



WATERSHED-BASED RESOURCE MANAGEMENT STRATEGY

December 2024



Niagara Peninsula
CONSERVATION
nature for all

getinvolved.npca.ca/watershed-strategy

Land Acknowledgement

The Niagara Peninsula watershed is situated within the traditional territory of the Haudenosaunee, Attiwonderonk (Neutral), and the Anishinaabeg, including the Mississaugas of the Credit. Today, the watershed is home to many First Nations peoples, Métis citizens, and Inuit.

The territory is covered by the Upper Canada Treaties (No. 3, 4, and 381) and is within the land protected by the Dish with One Spoon Wampum agreement—a formal treaty that represents a well-known teaching to ensure conservation of shared lands and natural resources. The “dish” is the generosity and bounty of the land that provides the gifts of food, resources, and water from which we are all nourished. However, these gifts are not infinite, and the bowl must be shared and kept clean, taking only what we need and leaving enough for the next person. The lesson also teaches that the “spoon” is round and does not have sharp edges like a fork or a knife, meaning the dish is to be shared peacefully and shared by everyone who uses the bowl. No one gets a bigger or smaller spoon, symbolizing the spirit of cooperation and equity.

This teaching has been kindly shared by Indigenous partners and community members through conversations with NPCA staff. It is an excellent reminder that the gifts of the earth are to be shared and cared for by each of us in a reciprocal relationship with the land. Our health as people is directly and intricately tied to the health of the watershed.

Through this Watershed Strategy, the NPCA reconfirms its commitment to shared stewardship of natural resources and a deep appreciation of Indigenous culture, knowledge systems, and history in the watershed.

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1.0 INTRODUCTION

1.1 About Niagara Peninsula Conservation Authority

The [Niagara Peninsula Conservation Authority](#) (NPCA) is a community-based natural resource management agency that protects, enhances, and sustains healthy watersheds that was established in 1959 pursuant to the [Conservation Authorities Act](#). With 65 years of experience, NPCA offers watershed programs and services that focus on flood and hazard management, source water protection, species protection, ecosystem restoration, community stewardship, and land management.

A watershed is the land that drains into a particular watercourse such as a stream, river, or lake. Gravity and the land's topography (the high and low areas) move water, rain, and snowmelt across the landscape from one area to another. Figure 1 below provides a simple illustration showing the different elements within a watershed.

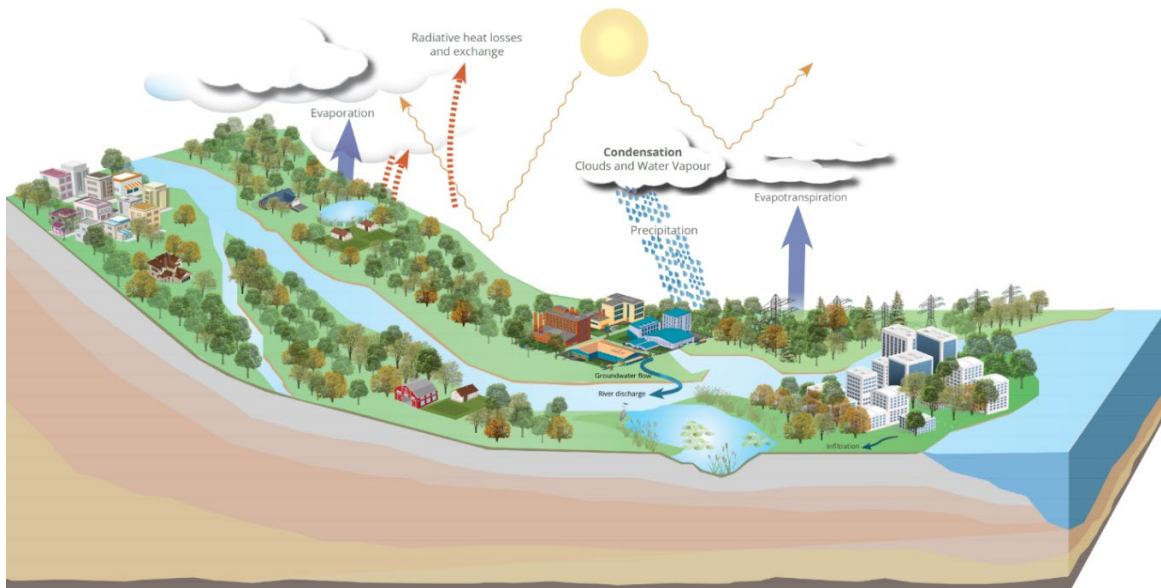


Figure 1 – Watershed Diagram

The Niagara Peninsula watershed encompasses 2,424 square kilometres, and includes the Niagara Region, portions of the City of Hamilton (21%), and Haldimand County (25%). Since time immemorial, this area has been the home to Indigenous peoples—a place for sharing, trading, hunting, gathering, stewardship, and friendship. Currently, the watershed supports a population of approximately 520,000 people. Figure 2 shows the limits of the Niagara Peninsula watershed.

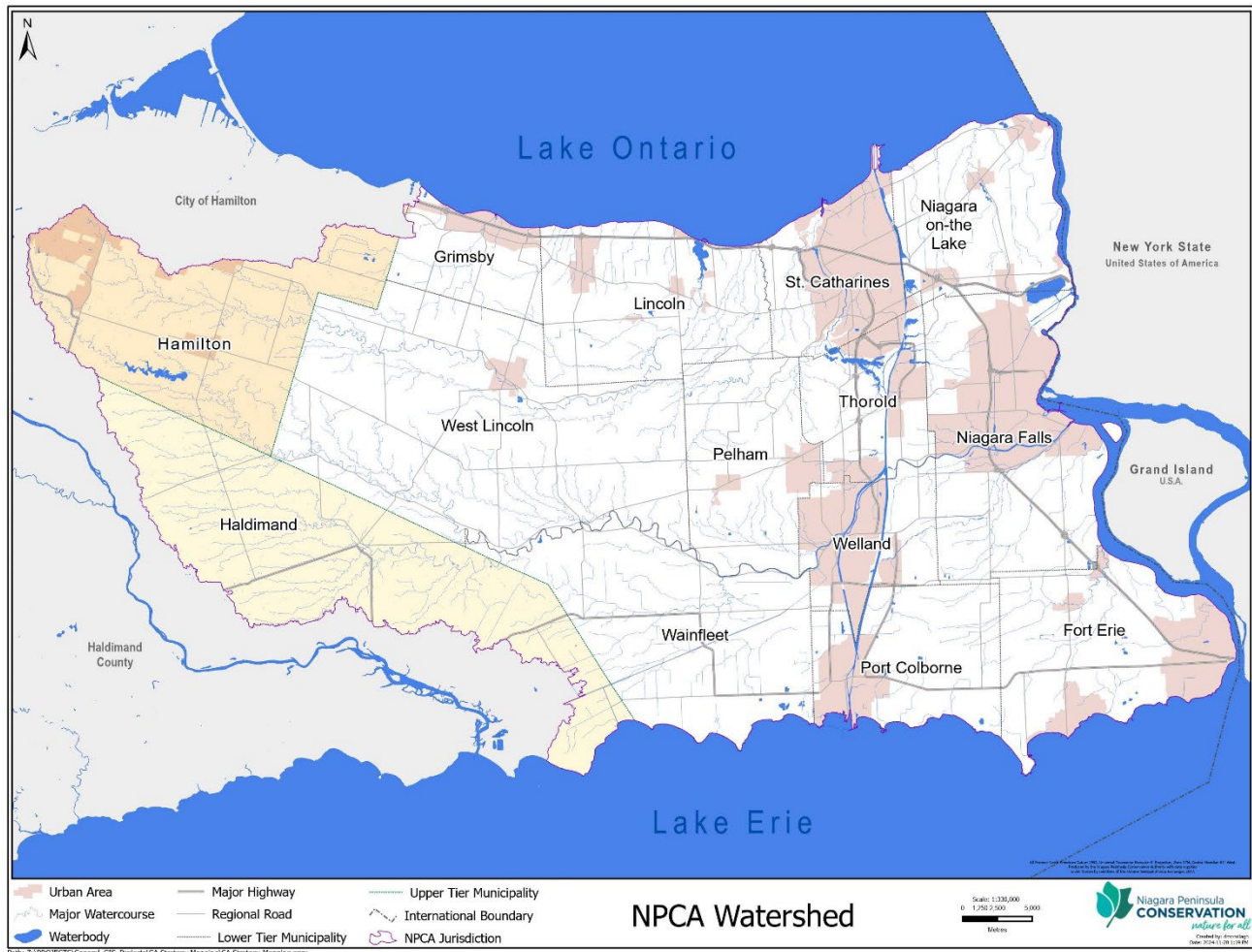


Figure 2 – NPCA Watershed

The watershed is uniquely situated between two Great Lakes, with the Niagara River as a boundary shared with the United States of America. As a result, the watershed area includes several notable natural features such as the Niagara Escarpment Biosphere Reserve, the Niagara Falls, Wainfleet Bog, Ball's Falls, Willoughby Marsh, and other significant landforms such as the Fonthill Kame ice contact-delta complex. The unique microclimate created by the Niagara Escarpment and rich soils supports one of Ontario's most productive agriculture systems, including vineyards, tender fruit orchards, livestock, and various specialty crops (greenhouses for flowers, vegetables, sod farms, and mushroom farms). These important watershed features provide life-sustaining benefits for all and many opportunities to discover nature and culture.

1.2 Watershed Characterization

1.2.1 Topography

The Niagara Peninsula watershed is a unique geographic region situated between Lake Ontario to the north, Lake Erie to the south and the Niagara River forming the eastern boundary, flowing from Lake Erie to Lake Ontario. The topography is defined by rolling hills, flat lands toward the lake shores and the remarkable Niagara Escarpment, the most prominent feature extending east to west across the peninsula. The escarpment creates cliffs and ridges, most famously forming the backdrop for Niagara Falls where the Niagara River plunges over the edge of the escarpment.

1.2.2 Physiography

The Niagara Peninsula watershed contains several key physiographic areas, including the Iroquois Plain, Haldimand Clay Plain, and the Niagara Escarpment.

The Iroquois Plain is located between the Niagara Escarpment and Lake Ontario, and consists of lacustrine deposits of sand, silt, and clay associated with the glacial Lake Iroquois. The Iroquois Plain deposits overlie Halton Till.

The Niagara Escarpment contains a relatively hard dolostone bedrock cap, which is underlain by softer shales and sandstones of the Clinton, Cataract and Queenston bedrock groups. The escarpment was formed by erosion of the softer bedrock materials below the dolostone cap.

