



Watershed-Based Resource Management Strategy



December 19, 2024

Lower Thames Valley Conservation Authority

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Watershed-based Resource Management Strategy

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New Strategic Plan	September 11, 2015	LTVCA Board of Directors	Strategic Objectives and Implementation Report
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New combined Strategy	December 19, 2024	LTVCA Board of Directors	Watershed Based Resource Management Strategy

Acknowledgements

The Lower Thames Valley Conservation Authority (LTVCA) acknowledges that the watershed is within the traditional territory of First Nations people who have longstanding relationships to the land, water and region of southwestern Ontario. We also acknowledge the local lower Thames River watershed communities of this area which include Chippewas of the Thames First Nation, Oneida Nation of the Thames, Munsee Delaware Nation, Delaware Nation, Caldwell Nation and Walpole Island First Nation. We acknowledge the first nations people within the villages, towns and cities of our communities. We value the significant historical and contemporary contributions of local and regional First Nations and all of the Original peoples of Turtle Island (North America). We are thankful for the opportunity to live, learn and share with mutual respect and appreciation.

Thanks

We would like to acknowledge the contributions of all those who participated in the development of the Lower Thames Valley Conservation Authority's Watershed Based Resource Management Strategy.

About this Report

References: Information that helped shape this Strategy were taken from the 2015 Strategic Objectives and Implementation Report and associated 2016-2021 Summary; the 2019 Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quality and Quantity; the 1966 Lower Thames Valley Conservation Report Summary; the 1975 Water Management Study, Summary Report, Thames River Basin; and the 1965 Lower Thames Valley Conservation Report; with sample documents referenced from Conservation Ontario and other Conservation Authorities.

Input: Input into the Strategy was provided and will continue to be provided by our member municipalities, community and municipal stakeholders, Indigenous watershed communities and LTVCA staff.

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Cover Page Image

CM Wilson Conservation Area pond.

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Contents

- I.0 Introduction..... 5**
 - 1.1 Guiding Statements..... 5**
 - 1.2 Guiding Principles..... 6**
 - 1.3 Purpose of the Resource Management Strategy..... 7**
 - 1.4 Consultation..... 7**
- 2.0 Watershed Review 8**
 - 2.1 The Lower Thames Valley Watershed - Background 8**
 - 2.2 The Landscape..... 8**
 - 2.3 The Groundwater System..... 10**
 - 2.4 The Surface Water System..... 10**
 - 2.5 Watershed Drivers and Stressors (challenges and opportunity?) 11**
 - 2.5.1 People and Population Growth..... 11**
 - 2.5.2 Agricultural Production 12**
 - 2.5.3 Climate Change 13**
 - 2.5.4 Flooding and Drought..... 13**
 - 2.5.5 Water Quality..... 13**
 - 2.5.6 Natural Areas 14**
- 3.0 Programs and Services 15**
 - 3.1 Monitoring Watershed Conditions 15**
 - 3.2 Managing the Risk of Natural Hazards..... 15**
 - 3.3 Conserving and Managing Lands 16**
 - 3.4 Providing Outdoor Recreational Opportunities..... 17**
 - 3.5 Protecting Drinking Water Sources..... 17**
 - 3.6 Improving Water Quality..... 17**

3.7	Providing Conservation Services to Landowners and Residents	18
3.8	Outdoor Environmental Education	19
4.0	Looking Forward – A New Resource Management Strategy.....	19
4.1	Background	19
4.2	Strategic Objectives.....	19
5.0	Areas of Focus	21
6.0	Input into the Strategy	22
6.1	Healthy and Climate Resilient Watersheds-Strengths/Weaknesses	23
6.2	Supporting Sustainable Growth.....	23
6.3	Connecting People to Nature.....	24
6.4	Partner of Choice.....	24
6.5	Organizational Excellence.....	24
7.0	Response to Input	25
8.0	Initiatives	28
8.1	Current Programs that Address Input into the Strategy	29
8.2	New or Expanded Initiative to Address Input	31
9.0	Updates to the Watershed Based Resource Management Strategy	32
10.0	Reporting Progress to Board and Partners.....	33
11.0	Conclusions	33

I.0 Introduction

The Lower Thames Valley Conservation Authority (LTVCA) oversees water and other natural resources on behalf of 10 member municipalities and roughly one hundred thousand residents of the Lower Thames Valley watershed. Through programs that balance human, environmental and economic needs, the LTVCA works collaboratively with all levels of government, Indigenous Communities, various organizations, and members of the community to ensure the conservation, restoration and responsible management of water, land, and natural habitats in the watershed.

1.1 Guiding Statements

LTVCA Vision

The LTVCA for a balanced and healthy watershed.



LTVCA Mission Statement

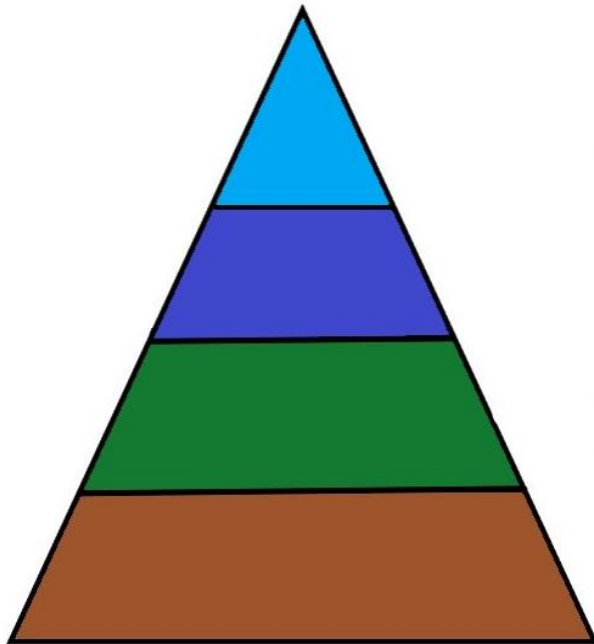
Leading by example in environmental conservation in partnership with the community.



Core Values

Respect Integrity Commitment
Objectivity Collaboration





Vision - set direction

Mission - articulate purpose

Values - express how the corporation operates

Area of Focus - organize strategic priorities

Input - feedback from community and technical studies describing desired outcomes

Response - identify the change required to achieve outcomes

Initiatives - identify actions that will drive progress

Metrics / Measurements - measure progress

1.2 Guiding Principles

The LTVCA's approach to watershed-based resource management and the development of the organization's programs and services is guided by the following principles:

- The watershed is the appropriate scale for managing water and the linkages between water and other natural resources.
- The LTVCA Watershed Based Resource Management Plan (WBRMP) is the framework to identify and assess resource conditions, trends, risks, and issues, and to implement programs and services to manage them.
- A well-managed river system is crucial for a healthy watershed, sustaining prosperity, growth, well-being, and climate change resiliency.
- The health and safety of watershed residents is a primary consideration for all development.
- Water and other natural resources are vital natural assets: they buffer the impacts of a changing climate, mitigate natural hazards, filter contaminants, assimilate waste, sustain biodiversity, and provide green spaces for education, recreation, physical and mental health, among other community benefits.
- Collaboration is essential, as the management of water and land is a shared responsibility among the conservation authority, municipalities, Indigenous Communities, government agencies, landowners, and other interest holders.
- Resource management decisions are transparent and take into consideration a broad range of community uses, needs, connections and values, including ecosystem needs.

- The LTVCA's programs adapt and respond to changing conditions, priorities, vulnerabilities, and pressures.
- Outreach and engagement leading to collaboration, leads to better and stronger ideas, actions and outcomes.

1.3 Purpose of the Resource Management Strategy

Under the *Conservation Authorities Act*, each Conservation Authority in Ontario is required to prepare a Watershed-Based Resource Management Strategy (Strategy). The goal of the Strategy is to ensure that the LTVCA's programs and services respond to watershed issues and reflect the organization's mandate under the *Conservation Authorities Act*. In developing the Strategy, watershed health and trends, program effectiveness, and other LTVCA plans and strategies that guide the organization's activities, were considered, including the following:

- The LTVCA's Strategic Plan
- The Lower Thames Valley Watershed Based Resource Management Plan
- The LTVCA's Watershed Report Card
- A Shared Waters Approach for the Thames River (Deshkan Ziibi)

1.4 Consultation

The LTVCA will undertake public and stakeholder consultation on the Watershed Based Resource Management Plan (WBRMP). The consultation will include:

- Communications to member municipalities, and Indigenous Communities within the watershed with a link to the Plan, noting the consultation period and offering council presentations on the draft Strategy, upon request.
- Presentation of the draft Strategy for discussion to the Lower Thames Valley Board of Directors.
- A power point presentation of the WBRMP will be available through our website for public viewing.
- The draft Strategy will be posted on the LTVCA's website throughout the review period June to October 2024.

A summary of comments received and a revised WBRMP will be presented to the LTVCA Board for consideration following the review period and re-posted to the website.

2.0 Watershed Review

2.1 The Lower Thames Valley Watershed - Background

The Lower Thames Valley watershed is 3,275 square kilometres in area. The watershed of the LTVCA is situated in Southwestern Ontario and includes: those lands draining into the Thames River from the community of Delaware to Lake St. Clair; it also includes the lands that drain into Lake Erie lying south of the lower Thames River watershed from Talbot Creek in the east to the West Branch of Two Creeks in the west; and a small triangle of land north of the mouth of the Thames draining directly into Lake St. Clair. The LTVCA's jurisdiction includes roughly 121 kilometres of shoreline on Lake Erie, and 16 kilometres on Lake St. Clair.

