

**CREDIT VALLEY
CONSERVATION**

**LAKE ONTARIO
INTEGRATED SHORELINE
STRATEGY
BACKGROUND REVIEW AND
DATA GAP ANALYSIS**

**APPENDIX I
Conservation Lands
Final Report**

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1 INTRODUCTION

Since its foundation in 1954, Credit Valley Conservation Authority has acquired high-quality or potential natural areas within the Credit River watershed for conservation purposes. Acquiring land, as empowered by the Conservation Authorities Act, means protecting it in perpetuity and ensuring that their natural ecosystems, including water resources, are safeguarded against development and degradation. These public open-space lands, known as conservation areas, represent a cross-section of the watershed's natural heritage features and contain many rare flora and fauna native to the Credit River watershed. Through the decades since 1954, these conservation areas have been managed as open spaces for residents and visitors to enjoy outdoor recreation, educational opportunities and natural heritage functions. A detailed summary of significant historical activities is provided in Appendix A.

To fulfill the objectives of CVC and its purposes set out in the Conservation Authorities Act, the Authority acquired, and even *created*, land along the Lake Ontario shoreline within its jurisdiction. Occurring almost exclusively in the 1970's, the waterfront acquisition program at the time was designed to implement the recommendations for the Mississauga section of the 1967 Metropolitan Toronto Waterfront Plan. CVC was appointed as the agency which could best manage the implementation of the project and who could channel and combine multiple funding sources - funding for the waterfront project came primarily from the Province and the City of Mississauga.

The legacy of this acquisition program is that *CVC remains the largest single landowner of Lake Ontario shoreline in the Credit River Watershed*. Currently, all CVC conservation land along the shoreline, with the exception of Rattray Marsh Conservation Area, is leased to the City of Mississauga for park, recreation and conservation purposes.

2 BACKGROUND

The Authority's Waterfront Program To Date

The original jurisdictional boundaries of the CVCA were coincidental with the Credit River watershed as established by Order-in-Council 0C-1324/54 on May 13, 1954. On February 17, 1955, Order-in Council 0C-373/55 extended the Authority's boundaries to include all watersheds draining into Lake Ontario between Etobicoke Creek in the east and the former Township of Toronto boundary in the west (now the Regional boundary of Halton and Peel). The Authority's boundaries were once again extended on March 31, 1971 by Order-in-Council OC-889171 to include a four mile offshore limit.

The various Authority programs of involvement along the waterfront have been previously defined by the following documents: the Metropolitan Toronto Waterfront Plan, 1967; the Credit Valley Conservation Authority Waterfront Development Plan, 1972; the Credit Valley Conservation Authority Waterfront Development Plan - Phase

11, 1977; and the Credit Valley Conservation Authority Interim Watershed Plan - Mississauga Waterfront Program, 1983.

The Metropolitan Toronto Waterfront Plan, 1967 identified public use and accessibility along the Burlington-Pickering shoreline. Concurrent to this, recommendations were made for future recreational development including land acquisition and lakefilling operations. The CVCA assumed responsibility for implementing the Mississauga Sector of this Plan in 1971.

In 1972, the Authority undertook a Waterfront Development Plan to further the objectives set out in the 1967 Plan. This new document incorporated guidelines for open space development, extensive lakefill operations, and pedestrian linkages. Of the eleven development proposals presented, five have been implemented. They include J. C. Saddington Park development (1974-79), Rattray Marsh acquisition (1975), Lakefront Promenade Park lakefilling (1976 - 1987), Jack Darling Park ongoing development, and the overall provision of diverse recreational facilities.

In 1977, the CVCA reviewed the status of the 1972 Plan and created Phase II which was an update of budget estimates and study requirements. Phase II was largely necessary to further Lakefront Promenade Park development. Subsequently, funding for Lakefront Promenade Park land acquisition and eventual Central Headland construction was obtained.

The Mississauga Waterfront Program of the CVCA's 1983 Interim Watershed Plan was designed to present the preferred long-term implementation strategy for the Authority's waterfront recreation role. This Plan assesses existing opportunities, forecasts recreational demands, and presents implementation alternatives for waterfront sites. The Plan stressed the completion of Lakefront Promenade Park within the short term.

The preparation of the 1987 Lake Ontario Shoreline Management Plan expands the CVCA's role on the waterfront. In addition to the recreational program already in place, flood and erosion prevention, protection, and contingency planning will create the same management framework as it exists for riverine areas.