The relatively flat lands of the Haldimand Clay Plain extend from the Niagara Escarpment to Lake Erie. The Haldimand Clay Plain was submerged by glacial Lake Warren and much of it is covered by lacustrine clay deposits. Key physiographic features located in the Haldimand Clay Plain include the Dunnville Sand Plain, Onondaga Escarpment, Fonthill Kame-Delta Complex, and several moraines.

The Dunnville Sand Plain is a flat, sandy area formed by glacial outwash located in the southwestern region of the peninsula and is characterized by well-drained, sandy soils. The terrain is relatively flat, with few elevation changes, and its porous soil helps with groundwater recharge.

The east-west trending Onondaga Escarpment is of relatively low topographical relief just north of Lake Erie and rises only a few meters above the surrounding lands. Overburden soils overlie portions of the Onondaga Escarpment near NPCA's western boundary.

The steep-sided Fonthill Kame-Delta Complex was formed when sediment was deposited by melting glaciers, leaving behind a prominent hill that rises roughly 80 metres above the surrounding land and covers an area approximately six kilometres in diameter. Groundwater from the Fonthill Kame-Delta

Complex discharges to the north into Twelve Mile Creek, to produce the only cold-water stream and cold-water fish habitat in the Niagara Peninsula watershed.

Other landforms and physiographic features found within the watershed include moraines, eskers, and drumlins.

1.2.3 Geology and Groundwater System

The Niagara Peninsula watershed is unique with respect to an abundance of water resource availability being situated between two Great Lakes, having two bedrock escarpments and three overburden deposits. All the municipal drinking water within NPCA's jurisdiction is derived from surface water sources with groundwater mainly making up rural agricultural, commercial, and private residential uses.

When it comes to groundwater in the Niagara Peninsula watershed, there are four main aquifer types that are typically drawn from, these include the surficial overburden, the Guelph/Lockport formations, the Onondaga/Bois Blanc formations, and the "Contact-Zone" aquifer.

The surficial overburden aquifers consist of coarse-grained deposits of sediments classified as unconfined aquifers and are known as the Fonthill Kame-Delta Complex, the Dunnville Sand Plain and the Iroquois Sand Plain.

The Guelph/Lockport formations refer to the bedrock formations consisting mainly of dolostone with some limestone that form the prominent features of the Niagara Escarpment, running the width of the northern portion of the Niagara Peninsula. These formations can be heavily fractured or weathered and can be considered unconfined or confined depending on the abundance of overlying material.

The Onondaga/Bois Blanc formations refer to the bedrock formations consisting mainly of dolostone and limestone that form the prominent features of the Onondaga Escarpment, running the width of the southern portion of the Niagara Peninsula. These formations can also be heavily fractured or weathered and can be considered unconfined or confined depending on the abundance of overlying material.

The "Contact-Zone" aquifer is an overburden/bedrock aquifer that covers more than 60 per cent of the NPCA jurisdiction. The term "Contact-Zone" refers to the bedrock-overburden contact where granular overburden material is overlying fractured bedrock. This aquifer is usually overlain by thick deposits of clay from the Haldimand Clay Plain and is generally considered confined.

With respect to groundwater movement across the Niagara Peninsula watershed, groundwater generally moves from the west to the east interior and then to either of the Great Lakes, the Niagara River or the Welland River, with localized areas of groundwater discharge along the escarpments and wetlands. There

is also large-scale permanent dewatering activities associated with the Welland Canal tunnels that have an impact on the movement of groundwater within the Niagara Peninsula watershed.

1.2.4 Surface Water System

Nearly 5,000 kilometres of watercourses in NPCA's watershed jurisdiction encompasses a rich variety of surface water features that are part of three major drainage basins: Lake Ontario, Lake Erie, and the Niagara River. Numerous streams, rivers, and creeks, such as Twelve Mile Creek and Twenty Mile Creek, flow into Lake Ontario, while the Welland River and other tributaries drain into the Niagara River, a critical waterway connecting the two Great Lakes. The Lake Erie basin includes the southern portion of the watershed, with its own network of smaller streams and wetlands. These surface water features, including significant wetlands, play a key role in maintaining and supporting biodiversity, mitigating flooding, and providing water resources for both human use and natural habitats. Together, these interconnected water systems form the hydrological foundation of NPCA's jurisdiction.

1.2.5 Natural Heritage System

The Niagara Peninsula is located within the northernmost range of the deciduous forest region in North America, also referred to as the Carolinian Life Zone. It has the warmest average annual temperatures, the longest frost-free growing season, and the mildest winters in Canada. This zone represents one per cent of Canada's land and it has more species of plants and animals than any other ecosystem in the country (Carolinian Canada website).

The Niagara Peninsula watershed includes nearly 68,000 hectares of natural features such as wetlands, forests, and meadows, covering almost 30 per cent of its land base and providing habitats for more than 2,200 species of plants and animals. Unfortunately, nearly 10 per cent of these species are considered to be rare or at risk due to habitat loss, invasive species, pollution, and climate change.

The Niagara Escarpment, a UNESCO World Biosphere Reserve, features dramatic cliffs, forests, and rare species while offering stunning views and geological formations. The Niagara Glen Nature Reserve along the Niagara River is a lush, forested area with deep ravines, limestone outcrops, and unique Carolinian forests.

Other key areas include the Wainfleet Bog, one of the largest remaining bogs in southern Ontario, and Short Hills Provincial Park, which preserves forested valleys and rolling hills. These areas are vital for supporting conservation efforts while providing habitats for species at risk and offering recreational opportunities like hiking and wildlife observation, enhancing the Niagara Peninsula watershed's appeal as a destination for nature enthusiasts.

1.2.6 NPCA Conservation Area System

NPCA owns nearly 3,000 hectares of land within our watershed and across 41 conservation areas held in public trust for recreation, heritage preservation, conservation, and education. These areas represent a wide range of ecosystem types and protect some of the most significant ecological features in the watershed. NPCA stewards important sections of shoreline along Lake Erie and Lake Ontario, migratory bird habitat, provincially significant wetlands (PSWs), Areas of Natural and Scientific Interest (ANSI), important cultural heritage sites, and large sections of the Niagara Escarpment. Together, these conservation areas represent an essential part of the natural treasures and significant ecosystems in the Carolinian Life Zone. In southern Ontario, and especially in the Niagara Peninsula watershed, growing pressures on the landscape are due to increased urbanization, land use changes, and changing climatic conditions. In addition, there is a well-documented increasing demand for access to greenspace for the health and well-being of the growing population. NPCA conservation areas play a vital role in supporting and enhancing local communities, agriculture, recreation, health, tourism, and natural heritage, serving as indispensable outdoor recreation areas for more than half a million residents and visitors of the watershed.

1.2.7 Climate

The climate of the Niagara Peninsula is influenced heavily by its proximity to Lake Ontario and Lake Erie, resulting in a moderate humid continental climate. The lakes function as natural temperature buffers, making winters milder and summers cooler than more inland regions creating a longer growing season, crucial for the region's renowned vineyards and orchards. Precipitation is evenly distributed throughout the year, with moderate rainfall and occasional lake-effect snow in the winter. The Niagara Escarpment and the Great Lakes contribute to microclimates that vary across the peninsula, supporting diverse agricultural activities, including the production of tender fruits and wine.

According to the Climate Projections for Niagara Region (TRCA, December 2021), the Niagara peninsula is projected to experience significant warming over the next 30 years, with average air temperatures rising by 2 C. Winter and fall will see the largest increases in daily mean temperatures (2 C and 2.2 C), while summer and spring will rise by 2 C and 1.6 C respectively. Minimum temperatures in the winter are expected to rise from -7.1 C to around -5 C, reducing the number of days below 0 C from 125 to 105.7 days annually. Warmer winters will likely shift precipitation from snow to rain, increasing flood risks and impacting winter tourism.

Heat-related impacts are also expected, with the number of days above 30 C projected to more than double from 10.4 to 23.9 days annually. Days exceeding 25 C will increase by 24.2, and tropical nights (minimum temperatures above 20 C) will rise dramatically from 9.4 to 46.2 days, increasing cooling demands. Conversely, extremely cold days (below -20 C and -15 C) will decrease.

Total annual precipitation is projected to rise by 5 per cent, with the largest seasonal increases in winter and spring. Extreme precipitation events, such as heavy one-day rainfall, are also expected to increase. However, there is variability in model projections, highlighting the need for adaptive strategies. Freeze-thaw cycles will decrease, reflecting milder winters, while dry conditions remain stable.

The growing season is expected to lengthen by eight days on average, due to earlier growing season start days and later end dates, though temperature fluctuations may affect crop hardiness. Warmer conditions will support both plant growth and the lifecycle of pests.

1.2.8 Land Use

Land use on the Niagara Peninsula watershed is diverse, shaped by its fertile soils, unique microclimate, proximity to the Great Lakes, and strategic position as an industrial centre and border region, leading to the demands of competing land uses. The Welland Canal, which connects Lake Ontario and Lake Erie, is a major infrastructure feature in the watershed, facilitating shipping and influencing land use along its route.

The combination of climate, physiography, soils, and location make the area one of the most productive agricultural areas in Canada. The physical distinctiveness of the region is what has enabled a unique agricultural industry to develop. The wine industry is particularly prominent, with many vineyards and wineries scattered throughout the watershed.

Urban development on the Niagara Peninsula is ongoing with key cities such as Hamilton, St. Catharines, Niagara Falls, and Welland, where residential, commercial, and industrial growth is ongoing. These urban centres have expanded significantly due to their strategic location near the U.S. border, the Great Lakes, and major transportation routes like the Queen Elizabeth Way (QEW) highway and the Welland Canal. Smaller yet rapidly growing urban areas, including Binbrook, Smithville, Grimsby, Thorold, Port Colborne, Fort Erie, and Niagara-on-the-Lake, are experiencing continued expansion in residential, commercial, and industrial developments. Suburban expansion is also growing as population increases and demands for housing rise.

Efforts to balance agricultural productivity, urban growth, and environmental protection are key in managing land use within the Niagara Peninsula watershed. This balance is critical to protecting water resources, preserving biodiversity, and ensuring the long-term sustainability of local terrestrial and aquatic systems.

1.3 Integrated Watershed Management

The NPCA has adopted an Integrated Watershed Management (IWM) approach to watershed planning. The IWM approach recognizes that water is a valuable resource which should be managed in a sustainable manner in perspective with the balance of natural resources (fisheries, wildlife, and lands).