Indigenous Peoples have been deeply connected to the land and water in the Lower Thames watershed for thousands of years. The watershed, lakes and river were sources of water, transportation, and habitat for the terrestrial and aquatic plants and animals Indigenous Peoples relied on. Roughly three centuries ago European settlement began, and communities grew along the river as it provided a source of water, transportation and power for mills. The Lower Thames Valley is situated within the territories of the Chippewas of the Thames First Nation, Oneida Nation of the Thames, Munsee Delaware Nation, Delaware Nation, Caldwell Nation and Walpole Island First Nation.

The Lower Thames Valley was designated a Canadian Heritage River in 2000. The designation recognizes the outstanding human and cultural heritage values and excellent recreational opportunities along the river and its tributaries.

2.2 The Landscape

The biophysical characteristics, namely the soils, geology, and the location and extent of natural areas within the watershed, have determined how water moves through the landscape and how humans have used the land.

European settlement led to rapid deforestation and the draining of wetlands. Tile drainage was and continues to be prevalent within the watershed, particularly in poorly drained, compacted soils, or where groundwater tends to be close to the ground surface. Private and municipal drains were deemed necessary to create conditions suitable for agricultural production. As a result, the LTVCA has thousands of municipal drains throughout the watershed, both open ditches and enclosed tiles.

As with most lands located within Ontario and surrounding areas, the lands within the LTVCA's watershed were shaped by glaciation. Lands covered by glaciers were subjected to the great weight of the advancing ice mass that acted like a bulldozer, adjusting the landforms as it pushed forward, while also depressing the earth's crust. The Wisconsin Glacier was responsible for most of our present landscape features within the watershed.

Lower Thames Valley Conservation Authority Watershed

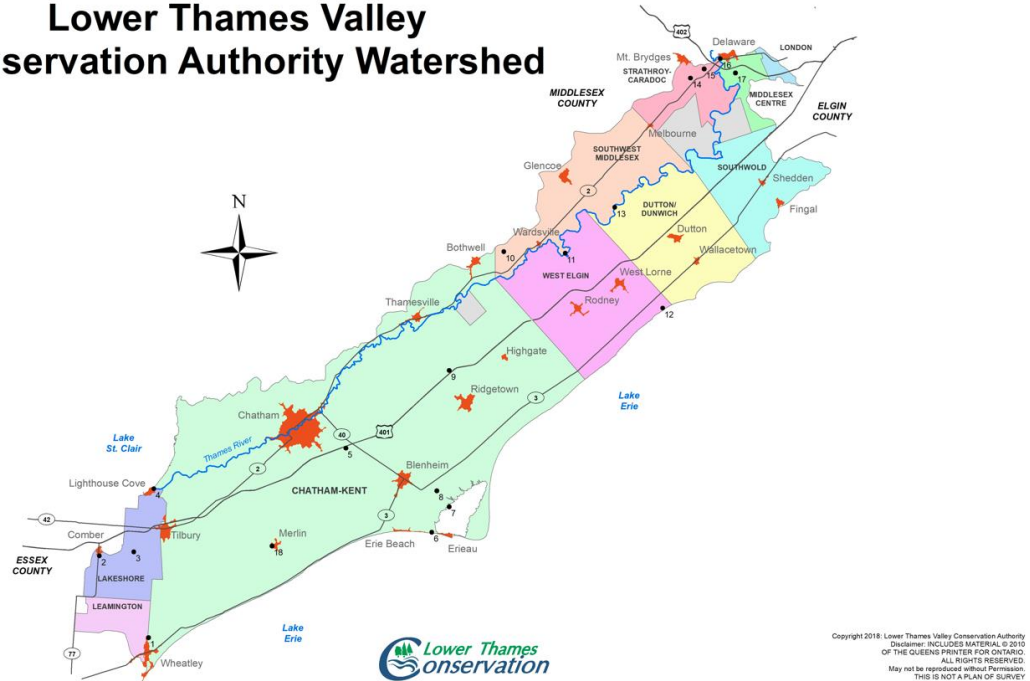


Figure #1: Watershed jurisdiction of the LTVCA

As the glacier slowly shifted northward, the meltwater formed several lakes in this area as it retreated, the last one being Lake Whittlesey, approximately 14,000 years ago. As the glacier continued to retreat, land rebounded, with the meltwaters eventually forming the Great Lakes and St. Lawrence River. A layer of clay in the former lake beds and sand along the former shorelines was set down during the time when the land was covered by water, with a few terminal moraines consisting of till deposits left as the glacier retreated. As a result, the LTVCA’s watershed has a mix of landforms.

The Thames River in the eastern portion of the jurisdiction is deeply entrenched. As the river moved through the entrenched valleys, it became more snake like, with sinuous hairpin turns, in an effort to slow itself down. This snake like movement where the river changed course (switch backs) can clearly be seen in aerial images, particularly south of Kent Bridge. There are other noticeable areas where the river flooded lower lying lands during freshet events, while pushing and eroding against the higher banked slopes of the upper reaches, slowly pushing and moving beyond its original course. As the river moved west, the grades flattened and the river became less sinuous as flows slowed, with the river widening as it headed towards Lake St. Clair.

The former Lake Warren shoreline that is now a gravel ridge that runs from the former townships of Raleigh, Harwich, Howard and Orford in the south portion of Chatham-Kent, and into West Elgin formed a 15 m high ridge of beach gravel and boulders of various size where it cut into the Blenheim moraine. In the west adjacent to the Thames River, reoccurring flooding spread alluvial soils across the flood plain during freshet and flood events throughout

this area.

As the LTVCA is located within the Carolinian Canada Life Zone, there are several unique mammals, birds, reptiles, amphibians, insects, and aquatic species that can only be found in Southwestern Ontario. The region contains an extremely high biodiversity of species, over 500 of which are considered rare within SW Ontario. The 'deep south' is adeptly suited to not only humans, but also 2,200 plant species, 70 tree species and 400 bird species, which is more than any other region in Canada.

Lake Erie, Lake St. Clair and the Thames River support a variety of fish and mussel species, as do the numerous streams that flow into these larger waterbodies. Some of the species are identified as Species At Risk within Ontario, and include endangered (facing imminent extinction or extirpation), threatened (not endangered but likely to become endangered if not protected), or have been extirpated (no longer live in the watershed). There are also invasive species that are negatively affecting existing habitats and competing with native species.

2.3 The Groundwater System

A key feature of the watershed is its major moraine systems, known as the Ridge. The moraine has extensive sand and gravel deposits, with the overburden aquifer providing groundwater for municipal and private use. The extensive sand and gravel deposits associated with the Caradoc and Bothwell sand plains also yield substantial water supplies to local users. Bedrock aquifers are also an important source of water for private water users.

Municipal and private well supplies, and the base flows in many creeks and wetlands, are reliant upon groundwater recharge and discharge. Groundwater discharge also supports the Lower Thames Valley itself, providing a significant portion of the river's base flow during summer months.

2.4 The Surface Water System

The Thames River through the LTVCA's jurisdiction is roughly 183 km in length (total length being 273 km including the Upper Thames River watershed), with a total elevation drop of 34 m. The Thames River has several sizable tributaries that contribute to its flow, such as Mill Stream, Gentleman's Creek, Battle Hill Creek, Alberts Creek, Jeannette's Creek, with the McGregor Creek being the longest.

There has been a long history of flood events on the Thames River, with the most significant ones related to ice jam events, impacting the mid and westerly portion of the length of river through the LTVCA's jurisdiction.

There is roughly 10,000 kilometres of rivers and streams draining the Lower Thames Valley watershed. Streamflow is a result of runoff from precipitation (rainfall or snowmelt), discharges from storage features (wetlands, ponds and reservoirs) and groundwater discharge. The upper watershed tends to generate high surface runoff that results in high flood flows due to the fall in topography, to minimal flows in watercourses during sustained dry periods.

A reservoir was constructed within the Upper Thames River Conservation Authority's jurisdiction, north of London that helps abate flooding intensities within the lower reaches of the Thames River. The reservoir captures runoff during spring snow melt and heavy rainfall events. Throughout most of the year, the amount of water released from the reservoir is the same as the amount of water entering from upstream. During a flood, less water is released than comes into the reservoir, which results in the reservoir gradually filling up as the extra water is stored. After the flood passes, the stored water is gradually released. Although some flooding may still occur, the flood peaks (the highest flood levels) downstream may be reduced by up to 40%.

In the central portion of the watershed, stream flows are maintained by groundwater discharge and flow from watercourses along the length of the Thames River. In the lower watershed, the majority of watercourses emptying into the Thames are pumped schemes due to a lack of gradient west of the City of Chatham. Urbanization prior to stormwater management requirements, has led to an increase in surface runoff from impervious areas.

2.5 Watershed Drivers and Stressors (challenges and opportunity?)

The Lower Thames Valley watershed is a highly diverse and interconnected system and has been altered by activities such as deforestation, drainage of wetland features, dug drains and tile drains, intensive agricultural production, and urbanization. As human communities grew, it was determined that flood control, municipal drinking water supply, and wastewater management were necessary to protect local communities from flooding and erosion hazards as well as pollution.

The health of the watershed and its communities continues to be influenced by drivers and stressors that shape and change ecosystem functions and conditions. These include population growth-related changes to land cover and resource use, extensive agricultural production, and climate change.

There is a long history of watershed planning in the Lower Thames Valley watershed. Over the past century, many remedial actions have been implemented to deal with critical problems such as flooding, drought, poor water quality, and loss of natural areas. While decades of collaborative work have resulted in some gains, such as: planting new woodlots; creating new wetland cells and tall grass prairie habitat; improvements in water quality and quantity through stormwater control infrastructure; keeping development out of hazardous areas, critical challenges still remain and must be addressed to ensure the watershed can adapt and continue to support growing communities and healthy ecosystems. Issues and risks are summarized below with additional information that influences programs and services can be found in Appendix B.

