020	P-RUBOCCI	Rubus occidentalis	Black Raspberry	N	S5	no data	no data	no data	G5	no data	2	5	no data
2020	P-RUDHIRT	Rudbeckia hirta	Black-eyed Susan	N	S5	no data	no data	no data	G5	no data	0	3	no data
2020	P-RUMCRIS	Rumex crispus	Curly Dock	I	SNA	no data	no data	no data	GNR	SE5		0	-2
2020	P-SAGLATI	Sagittaria latifolia	Broad-leaved Arrowhead	N	S5	no data	no data	no data	G5	no data	4	-5	no data
2020	P-SALFRAG	Salix euxina	Crack Willow	I	SNA	no data	no data	no data	GNR	SE		0	-3
2020	P-SAMCANA	Sambucus canadensis	Common Elderberry	N	S5	no data	no data	no data	G5	no data	5	-3	no data
2020	P-SCICYPE	Scirpus cyperinus	Cottongrass Bulrush	N	S5	no data	no data	no data	G5	no data	4	-5	no data
2020	P-SOLDULC	Solanum dulcamara	Bittersweet Nightshade	I	SNA	no data	no data	no data	GNR	SE5		0	-2
2020	P-SOLCANA	Solidago canadensis	Canada Goldenrod	N	S5	no data	no data	no data	G5	no data	1	3	no data
2020	P-SOLJUNC	Solidago juncea	Early Goldenrod	N	S5	no data	no data	no data	G5	no data	3	5	no data
2020	P-SPAEURY	Sparganium eurycarpum	Broad-fruited Burreed	N	S5	no data	no data	no data	G5	no data	3	-5	no data
2020	P-STLALN	Symphotrichum lanceolatum ssp. lanceolatum	Panicled Aster	N	S5	no data	no data	no data	G5T5	no data	3	-3	no data
2020	P-ASTPUPU	Symphotrichum puniceum var. puniceum	Swamp Aster	N	S5	no data	no data	no data	G5T5	no data	6	-5	no data
2020	P-THUOCCI	Thuja occidentalis	Eastern White Cedar	N	S5	no data	no data	no data	G5	no data	4	-3	no data
2020	P-TILAMER	Tilia americana	American Basswood	N	S5	no data	no data	no data	G5	no data	4	3	no data
2020	P-TILCORD	Tilia cordata	Little-leaf Linden	I	SNA	no data	no data	no data	GNR	SE1		5	no data
2020	P-RHURADI	Toxicodendron radicans	Poison Ivy	N	S5	no data	no data	no data	G5	no data	2	0	no data
2020	P-TRIPRAT	Trifolium pratense	Red Clover	I	SNA	no data	no data	no data	GNR	SE5		3	-2