IWM is the process of managing human activities and natural resources in an area defined by watershed boundaries. It is an evolving and continuous process through which decisions are made for the sustainable use, development, restoration and protection of ecosystem features, functions, and linkages. IWM serves to assess watershed functions and the potential impacts from change to ensure sustainability. Through adaptive management practices the watershed unit provides an ideal context with which we can understand how impacts are felt and how they can accumulate.

For NPCA, this means adopting the IWM lens when carrying out its programs and services. IWM helps us focus on priorities and link strategies and actions leading to smarter, science-based decisions that ensure a long and healthy future.

1.4 Purpose and Regulatory Framework

1.4.1 Purpose of the Watershed Strategy

The purpose of the Watershed Strategy is to assist the NPCA with evolving or enhancing the delivery of programs and services and improve efficiency and effectiveness in supporting mandatory Category 1 programs.

Figure 3 illustrates the framework that has been utilized for developing the Watershed Strategy. As part of this strategy, the NPCA will incorporate guiding principles and objectives from its 10-year strategic plan to shape the design of its programs and services. This approach will summarize the key information underpinning NPCA's program and service delivery, identify potential issues and risks that could impact the effective delivery of Category 1 programs and services, and outline actions to mitigate these risks. It provides a mechanism to update the programs and services inventory and will help identify where opportunities exist for improving and/or maintaining watershed health.

The NPCA's Watershed Strategy has been developed in accordance with NPCA's current Inventory of Programs and Services for consistent language and program descriptions.

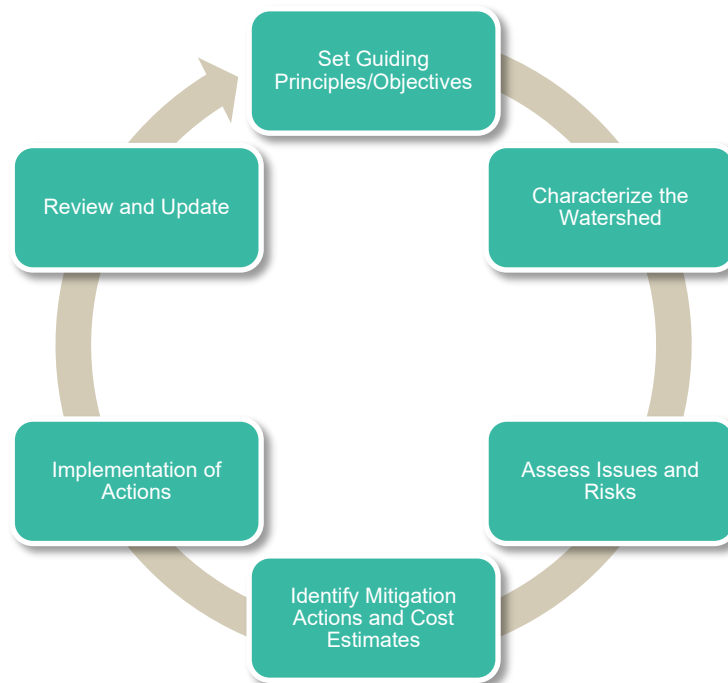


Figure 3 – Watershed-based Resource Management Strategy Framework

1.4.2 Legislative Context

Ontario Regulation. (O. Reg.) 686/21: Mandatory Programs and Services, is a regulation made under s. 21.1(1)2 of the *Conservation Authorities Act* that prescribes programs and services that a conservation authority must provide within its area of jurisdiction.

Conservation authorities are required to prepare an Inventory of Programs and Services to identify:

- **Category 1:** Mandatory Programs and Services, such as natural hazard management;
- **Category 2:** Municipal Programs and Services at the request of a Municipality, such as tree planting services, and technical research to help inform decision-making; and
- **Category 3:** Other Programs and Services determined by the Conservation Authority to further the purposes of the *Conservation Authorities Act*, such as restoration and stewardship, and watershed monitoring.

NPCA's programs and services are funded either through municipal levies, municipal cost apportionments requiring agreements for service, service fees, or external funding such as grants.

Table 1: Conservation Authorities Act Funding Mechanisms for NPCA's Programs and Services

Category 1 Mandatory Programs and Services (O.Reg.686/21)	Category 2 Municipal Programs and Services	Category 3 Other Programs and Services
<ul style="list-style-type: none"> Programs and services which all CAs must provide in their jurisdiction Eligible for costs to be apportioned to participating municipalities (levy) without an agreement Funded through municipal levy, user fees, and/or grants 	<ul style="list-style-type: none"> Programs and services which a CAs agrees to provide on behalf of municipality Eligible for costs to be apportioned to participating municipalities if there is an MOU or other agreement Funded through municipal levy, user fees, and/or grants; MOU/service agreement 	<ul style="list-style-type: none"> Programs and services which a CA determines are advisable to further the purpose of the Act Eligible to be apportioned wholly or partially to municipalities through a cost apportioning agreement Funded through municipal levy, user fees, and/or grants; MOU/service agreement required for use of municipal funding

O. Reg. 686/21: Mandatory Programs and Services also requires conservation authorities to prepare a "Watershed-based Resource Management Strategy".

The Watershed-based Resource Management Strategy must include the following components:

- Guiding principles and objectives that inform the design and delivery of the programs and services that the Conservation Authority is required to provide under section 21.1 of the *Conservation Authorities Act* (i.e., mandatory programs and services).
- A summary of existing technical studies, monitoring programs and other information on the natural resources the authority relies on within its area of jurisdiction or in specific watersheds that directly inform and support the delivery of programs and services under section 21.1 of the Act.
- A review of the authority's programs and services provided under section 21.1 of the Act for the purposes of:
 - Determining if the programs and services comply with the regulations made under clause 40 (1) (b) of the Act (e.g., mandatory programs and services, and review of applications under prescribed Acts);

- Identifying and analyzing issues and risks that limit the effective delivery of these programs and services; and
 - Identifying actions to address the issues and mitigate the risks identified by the review and providing a cost estimate for the implementation of those actions.
- A process for the periodic review and updating of the Watershed-based Resource Management Strategy by the authority that includes procedures to ensure stakeholders, and the public are consulted during the review and update process.

2.0 STRATEGIC DIRECTION

2.1 NPCA Strategic Plan

The 2021-2031 NPCA Strategic Plan, is a guiding document that reaffirms our commitment to the mandate of conservation authorities and charts the course for the next generation of work to address the evolving issues of climate change, growth, and the need for green infrastructure. The strategic plan is guided by principles based on a conservation-first and ecosystem philosophy, collaboration ethics, and the importance of innovation rooted in science.

Strategic Plan Vision: Nature for all

We envision a healthy and vibrant environment with shared greenspace and clean water that sustains life for future generations.

Strategic Plan Mission

To create common ground for conservation-inspired action and accountability to nature.

2.2 Watershed-based Resource Management Guiding Principles

The NPCA Strategic Plan: Nature for All, establishes four Guiding Principles that guide the delivery of NPCA's programs and services.

2.2.1 Watersheds Transcend Municipal Boundaries

We are committed to working with the watershed community to support and create climate-resilient and connected natural systems. Integrated watershed management is our approach to managing local natural resources in partnership with our member municipalities.

2.2.2 Natural Green Infrastructure is Critical to Life

Our day-to-day work conserves and restores our communities' integral ecological, socio-economic, public safety, and health services. Watershed resources are green infrastructure and natural assets.

2.2.3 Diverse Experiences and Ideas Lead to Better and Stronger Collective Impact and Outcomes

We seek to exemplify inclusion and equity through meaningful engagement and collaboration.

2.2.4 Innovation Requires Learning from Each Other and the Past

As a result, we are progressive, resilient, adaptable, and strive for continuous improvement to remain a trusted and valued partner.

2.3 Watershed-based Resource Management Guiding Goals and Actions

Collectively, the strategic priorities identified in the Strategic Plan guide our actions toward a vision of the Niagara Peninsula watershed with robust nature, thriving agriculture, and resilient urban areas vital to the health and well-being of our residents. Each strategic priority includes specific goals and actions for NPCA to undertake with its partners and communities to achieve a thriving environment that sustains life for future generations. The strategic priorities and the goals and actions taken from NPCA's 10-year Strategic Plan that guide the design and delivery of NPCA's Category 1 Mandatory Programs and Services provided under s. 21.1 of the *Conservation Authorities Act*, are summarized below. The goal numbering shown below is as listed in the plan.

2.3.1 Goal 1: Healthy and Climate Resilient Watersheds

Improving nature for the betterment of all life across the watershed.

- Goal 1.1 Support evidence-based decision-making for climate-resilient watersheds and shorelines.
 - Expand and enhance monitoring and associated tools to fill information gaps and research needs.
 - Lead water quality (e.g., surface and groundwater) and quantity monitoring throughout NPCA's jurisdiction.
 - Support municipal partners with watershed data collection and analysis to understand cumulative impacts.
 - Develop a solid understanding of climate impacts and risks on NPCA watersheds.
 - Implement the Source Protection Program as mandated by the *Conservation Authorities Act* and *Clean Water Act*.

- Goal 1.2 Protect people and properties from natural hazards and climate impacts.
 - Implement permitting and regulations under section 28 of the *Conservation Authorities Act*.
 - Deliver accurate, real-time information for flood forecasting, messaging, and warning using state-of-the-art technology and communication tools.
 - Complete and maintain updated floodplain and regulation mapping within the watershed.
 - Develop a watershed-based resource management strategy as mandated by the *Conservation Authorities Act*.
 - Update shoreline management plans with a climate resilience lens.
- Goal 1.4 Manage NPCA lands to increase biodiversity, habitat connectivity, and natural cover.
 - Develop and update management plans for NPCA properties.
 - Develop plans to manage invasive species and enhance biodiversity at NPCA properties (e.g., forest management plan).
 - Complete and implement the NPCA land acquisition strategy.
 - Implement regulations under section 29 of the *Conservation Authorities Act*.

2.3.2 Goal 2: Supporting Sustainable Growth

Helping to create resilient communities through land-use planning and the use of sustainable technologies to prepare for a changing climate and related environmental challenges.