2.5.1 People and Population Growth

Throughout the LTVCA, areas of settlement are spread out fairly consistently along main

highways and county roads, typically adjacent to historic east-west railway lines, with several communities located along the Thames River. Municipalities will accommodate growth through a mixture of intensification of existing urban areas as well as urban area expansions. Some growth is projected to occur in smaller communities. This growth will put pressure on the quality and supply of water resources if services don't keep pace with intensification. More people need more water and generate more treated wastewater.

As the population grows, it will be important to have sufficient water supplies for communities, economies, and ecosystems. The residents of the Lower Thames Valley Source Protection Area receive most of their municipal drinking water from Lake Erie through 3 intakes located at the Wheatley Intake, the Chatham/South Kent Intake and the West Elgin Intake, as well as one from Lake St. Clair. The communities of Ridgetown and Highgate receive their drinking water from three local municipal ground water wells, two located north of Ridgetown and one south. Rural residents, where piped municipal water is not available, obtain their drinking water from ground sourced wells or cisterns.

Urban areas are growing at the expense of farmland, and urban stormwater is an important feature for management purposes. Many of the older urban growth areas in the watershed do not have stormwater management, which can result in erosion, poor water quality, surcharging of sewerage systems and localized flooding.

An increasing population means continued pressure on these older systems, and the river's ability to absorb nutrients and other pollutants as a result of direct discharge with little to no treatment. The Thames River also receives treated effluent from numerous wastewater treatment plants throughout its length.

As communities grow, land use changes from a more rural or naturalized environment to an urban environment. New developments and intensification can reduce the area of permeable surfaces for water infiltration, and result in habitat loss, fragmentation, or alteration, including the establishment of invasive species, all of which impact biodiversity and the quality and resilience of natural areas.

As southern Ontario's population grows, so too does the demand for open, natural spaces, nature-based recreation, and outdoor experiences. This places pressure on the ecosystems and infrastructure of the LTVCA's passive-use conservation lands and active-use conservation areas.

2.5.2 Agricultural Production

The Lower Thames Valley watershed is within a highly agrarian area, mostly cash crop production with a few specialty crops in the Rondeau Bay area and in the former Dover township flood flats. Livestock production is limited, but cattle, hog and chicken barns can be found scattered throughout the watershed. Water is needed for livestock production and irrigating specialty crops. Greenhouse operations are ever expanding within the watershed, which also demands a high water use and produces an equally high quantity of waste water. Wetland and marginal land removal, as well as dug ditches and tile drainage reduces

landscape level water storage. Surface runoff from agricultural landscapes can affect soil health and water quality and quantity by transporting nutrients and sediment.

2.5.3 Climate Change

Climate change is a global issue that has already started impacting the watershed. In the Lower Thames Valley watershed, rising air temperatures and a shift from traditional spring high flows to more mid-winter melts, early winter floods, and later spring and summer high flows have been observed. Winter snowpack's are shrinking but winter rainfalls are more common. Lake ice formation has drastically reduced, especially in duration, resulting in more damaging impacts to the shorelines during winter wind events. As the climate changes, it will have implications for water temperature (resulting in more algal blooms), lack of ice cover, and the frequency and extent of flooding and drought.

2.5.4 Flooding and Drought

The Lower Thames Valley system has a long history of flooding. Floods can occur in all seasons: during the spring melt, following major rainstorms in summer and fall, and during a rapid snowmelt or because of an ice jam in the winter. The Lake Erie and Lake St. Clair shorelines are also subject to flooding during sustained wind events, particularly during high lake-level years.

The LTVCA operates the McGregor Creek Dam and pump station, and UTRCA the Fanshaw Dam on the Thames River in the upper reaches that are vital to protecting the health and safety of watershed communities. While efforts have been made to reduce flood risk, there remain several flood damage centres within the watershed – communities that are completely within, or that have several structures located within the floodplain and have a higher risk of ice jam impact flooding. The risk of flooding can never be completely eliminated, and climate change may alter the frequency and severity of flooding experienced by watershed communities. It remains critical to regulate development in the floodplain to prevent the loss of life and property damage due to flooding and erosion impacts.

2.5.5 Water Quality

The Lower Thames Valley empties into Lake St. Clair, then into Lake Erie which is connected to one of the most important freshwater systems in the world. In 2022, the governments of Canada and the United States assessed the state of Lake Erie as “poor” due to elevated nutrient concentrations and algal blooms.

Although the ~~background~~ of natural water quality across the watershed varies considerably due to geology, runoff from urban and rural areas and waste assimilation from the various wastewater treatment plants, heavily influence the water quality issues seen in both surface and groundwater.

Agricultural nonpoint sources account for a substantial portion of the total load of phosphorus (P) in the watershed. Because of this, supporting farmers and rural landowners as stewards, and providing programs to assist them to contain P loading of land and water resources, helps

protect the drinking water sources and wastewater assimilation capacity for downstream municipalities.

While substantive progress has been achieved through wastewater treatment plant upgrades, splitting stormwater from sanitary sewer lines and overall operational improvements, continued effort is required to maintain the reductions realized through optimization as technology and personnel change. More work is required to help reduce non-point sources of total phosphorus and other nutrients including improving urban and rural stormwater management.

In some areas, aquifers are vulnerable to land-based activities, including urban development, agriculture, and management practices such as the application of road salt, manure, or fertilizer.

2.5.6 Natural Areas

Forests, prairie habitats 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, prairies and wetlands have been cleared and drained due to the high arability of the land in this region. Forest cover in the LTVCA watershed is generally low, especially in urban areas and productive farmlands, ranging from 3% in Chatham-Kent, 5.7% in Essex County, to roughly 20% each in Middlesex and Elgin Counties.

Many wetlands, remnant prairies and woodlots are small and isolated but remain important for wildlife refuges, water storage, and nutrient removal. Smaller natural areas may be more vulnerable to adjacent land practices and development pressure. Habitat loss and fragmentation prevents the movement of animals and plants, which become less abundant and more geographically restricted. In contrast, invasive plants and animals are becoming more abundant and widespread, threatening native species.

Large and relatively diverse natural areas help make the watershed more resilient in the face of climate change and human-induced disturbances. Some larger and biologically diverse natural areas remain in the Lower Thames watershed. Noteworthy natural areas include the Skunk's Misery Provincially Significant Wetland, the Clear Creek Old Growth Forest, the Talbot Creek watershed and associated ANSI, and Rondeau and Wheatley Provincial Parks. Also forests within Chippewas of the Thames First Nation, Oneida Nation of the Thames, Munsee Delaware Nation, and Delaware Nation are crucial to overall species diversity.

Additional information on Lower Thames Valley watershed conditions and issues can be found in historical reports, as well as Natural Heritage Characterization Reports for the various counties, the LTVCA's Watershed Report Card, A Shared Waters Approach for the Thames River (Deshkan Ziibi), and other technical resources are available on the LTVCA's website www.ltvca.ca.

3.0 Programs and Services

The LTVCA's programs and services contribute to achieving the watershed-based resource management strategy's objectives. Programs and services are summarized below and additional information on the programs and the technical studies, monitoring, and other information that guide implementation of the programs, can be found in Appendix A.

3.1 Monitoring Watershed Conditions

The LTVCA maintains a system of monitoring stations that collects information on weather, river flows, lake levels, groundwater, ice conditions, and water quality. Data obtained through several monitoring programs provides the information needed to understand current conditions, identify trends, and project future changes.

Monitoring infrastructure plays a key role in public safety, as it supports the LTVCA's flood forecasting and warning program and other services. The information supports day-to-day decisions about dam operations as well as low water response and long-range water management planning. Gauges and monitoring stations are located throughout the watershed. These include:

- One air temperature station, two rainfall stations, and one precipitation station, some capable of measuring snow, rain, and mixed precipitation.
- Five real-time flow gauges measure changes in water levels; three on the Thames River, one on McGregor Creek and another on Indian Creek.
- Surface water quality is measured at 22 locations under the Provincial Water Quality Monitoring Network.
- Groundwater levels and quality are measured at 7 wells under the Provincial Groundwater Monitoring Network.

Visual observations of flood and ice jam conditions are also important sources of information. A River Watch program uses field staff to confirm and report conditions during flood events, using staff gauges on municipal and county bridges that cross the Thames River as well as manually measuring ice depth conditions.

Some of the LTVCA's monitoring data is shared on the website so that watershed residents and municipal staff can view near-real time information and make decisions based on conditions being reported.

3.2 Managing the Risk of Natural Hazards

The LTVCA has programs and services to manage risks related to natural hazards, including flooding, drought, erosion, wetlands, dynamic beaches, and other hazardous

sites and lands. The LTVCA's natural hazard risk reduction program includes structural and nonstructural methods of reducing flooding and other damages. Structural methods include water control structures such as dams, dikes, and channel works. Non-structural methods include flood forecasting and warning, emergency preparedness, and planning and regulation of development in floodplains and other hazard lands.

The LTVCA's programs include:

- Flood forecasting and warning: The LTVCA collects and maintains data from the dam, streamflow gauges, and rainfall gauges, as well as on-line sources of information, to monitor and forecast conditions, issue warnings for lake, riverine and ice jam flooding, and maintain communications and emergency response systems. The LTVCA also provides support to municipal emergency management personnel.
- Water control structures: The LTVCA operates and maintains 2 major flood control structures (McGregor Creek Flood Control structure and the Rivard Dam), the flood channel east of the City of Chatham associated with the dams, and diking systems in the lower watershed reaches.
- Low water response: The LTVCA coordinates and supports delivery of the provincial Ontario Low Water Response Program within the Lower Thames Valley watershed.
- Natural hazard mapping: The LTVCA updates and maintains mapping of rivers, streams, floodplains, and other natural hazards, such as wetlands, steep slopes, and the Lake St. Clair and Lake Erie shorelines.
- Planning and regulations: A permit is required under Section 28 of the *Conservation Authorities Act* for development and other activities in regulated areas such as floodplains, wetlands, steep slopes along waterways, watercourses and the Lake St. Clair and Lake Erie shorelines. Roughly one-quarter of the land area of the Lower Thames Valley watershed is regulated. The LTVCA processes permits and also reviews municipal planning documents and development applications under the *Planning Act* and other legislation to manage the impacts of natural hazards.