2020	P-TYPANGU	Typha angustifolia	Narrow-leaved Cattail	N	SNA	no data	no data	no data	G5	SE5		-5	no data
2020	P-ULMAMER	Ulmus americana	American Elm	N	S5	no data	no data	no data	G5	no data	3	-3	no data
2020	P-ULMPROC	Ulmus procera	English Elm	I	SNA	no data	no data	no data	GNR	SE1		3	no data
2020	P-ULMRUBR	Ulmus rubra	Slippery Elm	N	S5	no data	no data	no data	G5	no data	6	0	no data
2020	P-URTDIGR	Urtica dioica ssp. gracilis	Slender Stinging Nettle	N	S5	no data	no data	no data	G5T5	no data	2	0	no data
2020	P-VERTHAP	Verbascum thapsus	Common Mullein	I	SNA	no data	no data	no data	GNR	SE5		5	-2
2020	P-VERHAST	Verbena hastata	Blue Vervain	N	S5	no data	no data	no data	G5	no data	4	-3	no data
2020	P-VERURTI	Verbena urticifolia	White Vervain	N	S5	no data	no data	no data	G5	no data	4	0	no data
2020	P-VEROFFI	Veronica officinalis	Common Speedwell	I	SNA	no data	no data	no data	G5	SE5		5	-2
2020	P-VERSERP	Veronica serpyllifolia	Thyme-leaved Speedwell	I	SNA	no data	no data	no data	G5	SE5?		0	no data
2020	P-VIBLENT	Viburnum lentago	Nannyberry	N	S5	no data	no data	no data	G5	no data	4	0	no data
2020	P-VIBOPUL	Viburnum opulus	Cranberry Viburnum	I	S5	no data	no data	no data	G5	no data	5	-3	-1
2020	P-VICCRAC	Vicia cracca	Tufted Vetch	I	SNA	no data	no data	no data	GNR	SE5		5	-1
2020	P-VICHIRS	Vicia hirsuta	Hairy Vetch	I	SNA	no data	no data	no data	GNR	SE1		5	no data
2020	P-VITRIPA	Vitis riparia	Riverbank Grape	N	S5	no data	no data	no data	G5	no data	0	0	no data
2020	P-XANSTRU	Xanthium strumarium	Rough Cocklebur	N	S5	no data	no data	no data	G5	no data	2	0	no data
2001	P-ASTCORD	Symphyotrichum cordifolium	Heart-leaved Aster	N	S5	no data	no data	no data	G5	no data	5	5	no data
2001	P-EUOBOV	Euonymus obovatus	Running Strawberry-bush	N	S4	no data	no data	no data	G5	no data	6	5	no data
2001	P-HYDVIRG	Hydrophyllum virginianum	Virginia Water-leaf	N	S5	no data	no data	no data	G5	no data	6	0	no data
2001	P-MAICANA	Maianthemum canadense	Wild Lily-of-the-valley	N	S5	no data	no data	no data	G5T5	no data	5	3	no data
2001	P-MAIRARA	Maianthemum racemosum ssp. racemosum	False Solomon's Seal	N	S5	no data	no data	no data	G5	no data	4	3	no data
2001	P-SAGLATI	Sagittaria latifolia	Common Arrowhead	N	S5	no data	no data	no data	G5	no data	4	-5	no data
2020	P-LARDECI	Larix decidua	European larch	I	SNA	no data	no data	no data	G5	SE2		5	-1
2021	P-NARPSEU	Narcissus pseudonarcissus	Common Daffodil	I	SNA	no data	no data	no data	GNR	SE2		5	no data
2021	P-ERYAMAM	Erythronium americanum ssp. americanum	Yellow Trout-lily	N	S5	no data	no data	no data	G5T5	no data	5	5	no data
2021	P-CLAVIRG	Claytonia virginica	Narrow-leaved Spring Beauty	N	S5	no data	no data	no data	G5	no data	5	3	no data
2021	P-ANEQUIN	Anemone quinquefolia	Wood Anemone	N	S5	no data	no data	no data	G5	no data	7	0	no data
2021	P-AMEARBO	Amelanchier arborea	Downy Serviceberry	N	S5	no data	no data	no data	G5	no data	5	3	no data
FLORISTIC SUMMARY & ASSESSMENT													
Species Diversity													
	Total Species:		243		202								
	Native Species:		125	51%	62%								
	Exotic Species		77	32%	38%								
	Species ID'd to sp. only		41										
	Total Taxa in Region (NAI 2014)		1496										
	% Regional Taxa Recorded		14%										
	Regionally Significant Species												
	S1-S3 Species		4										
	S4 Species		15										
	S5 Species		101										
	no data		0										
Co-efficient of Conservatism and Floral Quality Index													
	Co-efficient of Conservatism (CC) (average)		1.94										
	CC 0 to 3	lowest sensitivity	47										
	CC 4 to 6	moderate sensitivity	62										
	CC 7 to 8	high sensitivity	10										
	CC 9 to 10	highest sensitivity	4										
	Floral Quality Index (FQI)		21.70										

APPENDIX 8

References

- Audubon Great Lakes, Birds, Plantings for Spring Migrants, <https://gl.audubon.org/plantings-spring-migrants> [accessed September 2021]
- Audubon Great Lakes, Birds, Plantings for Fall Migrants, <https://gl.audubon.org/birds/plantings-fall-migrants> [accessed September 2021]
- Anderson, Hayley. 2012. Invasive Garlic Mustard (*Alliaria petiolata*) Best Management Practices in Ontario. Ontario Invasive Plant Council. Peterborough, ON.
- Anderson, Hayley. 2012. Invasive Reed Canary Grass (*Phalaris arundinacea* subsp. *arundinacea*) Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON.
- Invading species centre, 2019. Factsheet on Common Buckthorn <http://www.invadingspecies.com/invaders/plants/common-buckthorn> Accessed September 2021
- Minnesota Department of Agriculture (MDA) Cut-leaved Teasel factsheet. <https://www.mda.state.mn.us/cutleaf-teasel> Accessed September 2021
- Minnesota Department of Agriculture (MDA) Canada Thistle factsheet. <https://www.mda.state.mn.us/plants/pestmanagement/weedcontrol/noxiouslist/canadathistle> Accessed September 2021
- Nichols, Gabby. 2020. Invasive Phragmites (*Phragmites australis*) Best Management Practices in Ontario: Improving species at risk habitat through the management of Invasive Phragmites. Ontario Invasive Plant Council, Peterborough, ON.
- Ontario, 2021. Factsheet on Wild Parsnip - <https://www.ontario.ca/page/wild-parsnip> Accessed September 2021
- Ontario, 2015. Significant Wildlife Habitat Criteria Schedules For Ecoregion 7E
- Ontario Ministry of Natural Resources. 2000. Significant wildlife habitat technical guide. 151p.
- Sherman, Kellie and Powell, Kate. 2017. Spotted Knapweed (*Centaurea stoebe*) Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON.
- Simkovic, Vicki. 2020. Flowering Rush (*Butomus umbellatus*): Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, ON.
- Stewart, T.J., A. Todd and S. LaPan. 2013. Fish Community Objectives for Lake Ontario. Great Lakes Fishery Commission Spec. Pub. 13-? 23 p.



**Hamilton
Conservation
Authority**

A Healthy Watershed for Everyone



Hamilton Conservation Authority

838 Mineral Springs Road, P.O. Box 81067

Ancaster, Ontario, L9G 4X1

905-525-2181 www.conservationhamilton.ca