- Goal 2.1 Maintain a high standard of client services, tools, and procedures for planning review and permits.
 - Continuously improve by implementing NPCA Client Services Standard for Plan and Permit Review protocol to support streamlining, efficiency, and transparency.
 - Refine decision-support tools for efficient application management and review.
 - Enhance customer service feedback mechanisms to support performance evaluation and reporting.
 - Communicate the role and responsibilities of NPCA in planning review and permitting.
- Goal 2.2 Lead an integrated watershed management approach to support planning and policy for protecting and enhancing watersheds.
 - Implement a proactive subwatershed work program to complement and inform the quaternary and subwatershed planning for growth areas in the NPCA jurisdiction within Niagara Region.
 - Lead a proactive research agenda to determine cumulative watershed impacts and applied solutions from extreme weather and land-use changes.
- Goal 2.3 Lead the implementation of sustainable technologies and green infrastructure best practices for climate resilience and sustainability.

- Advance the implementation of green infrastructure best practices in future development proposals and through NPCA's demonstration projects to minimize impacts to the watershed.
- Engage municipalities, the development community, and other private landowners in implementing green infrastructure and sustainability best practices and actions.
- Identify opportunities for brownfields to enhance green infrastructure or innovative planning for in-fill development.
- Develop education materials and programs to inform the public about sustainable best practices.

2.3.3 Goal 3: Connecting People to Nature

Improving access to and connections with nature for the health and well-being of all people.

- Goal 3.1 Create equitable access to greenspace for the health and well-being of people.
 - Identify and remove socio-economic barriers to accessing NPCA properties and programs.
 - Proactively seek opportunities to enhance trail connections with active transportation routes.
 - Highlight and promote recreation (e.g., cycling, hiking, walking, birdwatching) opportunities at NPCA properties.
 - Improve services and visitor experiences at NPCA properties (e.g., buildings, trail maps, wayfinding, and accessibility, where possible).
- Goal 3.3 Improve cultural connections and heritage appreciation.
 - Maintain and honour heritage buildings at NPCA properties, including St. John's, Cave Springs, Ball's Falls, and Rockway conservation areas.
 - Examine opportunities to expand cultural connections and heritage programming at all conservation areas.
 - Work with municipalities on heritage listing and designation of NPCA buildings and properties.

2.3.4 Goal 4: Partner of Choice

Strengthening our relationships with stakeholders, partners, the watershed community, and Indigenous peoples.

- Goal 4.1 Strengthen government relations toward collective outcomes and impact.
 - Develop a government relations strategy.

- Execute Memorandums of Understanding (MOUs) and Service-Level Agreements (SLAs) with Niagara's lower-tier municipalities.
- Establish the NPCA as an environmental service provider to municipal partners with co-management and delivery of programs and projects of mutual interest.
- Partner with government agencies to advance mutual goals.
- Goal 4.2 Foster relationships with the community, non-government organizations, businesses, agriculture, industry, and academic institutions for collective outcomes and impact.
 - Provide technical expertise to support our partners and their work through agreements.

2.3.5 Goal 5: Organizational Excellence

Striving for excellence through high service delivery standards and accountability to the environment and its people.

- Goal 5.1 Attract, retain, and invest in high caliber, diverse talent to deliver superior outcomes.
 - Ensure adequate staff capacity and resources required to deliver on superior outcomes.
 - Implement health and safety and corporate wellness programs for staff well-being.
 - Modernize human resource policies and practices to encourage a healthy work environment.
- Goal 5.2 Improve internal operations and processes.
 - Enhance tools and procedures for program and project management, planning, reporting.
 - Modernize and invest in digital technology to enhance internal processes (e.g., administrative record management, customer relationship management system).
 - Deploy tools for efficient internal and external information sharing (e.g., online open data hub).
 - Provide staff training on new technologies as they are deployed.
- Goal 5.3 Provide high standards of customer service.
 - Develop customer service guidelines and improve customer service feedback mechanisms.
 - Implement a client management system that facilitates overall governance and relevant information sharing.
 - Provide equitable access to information (e.g., AODA standards).
 - Utilize various communication tools & tactics to facilitate engagement.

2.3.6 Goal 6: Financial Sustainability

Ensuring a financially stable and sustainable organization and continued service-delivery through innovative business models, diverse funding sources, and best practices.

- Goal 6.1 Ensure responsible, sustainable, and sound fiscal practices.
 - Consistently review and update fee schedules to retain the accurate cost of services.
 - Demonstrate the value of NPCA programs and services to stakeholders and municipal partners.
- Goal 6.2 Optimize self-generating revenue using innovative approaches.
 - Broaden opportunities for potential revenue streams at conservation areas taking a balanced approach.
 - Explore varied funding sources and innovative partnerships to diversify funding.

3.0 MANDATORY PROGRAMS AND SERVICES

As required by O. Reg. 687/21: Transition Plans and Agreements for Programs and Services under Section 21.1.2 of the Act, the NPCA has prepared an Inventory of Programs and Services that lists all the programs and services provides that it provides under each category (i.e., Category 1, 2, and 3).

The NPCA Inventory of Programs and Services identifies five Key Service Areas:

- Natural Hazard Management
- Watershed Resource Management and Climate Change
- Other Watershed-Related Programs
- Conservation Authority Lands and Conservation Areas
- Enabling Services

3.1 Natural Hazard Management

The NPCA provides programs and services that protect people and properties from flood, erosion, and other natural hazards. Ontario's long-term prosperity, environmental health and social well-being depend on reducing the potential for public cost or risk to Ontario's residents from natural hazards. Natural hazards include dynamic beach hazard, erosion hazard, flooding hazard, hazardous lands, hazardous sites and low water or drought conditions. The NPCA provides mandatory natural hazard management programs and services to develop an awareness of the areas that are important for the management of natural hazards, such as wetlands and river valleys, understand the risks related to natural hazards and how these risks may be affected by climate change, manage risks including preventing or mitigating those risks, and promote public awareness of the risks related to natural hazards.

Natural Hazard Management Programs and Services include:

- Flood and Erosion Management

- Flood Forecast and Warning
- Water Resources Engineering
- Shoreline Hazard Management
- Environmental Planning and Policy
- Planning and Permitting
- Compliance and Enforcement
- Planning Ecology

3.2 Watershed Resource Management and Climate Change, and Other Programs

The NPCA provides programs and services that apply research and science to understand the current watershed conditions, cumulative impacts, and risks to watershed. This evidence-based science is used for developing strategies and measures to protect, enhance, and restore watersheds toward creating healthy and climate-resilient watersheds.

Watershed Resource Management and Climate Change Programs and Services include:

- Integrated Watershed Monitoring and Reporting (Water and Terrestrial Monitoring)
- Community Engagement and Ecological Restoration
- Technical Studies to inform Regulatory Mapping Updates
- Natural Asset Management
- Special Projects (e.g., groundwater monitoring)
- Climate Change Resilience
- Watershed and Subwatershed Resources Planning
- Other Watershed Related Programs (e.g., Drinking Source Water Protection, and the Niagara River Remedial Action Plan)
- Other Projects and Programs (supported by partnerships and external funding)

3.3 Conservation Authority Lands and Conservation Areas

The NPCA is responsible for the management of approximately 3,000 hectares of land, including 41 conservation areas essential to watershed management, environmental protection, cultural heritage, and recreation.

Conservation Authority Lands and Conservation Areas Programs and Services include:

- Land Acquisition and Disposition

- Land Management Planning
- Active Recreation Programs
- Camping
- Weddings, Facility Rentals and Special Events
- Education Programs
- Day Camps
- Nature School
- Heritage Programs
- Education Events
- Land Care Program (management of conservation areas)
- Section 29 Enforcement and Compliance
- Land Lease and Agreement Management

3.4 Enabling Services

Various Enabling Services are critical for supporting NPCA programs, the Board of Directors, member municipalities, and the public to enable NPCA to operate in an accountable, transparent, efficient, and effective manner.

Enabling Services include:

- Corporate Services (e.g., Finance and Accounting, Facilities' Management, Risk Management and Administrative Support)
- Financial Services (e.g., Capital Budgeting, Capital Asset Management, Financing Planning and Forecasting, Reporting and Analysis)
- People and Performance (e.g., Talent Acquisition, Employee and Labour Relations, Training and Development, Health and Safety)
- Information Management and Technology and GIS
- Communications, Marketing and Public Relations
- Corporate Administration and Governance
- Corporate Support (e.g., Procurement, Contract Management)
- Asset Management, Capital Projects, and Land Asset Coordinator
- Vehicles and Equipment

Appendix 1 includes a summary of technical studies, monitoring programs and other information on the natural resources the NPCA relies on within its area of jurisdiction or in specific watersheds that directly

inform and support the delivery of Category 1 Mandatory Programs and Services under s. 21.1 of the *Conservation Authorities Act*.

4.0 WATERSHED ISSUES AND CHALLENGES

4.1 Issues and Challenges

A component of assessing the effectiveness of the delivery of Category 1 Programs and Services requires the NPCA to identify issues, risks, or gaps that limit the effectiveness of program delivery. Issues and risks can be assessed at both the watershed and program scales. This assessment provides an opportunity for NPCA to evaluate the need for additional actions and support to strengthen the delivery of Category 1 Programs and Services.

Through public engagement, moderate impacts centered around NPCA conservation areas were identified. Both increasing use and public accessibility were identified and are being addressed in the complementary Conservation Area Strategy also required under the *Conservation Authorities Act*.

An increasing demand for environmental education was also identified by the public as a moderate impact. This feedback suggests an increased responsibility for the NPCA to improve knowledge sharing to enhance the public's understanding of watershed issues and solutions, and the roles and responsibilities of the NPCA in delivering mandated and supporting programs and services to address these issues.

Feedback from both the public and staff during the development of the Watershed Strategy highlighted significant administrative risks and challenges. Key concerns include the instability caused by the frequent legislative changes affecting natural resource management and the difficulty in securing adequate funding to fulfill responsibilities effectively. Additional high-impact watershed issues and challenges are outlined below.

4.1.1 Climate Variability and Change

Climate change refers to changes in long-term weather patterns caused by natural phenomena and human activities that alter the chemical composition of the atmosphere through the build-up of greenhouse gases which trap heat and reflect it back to the earth's surface. Climate change impacts have the potential to be wide-reaching, affecting ecosystems, agriculture, infrastructure, water supply, energy, transportation systems, tourism and recreation, human health and well-being, and ultimately the economy.

Adaptation efforts minimize the level of damage, hazard and risks associated with climate change, while also recognizing new opportunities presented with the changing climate. Such adaptation efforts include flood management programs, ecosystem enhancements, water quality and quantity monitoring,

municipal plan review and input, local climate change monitoring and modelling, information management, and green infrastructure and stormwater management.

Mitigation efforts are focused on reducing greenhouse gas emissions and other causes that adversely and rapidly influence weather patterns and climatic conditions. They include green building technologies and retrofits (e.g., LEED), energy conservation, renewable energy, reforestation, carbon sequestration (e.g., wetlands), and low impact development.