3.3 Conserving and Managing Lands

The LTVCA owns approximately 704 hectares of land within the watershed. The LTVCA's landholdings are used for a variety of purposes that support the organization's programs and services including lands for water control infrastructure, outdoor recreation, environmental education, natural areas, agricultural and commercial leases, rental properties, and lands under maintenance agreements.

The landholdings include fee-for-use conservation areas, conservation lands with no

entrance fees, and lands with limited or restricted access.

LTVCA-owned lands make important contributions to biodiversity and ecosystem functions within the watershed. LTVCA land acquisition policies and priorities, along with significant ecological restoration activities, have resulted in a land holding with a high concentration of natural areas, including many that contain sensitive or rare species and communities. The majority of the LTVCA's lands contain natural hazard features such as eroding shorelines, flood prone lands, wetlands, or ravine features / waterbodies. The LTVCA undertakes projects to conserve, restore, and enhance natural areas for biodiversity, to improve ecological connectivity and resiliency, to protect drinking water sources, and mitigate the impacts of flooding and erosion.

3.4 Providing Outdoor Recreational Opportunities

The LTVCA manages 33 properties throughout the watershed. They provide a wide range of opportunities such as educational, historical, camping, hiking, swimming, fishing, and picnicking, as well as operational facilities. Eighteen of the conservation areas are open to the public year-round, with the remaining fifteen either isolated or land locked, used for specific program operations or nature preservation.

The LTVCA's conservation areas are vital parts of the recreational infrastructure within their communities, providing locations for a wide range of events and activities.

The LTVCA's landholdings include conservation lands which have no controlled entrances, no entrance fees, and no onsite staff, which offer passive recreational experiences such as hiking, birding, and photography. The LTVCA's conservation areas have over 27 kilometers of trails for the public to utilize.

3.5 Protecting Drinking Water Sources

Under the *Clean Water Act, 2006*, the UTRCA is the lead Source Protection Authority (SPA) for the Thames-Sydenham and Region Drinking Water Source Protection, with responsibilities for protecting municipal drinking water sources, consisting of the St. Clair Region, Upper Thames River and Lower Thames Valley source protection areas. The SPA maintains the multi-interest Source Protection Committee and ensures the science-based Assessment Reports and Source Protection Plans are kept current for each source protection area. The SPA supports municipalities and other implementers of source protection policies and reports annually on progress towards implementing the source protection plans.

3.6 Improving Water Quality

The quality of the waters that flow in streams and rivers, and in groundwater, is vitally important to the people, communities, and aquatic/terrestrial plants and animals in the watershed:

- Indigenous Communities get some or all of their drinking water from the Thames River,
- Communities operate wastewater treatment plants that discharge treated effluent into the Thames River and Lake Erie,
- Farmers depend on the river and the lake for water for specialty crop irrigation and livestock operations,
- Many watershed residents and visitors recreate in and near the Thames River as well as Lake St. Clair and Lake Erie, and
- The lakes, river, streams and wetlands are rich ecosystems. Approximately 94 species of fish and 35 freshwater mussel species, live in the river and lake systems.

The LTVCA uses information gained through water quality monitoring, modelling, and applied research to better understand and manage the fresh water resources within our jurisdiction. This allows the LTVCA, municipalities, the province, and other agencies to take action to improve surface water and groundwater quality and the health of streams, river, and lakes within the watershed. The LTVCA's water quality program includes:

- Surface water quality monitoring, modelling, analysis, synthesis and reporting, and groundwater quality analysis and reporting.
- The LTVCA also provides BMP programs to rural agricultural operations through provincial and federal government programs to develop initiatives to reduce nutrient loads in the river and streams, and ultimately Lake St. Clair and Lake Erie. Implementation of these programs is a key action in the Canada-Ontario Lake Erie Action Plan (LEAP).

3.7 Providing Conservation Services to Landowners and Residents

The LTVCA works closely with rural landowners to help them conserve and enhance natural resources on their land and improve and protect water quality and watershed health. The LTVCA delivers municipal and partnership cost-share programs to support private land stewardship.

Through the Phosphorus Reduction Program, the Soil Health Assessment Plan, the Elgin Clean Water Program, the Soil Health Program, Erosion Control Grants, the Species at Risk Farm Incentive Program, our three ALUS programs and other stewardship grant initiatives, the LTVCA provides information, resources, and financial aid to landowners related to stewardship action, including agricultural best practices, erosion control projects, tree planting, wetland creation and naturalization projects. The LTVCA also facilitates private land, municipal and community partner tree planting, and coordinates education and outreach activities to promote actions to improve water quality and watershed health.

3.8 Outdoor Environmental Education

Since 1973, the LTVCA has been actively connecting children and adults with nature by offering outdoor education programs. These programs provide people of all ages with an opportunity to engage with the history and local environment of the Lower Thames Valley watershed. The hands-on, experiential, curriculum-based field trips for students from preschool to grade 12 form the core of the LTVCA's outdoor environmental education program. The LTVCA's programs encourage exploration and discovery to foster a connection to the local history of the area and the environment. Students spend at least 60 per cent of their field trip outdoors where educators bring classroom learning to life.

The LTVCA currently provides Indigenous and outdoor environmental education to almost 30,000 students each year, through field trips by school groups to two nature centres, along with at-school visits and some virtual program delivery.

In addition to the school programming, the nature centres currently offer limited opportunities for nature-based activities for families, organizations and community groups. These programs focus on outdoor skills and nature discovery.

4.0 Looking Forward – A New Resource Management Strategy

4.1 Background

The future prosperity, growth and sustainability of the communities in the watershed depend on a healthy river and Great Lakes systems. Population growth, green field development and urbanization, agricultural production and a changing climate will continue to exert pressure on the quality, quantity and supply of water and land resources. Addressing existing and emerging resource management issues is critical for all who live, work and recreate within the watershed. Water and ecosystems are shared resources and consequently, responsibility is shared for their management.

The LTVCA's watershed based resource management strategy is driven by the organization's legislative mandate under the *Conservation Authorities Act*, watershed issues, and municipal needs.

The LTVCA's programs and services have been developed to address these needs.

4.2 Strategic Objectives

The objectives of the LTVCA's Watershed Based Resource Management Strategy were developed by considering input received from stakeholders and past LTVCA strategic plans.

The LTVCA Watershed Based Resource Management Strategic Objectives are:

1. Improving Watershed Health
2. Monitoring the Health of the Watershed
3. Supporting Sustainable Growth
4. Improving Transparency and Customer Service in Planning and Regulations
5. Protecting the Community from Natural Hazards
6. Educating the Community about Natural Hazards
7. Supporting Community Understanding of the Watershed
8. Providing Educational and outreach opportunities
9. Providing Opportunities for Outdoor Experiences
10. Improving Management and Operations of Conservation Areas
11. Strengthening and Increasing Collaboration with Community Stakeholders
12. Increase Awareness of the Value of Good Watershed Stewardship
13. Improve Training Opportunities for Staff
14. Improving Transparency and Understanding of LTVCA Operations
15. Improving Capital Asset Management
16. Strengthening Staff Stability (financial stability, attraction & retention)
17. Improving Staff Communications and Team Building

The Lower Thames Valley Conservation Authority plays important roles in protecting people and property from natural hazards, improving the health of the watershed, and connecting people to the environment through outdoor experiences. In preparing this WBRMS, strategic risks and issues affecting the LTVCA's resource management objectives were considered.

Through development of the WBRMS, the LTVCA's mandatory programs for managing the risk of natural hazards, conserving and managing the organization's lands, protecting drinking water sources, and delivering provincial surface water and groundwater monitoring programs were reviewed. The LTVCA's programs comply with regulatory requirements and provide value to watershed municipalities, landowners, and residents.

As communities continue to grow, implications from climate change, and competing pressures arise on lands and waters; programs and priorities must adapt to continue to be effective. The LTVCA's programs will be reviewed and collaborative plans updated to incorporate new information and directions as required.

The outcomes of many programs are reviewed periodically against established criteria. For instance, the Flood and Ice Management Plan and related reports document the flood reduction benefits of the LTVCA's dams and dikes and the reliability with which dam operations have been able to meet flood prevention in built up areas. Implementation of the drinking water source protection plan is assessed annually. Finally, the LTVCA assesses and reports on watershed conditions regularly.

Strong relationships with watershed residents, municipal, Indigenous Communities,

provincial, and federal partners are critical for the LTVCA to achieve its resource management objectives. It remains particularly important to engage and collaborate with provincial and federal agencies, as they establish guidelines and standards, and provide essential funding for core program areas (e.g., floodplain mapping, water infrastructure, and drinking water source protection). With 63 years of watershed management experience, the LTVCA has a lot of knowledge to offer to partners to inform efforts to address new challenges, such as climate change.

The LTVCA's watershed-based resource management priorities are to:

- Continue to deliver effective watershed programs that respond to watershed issues, municipal needs, and regulatory requirements,
- Continue to collaborate with municipalities, Indigenous Communities, provincial and federal agencies, and watershed organizations, landowners, and residents,
- Assess and respond to the impacts of population growth, land use change, and resource use on the health of the LTVCA's watershed, and
- Assess and respond to the impacts of climate change on natural hazards and the health of the LTVCA's watershed.

5.0 Areas of Focus

In the development of this strategy, it was important to organize what the LTVCA is trying to achieve in manageable groupings or focus areas. Three of these focus areas cover the resource management topics discussed so far and two cover input into improving the LTVCA organization in its delivery of services.

The strategic areas of focus include the following:

Watershed Management Areas

1. Healthy and Climate Resilient Watersheds
2. Supporting Sustainable Growth
3. Connecting People to Nature

Organizational Areas

4. Partner of Choice
5. Organizational Excellence

FIVE STRATEGIC AREAS OF FOCUS OF THE LTVCA'S FIVE-YEAR STRATEGIC PLAN



Resource Management Areas (examples)			Organizational Areas	
Stewardship	Planning/Regs	Cons Areas	Across all Areas	Across All Areas
Species At Risk	Flood Forecasting Warning	Education		
Watershed Planning Projects	Hazard Tech Studies	Communications		
Agricultural Programs	Building Hazard Projects	Outreach		
Urban Stewardship	Low Water	Facilities e.g. Ska-Nah-Doht		
Monitoring	Flood Control	Camp Grounds		

6.0 Input into the Strategy

In the development of this strategy it has been important to review past work and listen to others. Input has been received from the following sources:

➤ Shared Waters Approach

The Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quantity and Quality, which was completed in 2019, was approved by the Board of Directors and forms the Watershed Plan for the Thames River and the LTVCA. The Shared Waters Approach (SWA) outlines recommendations to address water quality and quantity, information gaps and monitoring needs, as well as solutions through best practices, technology, and alternative approaches by the various stakeholders.

The SWA contains significant input from four of the eight distinct First Nations whose traditional territory includes the Thames River watershed. The document highlights the positive

participation and sharing of traditional ecological knowledge within this framework, and the valued participation of the First Nations in implementation.

- Other LTVCA approved Strategic Planning Documents

Appendix ___ provides a short summary of other LTVCA strategic planning documents used in this strategy.

- What everyone else thinks we should be doing

The majority of input in this strategy comes from the Board of Directors, staff, municipalities, interest groups and the residents of this watershed.

The following section is a grouping together of input into the before mentioned Focus Areas. All input has been summarized and edited into the following bullet points.

6.1 Healthy and Climate Resilient Watersheds- Strengths/Weaknesses

- Climate Change issues and action plan needed
- Understanding Ecological Flows and Maintaining them - SWA
- Watershed Restoration required to increase biodiversity, habitat connectivity and natural cover
- Understanding the health of the watershed environment, with the goal of improvement and resiliency
- Undertake integrated and adaptive watershed management
- Empowering and supporting watershed residents to understand watershed and do work
- Reduction of Phosphorus in the watershed

6.2 Supporting Sustainable Growth

- Provide a high standard of service, policies, and procedures for plan review and regulatory permit processes,
- Support sustainable technologies and green infrastructure (e.g. low impact development)
- Flood Plain Mapping issue - updates needed
- Improve understanding of natural hazards in our watershed
- Review proposals on a watershed wide basis, taking into account impacts up and down stream of proposed development
- Support, protect and improve the Thames River watershed through the Shared Waters Approach

- Reduce the potential for public cost or risk to residents from natural hazards
- Direct development away from areas of natural hazards where there is an unacceptable risk to public health or safety or of property damage
- Don't create new or aggravate existing hazards
- Mitigate the potential risk to public health or safety or of property damage from the impacts of a changing climate

6.3 Connecting People to Nature

- Provide equitable access to our conservation areas across the watershed
- Creating more access to greenspaces, which enrich our communities, and strengthen cultural connections and heritage appreciation
- Provide quality educational, stewardship and volunteer opportunities to the public
- Support Indigenous engagement and public learning so people can see nature, and be informed by Tradition Knowledge
- Increase awareness of the value of good watershed stewardship

6.4 Partner of Choice

- Provide partner organizations with a high level of service that is reliable and of high quality
- Strengthen and increase collaboration with community stakeholders
- Strengthen Indigenous engagement and relationships
- Provide educational awareness opportunities on all aspects of LTVCA
- Increase awareness of the value of good watershed stewardship
- Improve community engagement practices
- Improve public accountability and transparency in decision making
- Increase public satisfaction, trust and engagement by providing exceptional and valued services
- Track customer feedback on delivery of services that are easy to understand, accessible, personalized to individual needs and accountable
- Provide Community with tools and resources to access LTVCA services

6.5 Organizational Excellence

- Ensure organizational supports for all staff
- Foster educational opportunities and on-going learning for staff

- Foster a safe and progressive work force, with on-going opportunities for Health and Safety awareness training
- Support an experienced and forward-thinking workforce
- Work towards a just, equitable, diverse and inclusive workforce and society
- Foster a strong team environment based on trust and mutual respect, transparent in its processes and inclusive of new ideas
- Strengthen staff stability (financial stability, attraction and retention)
- Improve internal communications, operations and processes
- Build reliable physical and digital assets
- Have the ability to retain trained, knowledgeable and experienced staff within the organization
- Increase efficiency and effectiveness of service delivery through a culture of continuous improvement and innovation

7.0 Response to Input

The WBRMS will be derived directly from the input. For each input bullet a response to address the input is provided. Potential actions are also noted in the response to input.

1. Healthy and Climate Resilient Watersheds-Strengths/Weaknesses

Input / Needs Expressed	Response to Input
Climate Change issues and action plan needed	Create a LTVCA Climate Action Plan
Understanding Ecological Flows and Maintaining them - SWA	Include parameters to understand ecological flows within a new LTVCA Integrated Watershed Monitoring Strategy
Watershed Restoration required to increase biodiversity, habitat connectivity and natural cover	Continue Stewardship Programs –wetlands, tree plants and tall grass prairie plants and unique habitat projects Continue urban stewardship Program Continue to support partner groups delivering stewardship programming Continue Species At Risk Program Non active Conservation Areas –protect existing areas and acquire new acres Municipal Invasive Species Program
Understanding the health of the watershed environment, with the goal of improvement and resiliency	Complete LTVCA Integrated Watershed Monitoring Strategy Continue PGMN and PWQMN monitoring networks Continue project based monitoring when funding available Chatham-Kent Lampton Childrens Water Festival
Undertake integrated and adaptive watershed management	Implement WBRMS

Empowering and supporting watershed residents to understand watershed and do work	Maintain existing LTVCA stewardship program Create new/Update LTVCA Communications/Outreach Strategy
Reduction of Phosphorus in the water	Undertake new Phosphorus Reduction Program and continue existing/ other new agricultural programs

2. Supporting Sustainable Growth

Input / Needs Expressed	Response to Input
Provide a high standard of service, policies, and procedures for plan review and regulatory permit processes,	Time of Plan Review and Permitting as measured against O. Reg. 41/24 and LTVCA Customer Service Strategy)
Support sustainable technologies and green infrastructure (e.g. low impact development)	Update LTVCA Development Policies to support LIDs Technologies
Flood Plain Mapping issue - updates needed	Prepare Flood Plain Mapping and Risk Assessment Strategy
Improve understanding of natural hazards in our watershed	Prepare Flood Plain Mapping Strategy Complete LTVCA Integrated Watershed Monitoring Strategy Update LTVCA Flood Contingency Plan Prepare LTVCA Ice Management Plan Prepare Flood Plain Mapping and Risk Assessment Strategy Maintain LTVCA Low Water Response Program LTVCA River and Creek Safety Program
Review proposals on a watershed wide basis, taking into account impacts up and down stream of proposed development	Update LTVCA Development Policies to address watershed wide impacts
Support, protect and improve the Thames River watershed through the Shared Waters Approach	Prepare Shared Watershed LTVCA Implementation Plan
Reduce the potential for public cost or risk to residents from natural hazards	Continue to implement LTVCA programs – e.g. LTVCA Flood Forecasting and Warning Program Prepare Flood Control Structures Operational Plan from existing individual structure operations plans Continue to support management planning and implementation of Lake Erie and Lake St. Clair initiatives
Direct development away from areas of natural hazards where there is an unacceptable risk to public health or safety or of property damage	Continue to implement LTVCA programs
Don't create new or aggravate existing hazards	Continue to implement LTVCA programs
Mitigate the potential risk to public health or safety or of property damage from the impacts of a changing climate	Create LTVCA Climate Action Plan

3. Connecting People to Nature

Input / Needs Expressed	Response to Input
Provide equitable access to our conservation areas across the watershed	Develop accessibility element within a new LTVCA Lands Strategy Operate active Conservation Areas
Creating more access to greenspaces, which enrich our communities, and strengthen cultural connections and heritage appreciation	Develop accessibility and other elements within a new LTVCA Lands Strategy Update Ska-Nah-Doht Village Strategic Plan Create C.M. Wilson Learning Centre Strategic Plan
Provide quality educational, stewardship and volunteer opportunities to the public	Continue Stewardship Program –wetlands, tree plants and tall grass prairie plants and unique habitat projects Continue urban stewardship Program Continue to support partner groups delivering stewardship programming Continue LTVCA Outreach and Education Program
Support Indigenous engagement and public learning so people can see nature, and be informed by Tradition Knowledge	Create training program for LTVCA staff on Indigenous understandings
Increase awareness of the value of good watershed stewardship	Create new/Update LTVCA Communications/Outreach Strategy Develop LTVCA Natural Heritage Strategy Continue to support municipal natural heritage studies LTVCA Outreach and Education Program – number of people educated Operate active Conservation Areas

4. Partner of Choice

Input / Needs Expressed	Response to Input
Provide partner organizations with a high level of service that is reliable and of high quality	Time of Plan Review and Permitting as measured against O. Reg. 41/24 Continue LTVCA Customer Service Strategy
Strengthen and increase collaboration with community stakeholders and partners	Recognize Community Stakeholders Continue to support partner groups delivering stewardship programming
Strengthen Indigenous engagement and relationships	Create Training program for LTVCA on Indigenous Understandings
Provide educational awareness opportunities on all aspects of LTVCA	Create new/Update LTVCA Communications/Outreach Strategy
Increase awareness of the value of good watershed stewardship	Create new/Update LTVCA Communications Strategy
Improve community engagement practices	Create new/Update LTVCA Communications Strategy
Improve public accountability and transparency in decision making	Continue 6x yearly financial reporting to Board of Directors and post on WEB
Increase public satisfaction, trust and engagement by providing exceptional and valued services	Create new/Update LTVCA Communications Strategy with customer feedback element