Several of NPCA's current policies and programs related to natural hazard management, and watershed strategies help to mitigate the impacts of climate change and assist with adaptation. The NPCA will continue to undertake programs and initiatives that assist with adaptation and mitigation, and participate, coordinate, and collaborate with municipal partners and other agencies in addressing the impacts of climate change.

4.1.2 Increasing Growth Pressures on Watersheds

As communities grow and change, and as the need for housing increases, more marginal land may be considered for development. Areas that are susceptible to erosion or flooding may be identified to accommodate innovative forms of infill development and face greater development pressure. NPCA has a significant role to play not only in supporting its watershed municipalities to uphold key provincial interests but also in assessing plan review and permit applications for development in areas that are subject to natural hazards and hazardous lands. Maintaining up-to-date and accessible planning and permitting policies and regulation mapping will also assist municipalities and development proponents in understanding where development may be prohibited or limited, and therefore, direct development away from those areas.

4.1.3 Loss of Biodiversity, Species at Risk, Habitat and Natural Cover

Watershed residents understand conservation as the intentional preservation of flora and fauna to ensure the longevity of environmental systems and associated services. The loss of habitat, increased numbers of species at risk, and an ongoing decrease in biodiversity continue to be major threats to the function and health of natural areas and the local ecosystem in the Niagara Peninsula watershed.

Forests and wetlands in the watershed help to clean the air and water, store, and release water, and provide habitat for a wide variety of plants and animals. However, the watershed has changed dramatically over the past 200 years and most of the forests and wetlands have been cleared. Forest cover in the Niagara Peninsula watershed is generally poor, as evident by the [2023 Watershed Report Card](#), especially in urban areas and productive farmlands. Many wetlands and woodlots are small and isolated but remain important for wildlife, water storage, and nutrient removal. Smaller natural areas may be more vulnerable

to adjacent land uses and development pressure. Habitat loss and fragmentation prevents the movement of animals and plants, which become less abundant and more geographically restricted.

The Niagara Peninsula watershed is highly representative of the Carolinian Life Zone, the most biodiverse and threatened ecoregion in all of Canada. Research recommends that the existing natural infrastructure in this landscape be at least doubled through the restoration of natural cover and increased protection of land through securement, to guard more than 40 per cent of Canada's species and stabilize more than 150 species at risk.

The NPCA has a legacy of applying systematic conservation planning and assessment techniques as part of its Integrated Watershed Management (IWM) approach which determined that the Niagara Peninsula watershed only contributes 56 per cent towards what science and conservation literature recommend as the minimum to be considered a somewhat healthy and sustainable landscape. As such, the NPCA has previously collaborated with the Regional Municipality of Niagara, the City of Hamilton, and Haldimand County to conduct a Natural Areas Inventory. However, this inventory requires updates to reflect current data, both from a temporal perspective and in terms of modernizing data structure and accessibility. Of particular concern is the absence of a clearly defined reserve system for greenspaces, buffers, and ecological linkages. Such a system is crucial to objectively guide and coordinate the use of protection, restoration, and resource management tools across the Niagara Peninsula watershed—a shared responsibility among those managing this critical landscape. Engaging in this landscape level analysis with watershed partners is beneficial to develop common watershed-based resource management goals, objectives and tools that create resiliency to respond not only to impacts of climate change and growth pressures, but also potential changes to guiding principles, policies, and plans.

Further, much work has yet to be considered with respect to fine scale habitat considerations for multiple species, at risk or not, throughout the watershed. There is no better demonstration of this need than the example of the native Brook Trout populations at risk due to the declining cold water reaches of the upper Twelve Mile Creek Subwatershed.

The NPCA strives to strengthen its role as a trusted science broker through the ongoing transformation of its programs and services to meet its strategic goals associated with healthy and climate resilient watersheds and being a partner of choice. Watershed-based resource management recommendations derived from comprehensive watershed inventories and assessments that are supported by field activities (e.g., ground truthing mapping, monitoring and field verifications) should be proactively available to support partners who have specific management responsibilities (e.g., natural heritage protection and stormwater management). The availability of highly credible scientific environmental data, analysis and strategies will help inform the development and updating of decision-making tools such as environmental policies, technical guidelines and stormwater specifications.

4.1.4 Invasive Species

Invasive species are a major threat in Ontario and the Niagara Peninsula watershed as they become more abundant and widespread. These species outcompete native species and impact the watershed's existing natural heritage system and features. Devastation of local woodlots and forest patches from the emerald ash borer are evident throughout NPCA's jurisdiction. Phragmites invade the Niagara Peninsula watershed as well, while many other invasive species are present in local natural areas, and new invasive species are reported ever more frequently.

The Niagara Peninsula watershed currently does not have a comprehensive invasive species strategy despite regularly encountering invasive species issues. A strategy would offer guidance on managing invasive species within the broader framework of watershed-based resource management through adaptive integrated watershed management. Key outcomes would include identifying and validating service gaps in addressing invasive species, systematically recognizing cross-functional dependencies, and identifying capacity-building opportunities within existing NPCA programs, services, and partner initiatives. These recommendations would form the foundation for an invasive species strategy and related programming.

4.1.5 Impacts on Water Quality

There is an adage that states that what we do on the land is reflected in the water. Watershed health is strongly influenced by water quality indicators. Impacts are well known in the Niagara Peninsula watershed, as documents through NPCA's ambient Water Quality Monitoring Program. Annual Results continue to indicate that many of NPCA's watersheds have marginal to poor water quality. Agricultural non-point sources continue to be the predominant cause of impairment, however, point sources related to urban stormwater management contribute as well. These issues are compounded by the concentration of nutrients and chlorides through capture and temporary containment in facilities. Poorly designed systems, combined with increasingly intense weather conditions, can exacerbate outflow rates, negatively impacting surface water flow regimes. This, in turn, leads to increased erosion and elevated suspended solids in our local creeks.

Groundwater quality regularly exceeds aesthetic objectives within the Ontario Drinking Water Standards. Aquifer vulnerabilities due to land-based activities, including urban development and management practices, do persist in parts of the watershed as well.

The NPCA's inherent IWM approach to conservation—managing human activities and natural resources within watershed boundaries through adaptive practices—lends itself ideally to addressing water quality issues. Many of NPCA's current programs and services, including the Enhanced Watershed Monitoring and Reporting Program and Enhanced Watershed Restoration and Stewardship services, are being

systematically redesigned through the strategic plan. This redesign aims to proactively mitigate water quality impacts more effectively. The NPCA will continue to implement programs and initiatives aimed at systematically addressing the ongoing water quality concerns within the Niagara Peninsula watershed until measurable improvements are achieved.

4.2 Actions to Mitigate Issues and Challenges

4.2.1 Enhance our Integrated Watershed Management Approach

Through its Integrated Watershed Management (IWM) approach, NPCA's foundational watershed management activities readily support its mandatory programs and services and those complementary to them. Significant investment in this approach is the primary vehicle with which to mitigate issues and challenges faced by the Niagara Peninsula watershed.

These management activities fundamentally include:

- Watershed scale monitoring, data collection and management as well as modelling;
- Watershed scale studies, plans, assessments, and/or strategies; and
- Watershed wide actions including stewardship, communication, outreach, and education.

Revitalizing formal watershed planning is critical to support the adaptive management cycle at the watershed scale, ensuring continuous progress toward specific management recommendations for both the watershed and subwatershed levels. Watershed planning and management play a crucial role in addressing the impacts of climate change, and NPCA is committed to integrating climate action into its approach. A key strategy is flood mitigation, where NPCA leverages natural infrastructure like wetlands to absorb stormwater and reduce flooding risks. Carbon sequestration is also a priority, with a focus on protecting and restoring forests that capture and store carbon, helping to mitigate greenhouse gas emissions. Enhancing ecosystem resilience improves habitat connectivity and biodiversity, and helps natural systems adapt to the variability brought by changing climate conditions.

As more activities are carried out in the watershed to address its urgent issues and challenges, effective coordination and communication become essential. Engaging the public and interested parties to enhance education and transparency around daily resource management initiatives will improve access to information, supporting better decision-making and fostering collective action.

4.2.2 Enhancement of Restoration, Stewardship, Monitoring, Education and Outreach Programs

Enhancement of existing programs and services to assist with delivery of the Watershed Strategy has already begun through the implementation of the Strategic Plan. Restoration and Stewardship, Watershed

Monitoring and Reporting, and Education and Outreach are evolving into a refreshed suite of programs grounded in IWM principles and practices. These efforts complement mandatory programs and services.

Restoration programming is being refined to take a more targeted, objective approach, moving away from a broad-brush method. The target of planting one million trees by 2031 has been set to aggressively restore forested habitat, increase canopy cover, enhance water quality, improve biodiversity, and enhance climate resilience across the watershed. A renewed focus on targeted restoration strategies for the Twelve Mile Creek and Four Mile Creek watersheds highlights the prioritization of sensitive areas with diverse resource management concerns. Ideally, these efforts will transition from identifying specific resource management needs to implementing recommended actions outlined in updated watershed plans.

The NPCA remains committed to reintroducing cost sharing services and partnerships to assist and offer support to farmers and the agricultural community to put nature back on marginal and environmentally sensitive arable lands. Addressing invasive species, as well as species at risk and other specific habitat requirements, are also future considerations under the intentional approach of NPCA's enhanced watershed restoration and stewardship services.

4.2.3 Enhance Partnerships and Collaboration

In the past, partnerships such as the one between NPCA, the Regional Municipality of Niagara, and the Ministry of the Environment, Conservation and Parks, which formed the Niagara Water Strategy (initially known as the Niagara Waters Quality Protection Strategy), were born locally in response to the Walkerton tragedy and tremendously advanced the IWM approach within the Niagara Peninsula watershed. More recently, our collaborations with municipal partners, such as the City of Hamilton's Biodiversity Action Plan, have mutually reinforced our shared goals of protecting the natural environment and advancing resource management objectives. The NPCA will continue to strengthen existing partnerships and actively pursue new ones within the communities that it serves, to ensure the preservation, maintenance, sustainability, restoration, and enhancement of the natural environment. These partnerships include those with the federal and provincial governments, municipalities, Indigenous communities and individuals, the NPCA Board of Directors and staff, agricultural organizations and societies, conservation clubs, service groups, private landowners, conservation area neighbours, adjacent conservation authorities, and the NPCF. We will develop new approaches to improve conservation efforts and streamline program delivery with these partners. Additionally, the NPCA deeply values and supports its dedicated volunteer base, which actively collaborates with staff to address watershed issues and challenges through initiatives like community tree plantings. Volunteers also play a vital role in the success of key NPCA projects, including the heritage village at Ball's Falls Conservation Area.