Track customer feedback on delivery of services that are easy to understand, accessible, personalized to individual needs and accountable	Create new/Update LTVCA Communications Strategy with customer feedback element
Provide Community with tools and resources to access LTVCA services	Create new/Update LTVCA Communications Strategy

5. Organizational Excellence

Input / Needs Expressed	Response to Input
Ensure organizational supports for all staff	Maintain HR staff committee and monthly staff meetings
Foster educational opportunities and on-going learning for staff	Ensure educational opportunities are part of performance measurement program
Foster a safe and progressive work force, with on-going opportunities for Health and Safety awareness training	Continue H and S Committee learning program through monthly staff meetings
Support an experienced and forward-thinking workforce	Maintain monthly staff meetings with opportunities for staff to bring new ideas forward
Work towards a just, equitable, diverse and inclusive workforce and society	Ensure just, equitable, diverse and inclusive elements included in Hiring Procedures
Foster a strong team environment based on trust and mutual respect, transparent in its processes and inclusive of new ideas	Maintain monthly staff meetings with opportunities for staff to bring new ideas forward
Strengthen staff stability (financial stability, attraction and retention)	Conduct Salary Review
Improve internal communications, operations and processes	Maintain monthly staff meetings and weekly team meetings
Build reliable physical and digital assets	Prepare LTVCA Asset Management Plan
Have the ability to retain trained, knowledgeable and experienced staff within the organization	Conduct Salary Review and maintain Work From Home Initiative
Increase efficiency and effectiveness of service delivery through a culture of continuous improvement and innovation	Maintain monthly staff meetings and weekly team meetings with emphasis on continuous improvement and innovation

8.0 Initiatives

New initiatives that have the potential to benefit watershed residents and municipalities will always be sought out. These potential programs, services, and projects could be in any of the program areas and in any of the categories permitted under the CA Act: mandatory, municipal, or other (Category 1, 2 or 3, respectively).

Gaps in current programs and services have been identified that have the potential to be addressed

through the response to input from stakeholders and rights holders of the watershed. These future opportunities will help address current and emerging issues, and/or assist with delivery of mandatory programs and services. Prioritizing these potential initiatives will enable the LTVCA to respond effectively to any future opportunities.

For each current program and new/expanded program a listing of the Strategic Objectives addressed by that work is shown in the following tables.

8.1 Current Programs that Address Input into the Strategy

1. Healthy and Climate Resilient Watersheds

Current Programs	Measurement	Timing	Strategic Objective #
LTVCA Stewardship Programs - Rural - Urban	– number of wetlands, tree plants and tall grass prairie plants and unique habitat projects per year urban stewardship program – number of volunteers and projects per year	Annually	1,2,7,11,12
Chatham-Kent Lambton Children’s Water Festival	- number of participants	Annually	1,8,9,11
Support to partner groups delivering stewardship programming	number of partners engaged per year	Annually	1, 7,11,12
LTVCA Species At Risk Program	number of projects undertaken	Annually	1, 2,7
PGMN and PWQMN monitoring networks	Samples taken	Continue	2,7
project based monitoring when funding available	Samples taken	Annually	2
Reduction of Phosphorus in the water	continue existing/new agricultural programs	continuing	1,2,7,11,12
Conservation Areas – non active use	Acres maintained	Annually	1,7,9,10

2. Supporting Sustainable Growth

Current Programs	Measurement	Timing	Strategic Objective #
Customer Service Programs	Time of Plan Review and Permitting as measured against O. Reg. 41/24 and LTVCA Customer Service Strategy – continue	Report delivery time at each Board of Directors Meeting	3,4,5,6
LTVCA Flood Contingency Plan	Update Plan	Annually	3,5,6
LTVCA Low Water Response Program	Summary of Low Water Notices Issued	Annually	2,3,5,6
LTVCA River and Creek Safety Program	# of students	Annually	5,6,8

LTVCA Flood Forecasting and Warning Program	Messages Issued, events in which structures were operated	Annual Reporting	3,5,6
management planning and implementation of Lake Erie and Lake St. Clair	Programs Undertaken	When requested and when funding available	3,5,6
Don't create new or aggravate existing hazards	Continue to implement LTVCA programs	Annually	3,5,6

3. Connecting People to Nature

Current Programs	Measurement	Timing	Strategic Objective #
LTVCA Stewardship Programs - Rural - Urban	– number of wetlands, tree plants and tall grass prairie plants and unique habitat projects per year urban stewardship program – number of volunteers and projects per year	Annually	1,2,7,11,12
municipal natural heritage studies	Number supported	As requested	1,2,3,7,11
LTVCA Outreach and Education Programs	People educated	Annually	7,8,11
Conservation Areas – active use	People using areas	Annually	7,9,10,12

4. Partner of Choice

Current Programs	Measurement	Timing	Strategic Objective #
Customer Service Programs	Time of Plan Review and Permitting as measured against O. Reg. 41/24 and LTVCA Customer Service Strategy – continue	Report delivery time at each Board of Directors Meeting	4,14
Stewardship Awards	Number of Stewardship partners recognized	Annual Awards at AGM FEB. of each year	7,11,12
Continuous Financial Reporting	Continue 6x yearly financial reporting to Board of Directors and post on WEB	Continuing	14,17

5. Organizational Excellence

Current Programs	Measurement	Timing	Strategic Objective #
HR staff committee	Meetings held	Continuing	14,16,17
Monthly staff meetings	Meetings held	Continuing	13,14,16,17
Foster a strong team environment based on trust and mutual respect,	Maintain monthly staff meetings with opportunities	Continuing	13,14,16,17

transparent in its processes and inclusive of new ideas	for staff to bring new ideas forward		
Strengthen staff stability (financial stability, attraction and retention)	Conduct Salary Review	December 2025	16
Improve internal communications, operations and processes	Maintain monthly staff meetings and weekly team meetings	Continuing	14,16,17
Build reliable physical and digital assets	Prepare LTVCA Asset Management Plan	December 2024	15

8.2 New or Expanded Initiative to Address Input

1. Healthy and Climate Resilient Watersheds-Strengths/Weaknesses

New Initiative	Measurement	Timing	Strategic Objective #
Climate Change Action Plan	LTVCA Climate Action Plan Created	December 2025	1,3,5,6,7
Integrated Watershed Monitoring Program	LTVCA Integrated Watershed Monitoring Strategy created	December 2026	2,3,6
Municipal Invasive Species Program	- Number of projects	Annually	1,3,7,8
New Phosphorus Management Program	Undertake Precision Phosphorus Reduction Program	August 2024	1,2,3,7,8,11

2. Supporting Sustainable Growth

New Initiative	Measurement	Timing	Strategic Objective #
Flood Plain Mapping and Risk Assessment Strategy	Flood Plain Mapping and Risk Assessment Strategy Prepared	December 2025	3,5,6,7
Integrated Watershed Monitoring Program	LTVCA Integrated Watershed Monitoring Strategy created	December 2026	2,3,6
LTVCA Ice Management Plan	LTVCA Ice Management Plan Prepared	December 2024	3,5,6,7
New LTVCA Development Policies	Update LTVCA Development Policies	June 2025	3,4,5,6
Shared Watershed LTVCA Implementation Plan	Shared Watershed LTVCA Implementation Plan Prepared	February 2025	1,2,3,7,11
Flood Control Structures Operational Plan	Prepare Flood Control Structures Operational Plan Prepared	December 2024	3,5,6
LTVCA Climate Action Plan	LTVCA Climate Action Plan Prepared	December 2025	1,3,5,6,7

3. Connecting People to Nature

New Initiative	Measurement	Timing	Strategic Objective #
LTVCA Lands Strategy	LTVCA Lands Strategy Prepared	December 2024 – Annual Reporting on Progress	1,3,8,9,10
Ska-Nah-Doht Village Strategic Plan	Ska-Nah-Doht Village Strategic Plan Updated	June 2025	3,8,9,10
C.M. Wilson Learning Centre Strategic Plan	C.M. Wilson Learning Centre Strategic Plan Prepared	December 2025	3,8,9,10
LTVCA Natural Heritage Strategy	LTVCA Natural Heritage Strategy Created	???	1,3,7,11

4. Partner of Choice

New Initiative	Measurement	Timing	Strategic Objective #
LTVCA Indigenous Training Program	Training program for LTVCA on Indigenous understandings created	December 2025	13,17
New/Update LTVCA Communications/Outreach Strategy	New/Update LTVCA Communications/Outreach Strategy Prepared	December 2025	4,6,7,11,12

5. Organizational Excellence

New Initiative	Measurement	Timing	Strategic Objective #
Salary Review	Salary Review Undertaken	December 2025	14,16
LTVCA Asset Management Plan	LTVCA Asset Management Plan Prepared	December 2024	14,15
Update Hiring Procedures	Procedures updated	June 2025	14,16,17

9.0 Updates to the Watershed Based Resource Management Strategy

The Watershed Strategy should be reviewed every four years to allow the LTVCA to adapt its programs and priorities to consider evolving political and socio-economic matters and address emerging environmental issues. The first year for Board review will be in 2028. During every Board of Directors term, which is in place for four years, the Board will have the opportunity to review, update, and reapprove the Watershed-based Resource Management Strategy. An ongoing review of the Watershed Strategy by staff will facilitate the four-year review cycle. Public engagement will occur during the periodic reviews, in a manner that aligns with the degree of revisions and meets any regulatory requirements.