Through its 10-year strategic plan, the NPCA is also guided by the principle that diverse experiences and ideas lead to better and stronger collective impact and outcomes. As such, it seeks to exemplify inclusion and equity through meaningful engagement and collaboration with communities and partners.

4.2.4 Broaden Sources of Financial Support

Being able to continue to advance its programs and services forward will require the NPCA to continue to broaden the sources of financial support to mitigate the risks associated with reliance on municipal levy. The NPCA continues to find success in seeking external funding sources, and self-generated revenue activities such as user fees to support the implementation of its strategic plan and programs and services. While opportunities to contend for available government grants are plentiful at present, NPCA continues to nurture diverse funding strategies that include working closely with the [Niagara Peninsula Conservation Foundation](#) (NPCF) to empower its abilities to draw donations in support of NPCA programs and services. Other strategies may include corporate stewardship programming that generates revenue, conservation impact bonds, or participating in emerging research collaboratives in which partners collectively seek to leverage funding sources.

4.2.5 Cost Estimates to Implement Actions to Mitigate Issues and Challenges

As required by O. Reg. 686/21, costs related to NPCA's enhanced restoration and stewardship, enhanced integrated watershed monitoring, watershed planning and studies, and education and outreach that compliment and support NPCA's natural hazard management mandate, as identified through the 2024 NPCA budget, are shown in Appendix II. The ongoing prioritization of operating and capital costs to support these programs and services will be determined through annual budget processes.

5.0 IMPLEMENTATION AND REVIEW

Under O. Reg. 686/21: Mandatory Programs and Services, the NPCA is required to establish a process for the periodic review and updating of the Watershed Strategy, including procedures to ensure that interested parties and the public are consulted.

The Watershed Strategy will be treated as a living document, with NPCA committing to assess the need for a comprehensive review on a five-year cycle. Various influencing factors—such as technological advances, socioeconomic changes, emerging political and environmental issues—will be analyzed to determine the appropriate level of review. In cases of exceptional circumstances, such as legislative changes, the NPCA may undertake an earlier update to ensure the strategy remains compliant and aligned with governing legislation, where required. Staff will seek direction from the NPCA Board of Directors to proceed with such updates as necessary.

For each update, NPCA will develop an engagement plan to involve watershed residents and partners, Indigenous communities, and other interested parties. A workplan outlining key tasks and general timelines will also be presented to the NPCA Board of Directors at the initiation of any updates, ensuring transparency and accountability throughout the process.

6.0 COMMUNICATIONS AND ENGAGEMENT

The development of the Watershed Strategy was guided by a collaborative process that emphasized the importance of engagement with a wide range of interested parties. Through active engagement for a concentrated period of 30 days, staff gathered diverse perspectives to ensure the strategy reflects the priorities and values of the communities we serve. This collaborative approach helped ensure that the strategy addresses the needs of the watershed while promoting sustainable resource management, community involvement, and a shared vision for the future of this vital ecosystem.

Through an intentional communications and engagement strategy, staff employed a multi-channel approach to meet our communities where they are. With accessibility and inclusivity as guiding principles, we leveraged a combination of traditional and digital methods to inform and engage a wide range of internal and external audiences.

NPCA employed best efforts to engage with Indigenous partners and peoples, partner municipalities and government agencies, residents, conservation area users, volunteers, local interest groups, environmental groups and non-government organizations, technical experts like engineers and consultants, members of the agriculture, environment, planning, development, eco-tourism, and education sectors, and the public within the Niagara Region, Haldimand County, and the City of Hamilton.

Key outreach efforts included a Public Information Centre (PIC), sector-specific stakeholder meetings, direct emails, and targeted social media campaigns. The use of both in-person and online engagement opportunities helped ensure accessibility for diverse audiences and broad participation.

NPCA staff, Board of Directors, Public Advisory Committee (PAC), and the Niagara Peninsula Conservation Foundation played an essential role in shaping the Watershed-Based Resource Management Strategy. Staff, as the experts on the ground, had opportunities to share their insights and feedback through meetings, emails, and discussions. Their daily experience and expertise served as a vital sounding board for the project. The Board and PAC were provided updates, and offered valuable input, with PAC members also helping to share information and encourage feedback within their communities and networks.

The NPCA's online engagement platform, [Get Involved NPCA](#), served as the hub for the Watershed Strategy project, keeping the community informed with up-to-date information. Among the various tools was a 10-

minute survey designed to gather feedback on how NPCA’s programs and services benefit the local community and to identify any issues or risks that may impact their effectiveness.

Key Tools & Tactics	Results
Get Involved NPCA	1,400 web visits
On-line Survey	23 responses
Hybrid Public Information Centre + video	27 registrations 6 attended virtually 4 attended in-person 58 video views
Organic and Paid Social Media	86,582 reach 2.05% engagement rate

Preliminary analysis of the survey responses, comments, feedback, and discussions showed that the NPCA programs and services the public was most familiar with were flooding and erosion management, planning and permitting, watershed studies, restoration, community engagement and education, and conservation area services and amenities such as camping, day-use, and events.

Staff identified 10 key issues or risks that could impact the effectiveness of NPCA’s programs and services. These were presented to survey participants, who evaluated their level of impact as high, moderate, slight, or no impact. The results strongly validated staff concerns, with approximately 70 per cent of the issues and risks identified as having a significant (high) impact on NPCA's ability to maintain effective service delivery. The remaining 30 per cent were deemed to have a moderate impact, further reinforcing their importance.

Level of Impact	Issues or risks
High Impact	Increased growth pressures on the watersheds
	Securing additional funding sources
	Impacts on water quality
	Potential changes to legislation affecting conservation authorities

Level of Impact	Issues or risks
	Loss of natural vegetation cover
	Climate variability and change
	Invasive species
Moderate Impact	Increasing use of NPCA conservation areas
	Increasing demand for environmental education
	Public accessibility to NPCA conservation areas

This alignment between staff insights and community feedback highlights shared priorities and the importance of focusing NPCA's programs, services, and conservation efforts on addressing these challenges to ensure continued effectiveness and success.

Members of the community provided additional input pertaining to other issues or risks that NPCA should consider, as well as suggestions associated with these. They were consistent with those previously identified by staff, **which served as confirmation that NPCA's Watershed Strategy aligns with the needs of the community it serves.**

- **Climate Adaptation Funding Constraints:** the importance of securing funding for climate adaptation due to recent extreme weather events impacting watersheds, shorelines, and natural assets.
- **Biodiversity Loss and Misuse of Natural Areas:** the overuse of natural areas, including overfishing, unsustainable foraging (e.g., mushrooms), and the loss of protected wetlands due to policy changes and landowner actions.
- **Development Pressures:** the expansion of buildings and development in response to community growth, particularly regarding its impact on natural habitats and agricultural land.

The detailed and thoughtful feedback from approximately 50 per cent of survey respondents demonstrated a highly engaged audience eager to participate in the development of the Watershed Strategy. The survey responses reflect diverse perspectives, ranging from positive observations, specific operational suggestions to broader environmental concerns. This level of participation indicates that the participants are deeply connected to their local environment and invested in NPCA's success. These are summarized in the following reoccurring themes:

- **Leadership and Collaboration:** improvements in NPCA's programs and services, citing strong leadership, collaboration with municipalities, and the positive working relationships fostered by NPCA's senior management.
- **Conservation and Land Protection:** the need for NPCA to prioritize acquiring and protecting vulnerable lands, particularly wetlands and biodiversity-rich areas within urban boundaries. Concerns about the impact of development on creeks, streams, and the surrounding ecosystems.
- **Legislative and Policy Concerns:** stricter laws to protect creeks, waterways, and natural forests, as well as measures to limit industrial access to rural lands and ensure that new developments prioritize green spaces, trees, and natural ecosystems.
- **Improving Watershed Health and Protecting Endangered Species:** the importance of educating the public on the significance of ecosystems and biodiversity in maintaining a healthy environment. This also tied to suggestions around increased communication between NPCA and residents, especially on conservation matters such as restoration efforts.
- **Increased Collaboration and Focus on Better Data Management:** stronger partnerships with local communities and other stakeholders in relation to data management and integration would help to address ongoing environmental challenges.
- **Desire for Expansion of Conservation Areas and Increased Restoration:** the community sees these areas as vital for preserving biodiversity and providing accessible spaces for recreation and education.

The responses from this survey, as well as all other forms of engagement, show increased interest from the community. Not only did respondents provide detailed feedback on specific projects, but they also offered constructive suggestions for improving NPCA's programs and services. The variety of topics covered, from biodiversity to community engagement, shows that respondents are not only concerned about immediate issues but are also thinking long-term about the health and sustainability of the Niagara Peninsula watershed. This level of engagement reflects a committed and proactive community that is willing to collaborate with the NPCA for the betterment of the environment.

Feedback received through internal and external engagement was thoroughly reviewed by the project team and was considered in the development of this Watershed Strategy where applicable.