10.0 Reporting Progress to Board and Partners

An annual report will be generated and brought forward at the LTVCA's Annual General meeting in February at the end of each fiscal year, for reporting purposes back to the Board of Directors. This report will describe how the LTVCA is meeting the response to input detailed within this report. The report, when approved by the Board, will be posted to the LTVCA's website for public access.

11.0 Conclusions

The development of this strategy has relied on the best science and input from stakeholders and rights holders of the Lower Thames Valley watershed. This has created a forward looking Watershed Based Resource Management Strategy that has measurable outcomes and provides guidance in decision making for both the Board of Directors and LTVCA staff. As best science and stakeholder/rights holder input continue to evolve, the LTVCA will continue to determine if the programs and services meet the needs of watershed residents.

If during the term of this strategy, there are other programs and services that can be provided to our partners and community members, or existing programs can be modified to meet changing demands, with Board approval, this will happen. The review process detailed above will allow for that flexibility.

Appendix A: Summary of technical studies, monitoring programs, and other information that guide the LTVCA's programs

PROGRAM AREA	GENERAL DESCRIPTION	PROGRAM GUIDANCE
Category 1 (Mandatory)		
Corporate Services ("General Functions" per O. Reg. 402/22) Category 1 (Mandatory)	These are operational activities and capital works that provide a corporate-wide supporting function that are not related to the provision of a specific program or service. They include governance support, finance, human resources, geographical information systems (GIS), information technology (IT), communications, legal expenses, office equipment and supplies, administrative office buildings, vehicle fleet, asset management, etc.	<ul style="list-style-type: none"> • Watershed Based Resource Management Strategy • Strategic Plan • Operational and Asset Management Plan • Category Agreements • Transition Plans • Administration By-law
Planning and Regulations Category 1 (Mandatory)	The main goal of the Planning and Regulations operational program is to protect life and property from natural hazards specified in O. Reg. 686/21. They include natural hazard input and review for member municipalities; Section 28 permitting process; and technical studies such as updating the regulated areas.	<ul style="list-style-type: none"> • Conservation Authorities Act and related regulations, including O. Reg. 41/24: Prohibited Activities, Exemptions and Permits • Development Policies and Guidelines • Planning MOU's • 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 • Shoreline Management Plans for Lake Erie and Lake St. Clair
Water Resources Management Category 1 (Mandatory)	The main goal of the Water Resources Management program is to protect life and property from natural hazards specified in O. Reg. 686/21. They include operational activities and capital works covering flood forecasting and warning, Water Erosion Control Infrastructure (WECI) provincial grant funded projects, other flood and erosion control projects, ice management, natural hazard infrastructure operational plan and asset management plan, low	<ul style="list-style-type: none"> • Ice Management Plan • Operational Management Plan • Data collected under the PWQMN and PGMN

PROGRAM AREA	GENERAL DESCRIPTION	PROGRAM GUIDANCE
	water response, watershed-based resource management strategy, and watershed monitoring (provincial partnership surface water and groundwater monitoring programs).	<ul style="list-style-type: none"> • Data on precipitation, river flows and lake levels, from stream flow and lake gauges • Flood and ice observations and data gathered from River Watch program and dam operations • Watercourse and floodplain mapping • Hydrologic and hydraulic models • Geospatial data • Inspections, dam and dike safety studies
<p>Conservation Areas and Lands</p> <p>Category 1 (Mandatory)</p>	The main goal is to protect, conserve and manage conservation areas and lands owned by LTVCA, including operational activities and capital works to provide safe, passive recreation to the public through the management of LTVCA owned lands including public parks and trails, Section 29 enforcement, maintenance of assets such as bridges, benches, pavilions, etc., tree planting on LTVCA lands, land inventory, conservation area strategy, policy for land acquisition and disposition, Planning Act comments as the land owner.	<ul style="list-style-type: none"> • Conservation Area Strategy • Land Inventory • Geospatial data • Property-specific Management Forest Plans and master plans
<p>Source Protection Authority (SPA)</p> <p>Category 1 (Mandatory)</p>	These are operational activities to protect existing and future municipal drinking water sources in the Thames-Sydenham & Region Source Protection Authority per the Clean Water Act, 2006. They include support to the Source Protection Committee, technical studies, policy updates / development, and significant threat policy implementation.	<ul style="list-style-type: none"> • Clean Water Act, 2006 and associated regulations • Thames-Sydenham Assessment Report • Thames-Sydenham Source Protection Plan • Geospatial data
Category 2 (Delegated by a Municipality)		
<p>Watershed-Municipal Programs</p> <p>Category 2 (Delegated by a Municipality)</p>	These are operational activities that include flood protection infrastructure and stewardship services specific to a member municipality.	<ul style="list-style-type: none"> • Geospatial data • Ice Management Plan • Operational Management Plan • Dam operations

PROGRAM AREA	GENERAL DESCRIPTION	PROGRAM GUIDANCE
		<ul style="list-style-type: none"> • Data on precipitation, river flows and lake levels, from stream flow and lake gauges • Flood and ice observations and data gathered from River Watch program and dam operations • Watercourse and floodplain mapping • Hydrologic and hydraulic models • Geospatial data • Inspections, dam and dike safety studies
Category 3 (Non mandatory; advisable by NBMCA)		
<p>Watershed-Support Programs</p> <p>Category 3 (Non mandatory)</p>	<p>These are operational activities and capital works that LTVCA has determined are advisable to provide to further the purposes of the Conservation Authorities Act. They include watershed report cards, watershed health monitoring, land acquisition and disposition, land lease and agreement management, stewardship and restoration, soil and water conservation, agricultural programs and projects, CA facility specific programming, Species At Risk programs, surface water quality monitoring program (benthic, spills, algal blooms), educational school programs, community programs, Ska-Nah-Doht Longhouse Village and Museum, CM Wilson Learning Centre.</p>	<ul style="list-style-type: none"> • Watershed Based Resource Management Plan • Conservation Areas Strategy • Property-specific management plans and master plans • Watershed Report Cards • Data collected under the Provincial Water Quality Monitoring Network and the Provincial Groundwater Monitoring Network • Additional surface water quality or groundwater quality data collected for special studies • Geospatial data