APPENDIX 1: CATEGORY 1 MANDATORY PROGRAMS AND SERVICES

A summary of existing technical studies, monitoring programs and other Information that guide NPCA's Mandatory Programs and Services

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
Natural Hazard Management	Protecting people and properties from flood, erosion, and other natural hazards.		
Flood Forecast and Warning	<p>Delivery of accurate, real-time information for flood forecasting, warning, and messaging. Issue flood warnings</p> <p>Water quantity monitoring specific to flood forecasting and warning: Collect and maintain data from dams, streamflow gauges, rainfall gauges, and snow courses, as well as collect weather forecasts from various sources</p> <p>Climate Monitoring</p>	<ul style="list-style-type: none"> • Data on precipitation, river flows, reservoir, and Great Lake water levels taken from 21 rain gauge stations, 15 stream gauge stations, 3 Great Lakes gauge stations, and 7 snow course stations • Observed flood elevations and data gathered in the field • Flood messages issued by the Alertable mobile app system 	1.2, 2.2, 2.3, 4.2
Flood and Erosion Management	<p>Management and monitoring of riverine erosion across the watershed jurisdiction.</p> <p>Ice management</p> <p>Floodplain mapping</p> <p>Flood and erosion risk and mitigation studies</p>	<ul style="list-style-type: none"> • Digital elevation models and other geospatial data • Watercourse floodplain mapping. • Hydrologic and hydraulic models • Ontario Ministry of Natural Resources Flooding Hazard Technical Guidelines • Natural Hazard Infrastructure Operational Plans • Natural Hazard Infrastructure Asset Management Plans 	1.2, 2.2, 2.3, 4.2

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	<p>Operation and maintenance of NPCA flood and erosion control Infrastructures</p> <p>Flood and erosion hazard mitigation projects</p>		
Shoreline Hazard Management	<p>Shoreline management plans</p> <p>Integration of natural hazard management with overall shoreline climate resiliency and watershed resource management to respond to climate change risk and vulnerability</p> <p>Flood and erosion hazard mitigation projects</p>	<ul style="list-style-type: none"> NPCA Lake Erie and Lake Ontario Shoreline Management Plans Digital elevation models and other geospatial data Ontario Ministry of Natural Resources Great Lakes Hazards Technical Guidelines 	1.2, 2.2
Environmental Planning and Policy	<p>Review and comment on proposals, applications, or other matters under the Federal and Provincial Environmental Assessment Acts related to s. 28 and natural hazards</p> <p>Review and process s. 28 permit applications related to public infrastructure (e.g., Hydro One, Enbridge, Bell, municipal, DART protocol)</p>	<ul style="list-style-type: none"> Conservation Authorities Act and related regulations, including O. Reg. 41/24 Ontario Environmental Assessment Act Municipal Class Environmental Assessment Drainage Act; DART Protocol 2021 Update on Conservation Authority Exceptions for the Drainage Community Further to the Release of Ontario Regulation 41/24: 	1.2, 2.1, 5.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	Review and comment on municipal Official Plan Reviews and Updates as well as supporting technical studies relating to natural hazards	<p>Prohibited Activities, Exemptions and Permits under the Conservation Authorities Act, March 28, 2024</p> <ul style="list-style-type: none"> • MOU between Conservation Ontario and Hydro One Networks Inc. • Planning Act • NPCA Policy Document: Policies for Planning and Development in the Watershed of the NPCA • NPCA Procedural Manual • Mapping of natural hazards (e.g., watercourses, wetlands, unstable soil or bedrock, shoreline areas affected by flooding, erosion of dynamic beach hazards) and regulated areas and other geospatial data • Various MNR Technical Guidelines for Natural Hazards e.g., Erosion and Flooding • Recent and historical orthoimagery 	
Planning and Permitting	<p>Review and comment on proposals, applications, or other matters under the Planning Act, Niagara Escarpment Act, and Aggregates Resources Act related to s. 28 and natural hazards</p> <p>Review and process s. 28 permits (not related to public infrastructure)</p>	<ul style="list-style-type: none"> • Conservation Authorities Act • Ontario Regulation 41/24 • Niagara Escarpment Planning and Development Act • The Planning Act • NPCA Policy Document: Policies for Planning and Development in the Watershed of the NPCA 	1.2, 2.1, 5.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
		<ul style="list-style-type: none"> NPCA Planning and Procedural Manual Shoreline Management Plans for Lake Erie and Lake Ontario Twelve Mile Creek Slope Stability Study MNRF Technical Guide-River and Streams Systems: Erosion Hazard Limit and Flood Hazard Limit Mapping of natural hazards (e.g., watercourses, wetlands, unstable soil or bedrock, shoreline areas affected by flooding, erosion of dynamic beach hazards) and regulated areas and other geospatial data Recent and historical orthoimagery 	
Section 28 Compliance and Enforcement	<ul style="list-style-type: none"> Investigate complaints and contraventions of Section 28 of the CA Act. Conduct compliance inspections of issued NPCA Section 28 permits Gain compliance with the CA Act and associated regulations for contraventions and violations Initiate and support court proceedings where compliance is unsuccessful Enforce court orders and settlements as required. 	<ul style="list-style-type: none"> Conservation Authorities Act Ontario Regulation 41/24 Provincial Offences Act and associated Regulations NPCA Section 28 Compliance and Enforcement Procedural Manual, 2022 Conservation Ontario/NPCA Section 28 Enforcement Guidelines, 2011 NPCA Internal Standard Operating Procedures for Compliance and Enforcement 	1.2, 2.1, 2.2, 4.1, 5.2, 5.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	<ul style="list-style-type: none"> Provide client and public education on compliance and enforcement role of the NPCA 	<ul style="list-style-type: none"> NPCA Policies for Planning and Development in the Watershed, 2022 NPCA Planning and Permitting Procedure Manual, 2022 Digital elevation models and other geospatial data Recent and historical orthoimagery 	
Watershed Management and Climate Change			
Programs and services to understand the current conditions, cumulative impacts, and risks to watersheds. Strategies and measures to protect, enhance, and restore watersheds toward creating healthy and climate-resilient watersheds.			
Watershed-based Resource Management Strategy	Implementation, review, and update to the strategy, including compiling existing resource, management, plans, watershed plans, studies, and data	<ul style="list-style-type: none"> Digital elevation models and other geospatial data Recent and historical orthoimagery Watershed Report Cards Natural Heritage System assessments (i.e., Nature for Niagara's Future) NPCA Watershed Natural Asset Analysis and Valuation study 	1.1, 1.2, 2.2, 4.1, 4.2
Watershed and Subwatershed Planning	<p>Updates to NPCA watershed plans</p> <p>Subwatershed-level assessments and analyses (e.g., water budgets, catchment assessment, non-point source modelling, groundwater modelling, and systematic conservation monitoring)</p>	<ul style="list-style-type: none"> O. Reg 686/21 Data collected under the Provincial Water Quality Monitoring Network and the Provincial Groundwater Monitoring Network and associated reporting Planning applications SWAT non-point source modelling for the Welland River watershed 	1.1, 2.2, 4.1

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	<p>Determine the cumulative watershed impacts from natural resource inventory and resource assessment studies</p> <p>Develop and maintain recommendations and guidelines to assist in the management of watershed natural resources</p>	<ul style="list-style-type: none"> • Source Water Protection Assessment and related reports • Natural Areas Inventory geospatial data and reports • NPCA Watershed Natural Asset Analysis and Valuation study • Floodplain Mapping and hydrologic modelling output and associated reports • Geospatial data such as Natural Areas Inventory, Hydrography, etc. • Digital elevation models, recent and historical orthoimagery 	
Water Monitoring (surface and groundwater)	Complete field sampling and maintenance of program infrastructure in support of the Provincial Water Quality Monitoring Network (PWQMN) and Provincial Groundwater Monitoring Network (PGMN).	<ul style="list-style-type: none"> • Ontario Regulation 686/21- Other Program and Services PWQMN and the PGMN • Watershed-based Resource Management Strategy • NPCA Enhanced Integrated Watershed Monitoring Program 	1.1, 1.4, 2.2
Ecological Monitoring	Ecological monitoring on NPCA-owned lands in support of land management plans	<ul style="list-style-type: none"> • Conservation Areas Strategy • NPCA Enhanced Integrated Watershed Monitoring Program 	1.1, 1.4, 2.2
Ecological Restoration	<p>Internal restoration services related to conservation area land management plans</p> <p>Internal restoration services to support NPCA programs and services (e.g.,</p>	<ul style="list-style-type: none"> • Natural Areas Inventory geospatial data and reports • NPCA Watershed Natural Asset Analysis and Valuation study 	1.3, 1.4, 4.1, 4.2

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	review of s. 28 permit applications and compliance and enforcement, informing land securement strategy implementation)	<ul style="list-style-type: none"> Floodplain Mapping and hydrologic modelling output and associated reports Geospatial data such as Natural Areas Inventory, Hydrography, etc. Digital elevation models, recent and historical orthoimagery Various MNR Technical Guidelines for Natural Hazards e.g., Erosion and Flooding 	
Section 28 Regulatory Mapping Technical Studies	Technical studies to support NPCA hazard management functions (e.g., Ecological land classification mapping; S.28 regulation mapping of wetlands, watercourses, and karst; Digital terrain elevation model)	<ul style="list-style-type: none"> Various MNR Technical Guidelines for Natural Hazards e.g., Erosion and Flooding Conservation Ontario/MNR Guidelines for Developing Schedules of Regulated Areas (October 2005) Conservation Ontario Procedure for Updating Section 28 Mapping (2018) MNR Ecological Land Classification for Southern Ontario (Lee et al. 1998) Geospatial data, DEM, and orthoimagery 	1.1, 1.2, 1.3, 2.2, 5.2
Climate Change Resilience	Climate change research to support climate change forecasting, watershed vulnerability and risk assessments, and watershed impact assessment and mitigation strategies	<ul style="list-style-type: none"> Climate Projections for Niagara Region (TRCA, December 2021) Niagara Peninsula Watershed Natural Asset Analysis and 	1.1, 1.2, 2.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
		Valuation Report (Green Analytics, 2024)	
Drinking Water Source Protection	<p>Acts as the local watershed-level agency, known as the legislated role of Source Protection Authority (SPA) under the Clean Water Act, 2006, and are required to:</p> <ul style="list-style-type: none"> • Establish and maintain the Source Protection Committee (SPC) • Provide program, administrative, technical, and scientific support to the SPC • Carry out locally initiated amendments to the Assessment Report and Source Protection Plan for the inclusion of new or changing municipal residential drinking water systems • Maintain and make accessible source protection program data to inform local decision making • Monitor Source Protection Plan implementation • Prepare annual progress reports to report on local progress. • Support municipalities and local implementors in fulfilling 	<ul style="list-style-type: none"> • Clean Water Act, 2006 and associated regulations • Safe Drinking Water Act, 2002 and associated regulations • 2021 technical rules under the Clean Water Act, 2006 • Niagara Peninsula Assessment Report • Niagara Peninsula Source Protection Plan • Niagara Peninsula Explanatory Document • Geospatial Data, DEM, and orthoimagery 	1.1, 4.1

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	their Source Protection Plan implementation responsibilities		
Conservation Authority Lands and Conservation Areas	Manage approximately 3,000 ha of lands, including 41 conservation areas essential to watershed management, environmental protection, cultural heritage, and recreation.		
Section 29 Compliance and Enforcement	<ul style="list-style-type: none"> • Conduct compliance inspections for issued NPCA Section 29 permits and/or associated works • Investigate complaints and contraventions of Section 29 of the CA Act • Conduct routine enforcement inspections of NPCA owned properties for unauthorized use, hunting, trespass and/or encroachment • Initiate and support enforcements actions (notices and tickets), and court proceedings where compliance is unsuccessful • Enforce court orders and settlements as required • Provide client and public education on compliance and enforcement role on CA owned lands 	<ul style="list-style-type: none"> • Conservation Authorities Act • Ontario Regulation 688/21 • Provincial Offences Act and associated Regulations • NPCA Internal Standard Operating Procedures for Compliance and Enforcement • Geospatial Data, DEM, and orthoimagery 	1.2, 1.4, 2.1, 5.2, 5.3
Land Care Program (conservation areas)	Management and maintenance of conservation areas (e.g., gates, fencing,	<ul style="list-style-type: none"> • Conservation Areas Strategy 	1.4, 3.1, 3.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	signage, landscaping, pedestrian bridges, trails, parking lots, and roadways) Passive recreation Risk Management Hazard tree management Maintenance of heritage buildings Forest Management	<ul style="list-style-type: none"> NPCA management and master plans NPCA Internal Standard Operating Procedure Geospatial Data, DEM, and orthoimagery 	
Land Acquisition and Disposition	Strategic acquisition of properties related to mitigating the risk of natural hazards in accordance with NPCA Land Securement Strategy	<ul style="list-style-type: none"> Geospatial Data, DEM, and orthoimagery 	1.4, 3.1
Land Management Planning	Conservation Area Land Inventory and Conservation Area Strategy Conservation Area Management Planning	<ul style="list-style-type: none"> Geospatial Data, DEM, and orthoimagery 	1.4
Enabling Services	Support for all CA departments, the Board of Directors, member municipalities and the general public enables NPCA to operate in an accountable, transparent, efficient, and effective manner.		
Corporate Services	Administrative support Human resources (incl health and safety)	<ul style="list-style-type: none"> CPA Canada Standards and Guidance Collection CPA Canada Standards and Guidance Collection 	5.1, 5.2, 5.3, 6.1, 6.2

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	<p>Property taxes and occupancy costs</p> <p>Oversight of programs and policies</p> <p>Operating costs not related to any specific program or service (e.g., overhead)</p> <p>Records management</p> <p>Grant management</p>	<ul style="list-style-type: none"> • CPA Canada Standards and Guidance Collection • Employment Standards Act • Collective Agreement – OPSEU L212 • Labour Relations Act • Occupational Health & Safety Act • Workplace Safety & Insurance Act • Public Health • NPCA – Human Resources Policies • NPCA – Health & Safety Policies 	
Financial Services	<p>Annual budget</p> <p>Accounts payable and receivable</p> <p>Procurement</p> <p>Payroll</p> <p>Financial analytics and reporting Audit</p> <p>Administration of reserves and investments</p>	<ul style="list-style-type: none"> • Budget Assumptions & Timetable • CPA Canada Standards and Guidance Collection • Employment Standards Act • Collective Agreement - OPSEU L212 • CPA Canada Standards and Guidance Collection • NPCA – Reserves Policy • NPCA – Investment Policy 	5.2, 5.3, 6.1, 6.2
Information Management and Technology	Digital technology, licensing fees, data/voice services	<ul style="list-style-type: none"> • GO-ITS 43 Web Metadata Standard • GO-ITS 46 Common Metadata Elements Standard 	1.1, 1.2, 1.3, 2.2, 5.2, 5.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals
	<p>Management and integration of data for geographic information system (GIS)</p> <p>Support open data portal and science</p> <p>Mapping and GIS support for watershed resources planning and natural hazards management</p> <p>Support development and implementation of watershed-based resource management strategy</p>	<ul style="list-style-type: none"> • Data Capture Specifications for Medium-Scale Hydrographic Features • NPCA's Digital Transformation Strategy • Bill 194 - Enhancing Digital Security and Trust Act • CA Act • Clean Water Act 	
Governance and Corporate Administration	<p>Support to governance and corporate administration</p> <p>Board governance</p> <p>Public Advisory Committee and ad-hoc committees</p> <p>Strategic planning/ reporting and CAO oversight</p>	<ul style="list-style-type: none"> • Conservation Authorities Act • Municipal Conflict of Interest Act • Municipal Freedom of Information and Protection of Privacy Act and R.R.O 1990, Regulation 823 under the Act • NPCA 2021-31 Strategic Plan 	5.2, 5.3
Asset Management	<p>Capital costs for flood infrastructure</p> <p>Capital costs for conservation land infrastructure</p>	<ul style="list-style-type: none"> • CPA Canada Standards and Guidance Collection • NPCA – TCA Policy • CPA Canada Standards and Guidance Collection • NPCA – TCA Policy 	1.2, 1.4, 6.3

Category 1 Program or Service	Description	Program Guidance	Strategic Plan Goals

APPENDIX 2: 2024 NPCA BUDGET – INVENTORY OF PROGRAMS AND SERVICES FORMAT

Niagara Peninsula Conservation Authority										
2024 Budgets and Municipal Levies (Budget by Programs and Services)										
Appendix 4 - Report No. FA-41-23			Levy				Non-Levy			TOTAL BUDGET
Dept	Description	Category	Niagara	Hamilton	Haldimand	Total Levy	Provincial	Federal	Self-Generated	
General Levy - Category 1 and 2										
Natural Hazard Management										
301	Flood Forecasting and Warning	1	177,431	48,729	4,378	230,538	31,000			261,538
157	Flood and Erosion Management	1	43,554	11,961	1,075	56,590	5,200			61,790
323	Water Resources	1	79,522	21,840	1,962	103,324				103,324
329	Shoreline Hazard Management	1	18,772	5,155	463	24,390				24,390
345	Environmental Planning and Policy	1 & 2	210,237	57,738	5,187	273,162			153,000	426,162
361	Planning and Permitting	1 & 2	262,711	72,149	6,482	341,342	38,600		576,000	955,942
371	Compliance and Enforcement	1	450,929	123,841	11,126	585,895			40,800	626,695
391	Planning Ecology	1 & 2	80,852	22,205	1,995	105,052				105,052
TOTAL			1,324,008	363,618	32,667	1,720,293	74,800	-	769,800	2,564,893
Watershed Resource Management and Climate Change										
New	Watershed-based Resource Management Strategy	1	-	-	-	-	-	-	-	-
265	Watershed Monitoring and Reporting	1	251,576	69,091	6,207	326,874			12,000	338,874
217	Special Projects (groundwater sampling)	1	12,699	3,488	313	16,500				16,500
125	Regulatory Mapping Technical Studies	1	43,820	12,035	1,081	56,936				56,936
303	Climate Change Resilience	1	94,555	25,968	2,333	122,856		29,323		152,179
TOTAL			402,650	110,582	9,934	523,166	-	29,323	12,000	564,489
Other Watershed Related Programs										
205	Drinking Source Water Protection	1				-	155,909			155,909
TOTAL			-	-	-	-	155,909	-	-	155,909
Conservation Authority Lands and Conservation Areas										
489	Section 29 Enforcement and Compliance	1	52,418	14,396	1,293	68,107				68,107
427	Land Care Program	1	98,333	27,006	2,426	127,765			862,306	990,071
357	Land Management Planning	1	205,205	56,356	5,063	266,624			85,000	351,624
119	Ecology	1	108,058	29,676	2,666	140,400				140,400
TOTAL			464,013	127,434	11,448	602,896	-	-	947,306	1,550,202
Enabling Services										
101/107/127	Corporate Services (incl HR, Corp Sup, AM)	1	820,734	225,402	20,250	1,066,386	27,646	25,000	665,144	1,784,176
105	Financial Services	1	243,464	66,864	6,007	316,334				316,334
109/131	Information Management and Technology	1	584,157	160,430	14,413	758,999	9,900			768,899
103/150	Governance and Corporate Administration	1	412,284	113,228	10,172	535,684	32,377			568,061
111	Communications, Marketing and Public Relations	1	265,876	73,019	6,560	345,455				345,455
801	Vehicles and Equipment	1	201,338	55,294	4,968	261,600				261,600
153/155	Asset Management	1	15,544	4,269	384	20,197			189,966	210,163
TOTAL			2,543,398	698,505	62,752	3,304,655	69,923	25,000	855,110	4,254,688
TOTAL GENERAL LEVY			4,734,069	1,300,139	116,802	6,151,010	300,632	54,323	2,584,216	9,090,181

Niagara Peninsula Conservation Authority									
2024 Budgets and Municipal Levies (Budget by Programs and Services)									
Appendix 4 - Report No. FA-41-23			Levy				Non-Levy		TOTAL
Dept	Description	Category	Niagara	Hamilton	Haldimand	Total Levy	Provincial	Federal	Self-Generated
General Levy - Category 3 - Cost Apportionment MOU									
Watershed Resource Management and Climate Change									
227	Restoration	3	258,495	70,992	6,378	335,864			202,553
123	Community Engagement and Stewardship	3	224,042	61,530	5,528	291,100			
343	Integrated Watershed Planning	3	202,348	55,572	4,992	262,912			
TOTAL			684,885	188,093	16,898	889,876	-	-	202,553
TOTAL GENERAL LEVY - CATEGORY 3			684,885	188,093	16,898	889,876	-	-	202,553
Special Levy									
TDB	Capital and Special Projects	1	1,601,271	263,309	14,679	1,879,259			425,952
TDB	Land Securement	2	250,000	148,039	13,252	411,291			
TOTAL SPECIAL LEVY			1,851,271	411,348	27,931	2,290,550	-	-	425,952
Fee for Service - Schedule A									
265	Watershed Monitoring and Reporting						-	-	178,500
TOTAL FEE FOR SERVICE - SCHEDULE A			-	-	-	-	-	-	178,500
Provincial, Federal, Authority Generated									
Other Watershed Related Programs									
241	Niagara River Remedial Action Plan	3					240,028	158,000	
TBD	Other (new projects/programs - i.e. 2BT)	3					-		
TOTAL							240,028	158,000	-
Conservation Authority Lands and Conservation Areas									
395/401/403/405	Active Recreation Programs	3							2,104,031
407/411									
413	Educational Programming	3							440,000
New	Land Management, Other Agencies	3					-		
TOTAL							-	-	2,544,031
TOTAL PROVINCIAL, FEDERAL, AUTHORITY GENERATED							240,028	158,000	2,544,031
GRAND TOTAL									
			7,270,226	1,899,580	161,630	9,331,436	540,660	212,323	5,935,252

SUMMARY									
Operating			5,418,955	1,488,232	133,699	7,040,886	540,660	212,323	5,509,300
Capital			1,601,271	263,309	14,679	1,879,259	-	-	425,952
Land Securement			250,000	148,039	13,252	411,291	-	-	-
TOTAL			7,270,226	1,899,580	161,630	9,331,436	540,660	212,323	5,935,252