Appendix B: Summary of Issues and Risks

Category 1 – Programs and Services	Services	Issues and Risks
Enabling Services Enabling Services are key services provided to all departments of the Conservation Authority, Board of Directors, member municipalities and the general public to enable the LTVCA to operate in an accountable, transparent, efficient and effective manner. These general operating expenses and capital costs, permitted as Mandatory Program and Services under Part IV and Section 21.1 of the CA Act, are not directly related to the provision of a specific program or service that an authority provides (Ontario Regulation 402/22: Budget and Apportionment https://www.ontario.ca/laws/regulation/r22402). Funding for these services are both municipally funded and self-generated.	<ul style="list-style-type: none"> - Governance - Corporate Services and Administration - Human Resources - Financial Services - Legal Expenses - Communications and Outreach - Administration, Resource Centre and Learning Centre Buildings - Vehicles and Equipment - Information Management, Technology and Geographic Information Systems (GIS) 	<ol style="list-style-type: none"> 1. Municipal funding required for capital costs. 2. Funding support for operational costs. 3. Self-generated funding is unpredictable. 4. Legal expenses are not consistent annually. 5. Future major maintenance or alterations to buildings and other equipment could result in increased costs. 6. Staff turnover, knowledge transfer. 7. Keeping current and acquiring technology to sustain program functions and to meet expectations. 8. E-Commerce/improved online customer service processes and tracking required. 9. Cyber security. 10. Public expectations for Open Data. 11. Enhanced mapping, data, and analytical tools to facilitate faster, sound decision making. 12. Funds for purchase of necessary data products (i.e. Orth-photography).
Natural Hazard Management Conservation Authorities are the lead provincial agencies for Natural Hazard Management. The goal is to protect life and property from flooding and erosion. This mandatory, watershed-wide, comprehensive program applies to the Lake Erie and Lake St. Clair shorelines (including Rondeau Bay), the Thames River flood plain, stream valleys, wetlands and other hazardous lands. This program includes: development applications and permits, municipal plan input and review, environmental planning and policy, flood forecast and warning, flood and erosion control infrastructure, technical studies, ice management, education and public awareness.	<ul style="list-style-type: none"> - Section 28 Permit Administration - Enforcement and Compliance - Municipal Plan Input and Review - Flood Forecasting and Warning - LTVCA Owned Flood and Erosion Control Infrastructure - Operation and Management - Major Maintenance - Low Water Response - Technical Studies and Policy Review - Natural Hazard Awareness - Ice Management - Natural Hazard Outreach and Education 	<ol style="list-style-type: none"> 1. Conservation authorities are restricted by the Province from commenting on planning applications regarding natural heritage, as has been provided to municipalities for several years. The health of natural heritage systems and features within the watershed could be negatively impacted without this regional, watershed-based review and does provide a direct link to Natural Hazard abatement. 2. Climate change could result in more frequent flooding and low water events resulting in the need for more rain gauges and stream gauges, computer models for flood forecasting, and demand for more staff time and resources. 3. Need for integrated watershed management 4. Lack of a direct source of funding for court cases, and the inability to include legal and staff costs as part of any court proceedings. 5. As development increases, there is a need to better track planning and permit applications. No consistent program that can provide this service. 6. Many growth areas do not have existing engineered floodplain mapping. 7. A changing climate may have impacts to existing flood control infrastructure operations. Studies may need to be undertaken. 8. Major maintenance for Flood Control works could be required when no provincial funding is available. 9. Plans and Technical Studies require considerable staff time and/or outside expertise. Municipal/provincial/federal funds and municipal agreements are needed to support completion of technical studies or mapping projects. 10. An increase in natural hazards enforcement and complaints results in an increased demand for staff time. The ability to hire new staff is paramount but limited by funding shortfalls.
Provincial Water Quality & Quantity Monitoring & Local Water Quality Monitoring The LTVCA, in partnership with Ministry of Environment, Climate Change and Parks (MECP), has established long term sites to monitor surface and ground water conditions. This is also an investment into long-term monitoring of climate change trends. Local water quality monitoring involves Benthic, spills, algae blooms and reporting of monitoring results.	<ul style="list-style-type: none"> - Provincial Water Quality Monitoring Network (PWQMN) - Provincial Groundwater Monitoring Network (PGMN) - Surface Water Quality Monitoring Program - Watershed Report Card 	<ol style="list-style-type: none"> 1. Long-term access to wells on private lands (potential landowner turnover). Lost wells from the program not being replaced in the network, decreasing data pool coverage. 2. Interpretation and usefulness of PGMN data to support LTVCA programs (e.g. low water program, watershed report card). Lack of assessment as to whether the wells are representative of the watershed. 3. Incorporation of additional wells for better watershed coverage. 4. Quantitative risk assessment may be required. 5. Potential surface water quality risks.
Drinking Water Source Protection (DWSP) The Ontario Clean Water Act sets out a framework for drinking water source protection on a watershed basis. Thirty-eight source protection areas and authorities were established by the Province, based on Conservation Authority watersheds, and grouped into 19 Source Protection Regions. The LTVCA's watershed region is within the Thames-Sydenham Source Protection Area (which includes the St. Clair Region and Upper Thames River Conservation Authorities). The LTVCA, along with SCRCA and UTRCA, have several responsibilities under this program through the development and implementation of Source Protection Plans aimed at the protection of municipal drinking water supplies within our jurisdictions. These responsibilities are characterized as regional, local and municipal.	<ul style="list-style-type: none"> - Regional Drinking Water Source Protection Program (DWSP) - Local Source Protection Area (DWSP) 	<ol style="list-style-type: none"> 1. Discontinuation or diminished provincial funding. 2. Keeping the science current (updated technical studies needed including issues identification, water budgets, wellhead protection areas, intake protection zones and vulnerability, and keeping the list of known threats current). 3. Protection of non-municipal systems (communal and private). 4. Challenges with implementation of the Source Protection Plan. 5. Delivery of an effective education and outreach program. 6. Increased development impacting vulnerable areas and the number of potential threats.
Watershed-based Resource Management Strategy Updates This Watershed-based Resource Management Strategy, mandated by the Province under Section 21.1(1) of the CA Act and Section 12 of Regulation 686/21, is a watershed wide strategy that helps focus and prioritize programs and services. It includes guiding principles and objectives, summarizes and categorizes its programs, and identifies priorities and gaps. Regulation 686/21 requires that a process for the periodic review and updating of the Watershed-based Resource Management Strategy be established, including procedures to ensure stakeholders and the public are consulted during the review and update process. These updates will become an ongoing part of the LTVCA program.	<ul style="list-style-type: none"> - 	<ol style="list-style-type: none"> 1. Lack of funding/staff capacity to update and keep current.
Sub-Watershed Plans and Projects Subwatershed plans reflect the goals of a watershed plan but are tailored to tributary needs and local issues and provide detailed targets and actions on site-specific water resource planning issues. The objectives of watershed management can vary based on local conditions and priorities but generally include: Soil and Water Conservation: Prevent soil erosion, retain rainwater, and enhance groundwater recharge to maintain soil fertility and water availability.	<ul style="list-style-type: none"> - Subwatershed Initiatives - Natural Heritage Systems Implementation Phase - Thames River Clearwater Revival, - Watershed Wide Strategic Resource Management Plans 	<ol style="list-style-type: none"> 1. Establishing good working groups takes time to build and staff time to organize. 2. Lack of funding, or consistent funding, to keep these groups viable over the long term. 3. Needed resources / data / access to expertise to help support programs / program development.
Conservation Lands The LTVCA's Conservation Areas are unique locations in the watershed where preserving the natural environment and the species that live there comes first. They provide a number of important benefits: water management, protection of natural ecosystems, outdoor recreation, education and tourism opportunities. The properties include forests, wetlands, flood plains, prairie/savannah, farmland, education centres and parkland. Flood control structures are located on a couple of the properties. The LTVCA owns over 1740 acres (704 ha) of land, ranging in size from small areas to large natural areas (the largest being 300 acres/121 hectares) and consist of conservation areas, managed areas, forest tracts, farmlands and flood control structures.	<ul style="list-style-type: none"> - Land Management – active and passive areas, - Major Maintenance - Section 29 Enforcement and Compliance - Land Acquisition - Conservation Lands Equipment - LTVCA Lands Inventory Updates - Conservation Lands and Areas Strategy Updates - Land Acquisition and Disposition Policies - Longwoods Road Indigenous Community Education Centre and Resource Centre - CM Wilson Learning Centre - Education programs 	<ol style="list-style-type: none"> 1. Complete Ecological Lands Classification (ELC) mapping and identify habitat of species at risk. 2. Costs to operate campgrounds and associated facilities 3. Funding for major trail / boardwalk improvements. 4. Aging infrastructure / equipment. 5. Signage updates required to address legislative and social needs. 6. Invasive species inventory and management. 7. Ecosystem enhancement and regeneration. 8. Engagement of volunteers to assist with Conservation Lands management. 9. Population growth and increased outdoor activity resulting in increased stresses on the Conservation Area and potential for visitor conflicts. 10. Risk management assessment.

	<ul style="list-style-type: none"> - Campgrounds - Trail systems - Communications around events, programing, etc. 	11. Legal fees / liability costs.
Category 2 – Municipal Programs and Services		
Private Land Stewardship Program	Services	Issues and Risks
These are operational activities that include flood protection infrastructure and stewardship services specific to a member municipality.	<ul style="list-style-type: none"> - Best Management Practices - Tall Grass Prairie establishment, tree planting and forestry services - Flood Control operations 	<ol style="list-style-type: none"> 1. Stable funding to maintain programs. 2. Operational costs.
Category 3 – Other Programs and Services		
Water Monitoring	Services	Issues and Risks
LTVCA delivers other programs that are not considered Mandatory or Municipal Programs and Services. These programs are either funded through agreements with government agencies and/or through self-generated funds. All of the programs influence and enhance watershed health as well as LTVCA knowledge base and expertise. They are part of a larger integrated watershed management model and directly contribute to mandatory program delivery.	<ul style="list-style-type: none"> - Surface Water Quality Monitoring - Benthic Macroinvertebrate Monitoring 	<ol style="list-style-type: none"> 1. Maintenance of municipal agreement to enhance watershed knowledge and health/conditions.
Conservation Education and Community Outreach	Services	Issues and Risks
LTVCA recognizes that the students of today are the environmental stewards of tomorrow. As a result, a youth education program has been developed for on-site and in classroom exercises on Indigenous teachings, the environment as the class room, and river and creek safety, etc., and includes special event programs such as Children's Water Festivals. The LTVCA offers unique programs at the C.M. Wilson Learning Centre, and Longwoods Road Conservation Area which is home to the Ska-Nah-Doht Village and Museum. Education and outreach programs increase knowledge and awareness in children and adults about Indigenous teachings, local watersheds and ecosystems, and conservation actions they can take to improve the watershed.	<ul style="list-style-type: none"> - Conservation Education (in class and outdoor programming): C.M. Wilson Learning Centre; Longwoods Road Conservation Area - Indigenous Heritage and Archaeology: Ska-Nah-Doht Village and Museum - Off-site and virtual programs - Community Programs and Events: after hours for families and CA visitors - School Programs <ul style="list-style-type: none"> - Sensational Seasons - Petals, Leaves and Seeds - Wetlands - Incredible Insects - Soil Ecology - Forest Ecology - Soil and Water Quality - Indigenous Story Time - Campfire Stories - Natural Frottages - Nature Drawings - Nature Journaling - The Ska-Nah-Doht Experience – Trail Walk includes Ska-Nah-Doht Village - Tool Making - Traditional Games - Traditional Pottery - Corn Husk Dolls - Snowshoeing - Habitats and Communities - Eco-Activities - Winged Wonders - Raptors - Fur and Feather 	<ol style="list-style-type: none"> 1. Stable funding for ongoing activities. 2. Staff compliment / support for programs. 3. Education materials for hands on experiences. 4. Cost of busing children out to the education centres.
Watershed Stewardship and Restoration (Urban, rural & agriculture)	Services	Issues and Risks
The stewardship and restoration programs have three key components: one-on-one technical assistant to watershed landowners, connecting landowners with cost-share funding, and the reforestation program. Projects reduce the risk to life and property from natural hazards, protect water quality and quantity, improve forest conditions, increase biodiversity and make the watersheds more resilient to climate change.	<ul style="list-style-type: none"> - Private Land Stewardship Program - Tree Planting and Forestry Services - Species At Risk Program - Agricultural Research and Stewardship Programs - Restoration Programs - Soil and Water Conservation - Watershed Health Monitoring and Watershed Report Card Reporting 	<ol style="list-style-type: none"> 1. Lack of consistent and stable funding for programs. 2. Unknown factor of Climate Change and how it will impact future programs. 3. Staff capacity to run programs and seek external funding. 4. Lack and breadth of grant programs to fill all programming needs, e.g. implantation, staff costs, etc..
Campgrounds and Education Facilities	Services	Issues and Risks
The LTVCA provides overnight and seasonal camping experiences at three of our Conservation Areas, and educational experiences at two centres.	<ul style="list-style-type: none"> - CM Wilson Conservation Area Campground and Learning Centre - Big Bend Conservation Area Campground - EM Warwick Conservation Area Campground - Longwoods Road Conservation Area / Ska-Nah-Doht Longhouse Village and Museum, and the Longwoods Road Indigenous Community Education and Resource Centre 	<ol style="list-style-type: none"> 1. Costs to operate campgrounds and associated facilities. 2. Funding for aging infrastructure. 3. Signage updates required to address legislative and social needs. 4. Promotional costs for marketing the facilities.