In 1990, CVC completed the Phases I and II Credit River Watershed Management Studies. The objective of these studies was to protect environmental resources as land use changes occurred. In 1988, CVC completed a draft Lake Ontario Shoreline Management Plan. This plan was completed largely in response to concerns over flooding and erosion along the shoreline and corresponded to efforts at provincial, federal and international levels.

Since the early 1990s, CVC has been conducting integrated multi-disciplinary studies of the 20 subwatersheds that make up the Credit River watershed.

Within the CVC jurisdiction, other than the Credit River, there are 13 watercourses that drain directly to Lake Ontario. In 2005, CVC began working on watershed studies for the

2 largest watersheds, Sheridan Creek and Cooksville Creek. Draft Background and Phase I: Characterization reports for these watersheds were completed in February 2009 and are currently being finalized. The watershed studies for the remaining eleven watercourses are planned for 2013, and data gathered as part of the LOISS will feed into these initiatives. The LOISS will include some impact assessment of climate change and intensified use of the shoreline. A final restoration plan and management guidelines relative to the watersheds and the shoreline will then be integrated into the LOISS initiative.

A Conservation Areas Strategy for the Credit River Watershed (1994)

The goals, objectives and principles of the Conservation Areas Strategy (1994) guide the management of CVC conservation lands. The strategy creates a vision for the conservation area system that is ambitious and realistic. It contains the framework with which the Authority makes operational and management decisions and bases these decisions on a comprehensive statement of the goals and objectives for the Conservation Area System developed with assistance of watershed residents.

The goal statement for the Conservation Areas System is:

To protect the Credit River Watershed's significant and representative ecosystems, and offer sustainable natural heritage *appreciation* and *recreational* benefits to its residents and visitors.

The goal statement is reinforced by three supporting objectives for the management of the Conservation Area System. In order of priority, the following are the System objectives:

PROTECTION: To protect significant and representative natural heritage features and functions through selective acquisition and resource management.

APPRECIATION: To provide the public, through various means, with opportunities for understanding the watershed's natural heritage features and functions and the role of the Authority in its stewardship.

RECREATION: To provide opportunities and facilities for appropriate outdoor recreation activities requiring high quality, sustainable natural environments.

All management programs for conservation land at CVC are, and will continue to be, based in these foundational principles.

3 SHORELINE PROPERTY OWNERSHIP PROFILE

Overview

CVC owns 8 distinct properties along to shoreline, collectively composed of 79 individual parcel acquisitions and includes a number of land and Water Lot leases from the Crown.

CVC owns a total of approximately **7327m (7.3 Km)** - or **26%** - of the Lake Ontario Shoreline in its jurisdiction.¹

CVC Conservation Land on Shoreline

J.C. Saddington Park

53 Lake Street, Mississauga, ON
Part of Lots 7, 8 and 9, Con 3 S.D.S. City of Mississauga.

Area Size: 23.94 acres

Amount of Shoreline: 935 m

- Land acquired in 1974, Water Lot leased from MNR in 1979
- Infilling activity and park construction 1979
- Leased to the City of Mississauga in 1980 for 49 year term



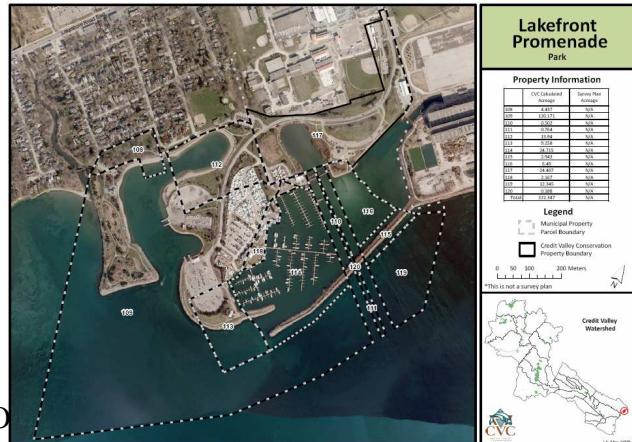
Lakefront Promenade Park

800 Lakefront Promenade, Mississauga, ON
Part of Lots 8, 9, 10 and 11, Con 3 S.D.S. and Part of the Water Lot in front of Lots 9, 10, 11 and 12, Con 3 S.D.S., City of Mississauga.

Area Size: 222.35 acres

Amount of Shoreline: 5317 m

- Property acquired between 1971-1974
- Portions are leased from MOE/PEEL & DFO



- All CVC owned and leased property is subleased to the City of Mississauga for 50 years (1989-2039)
- The park was a project of CVC and developed by the Authority through extensive infilling activities over a 23 year period
- The park is operated by the City for recreational purposes with a sublease of a marina and grounds to the Port Credit Yacht Club.

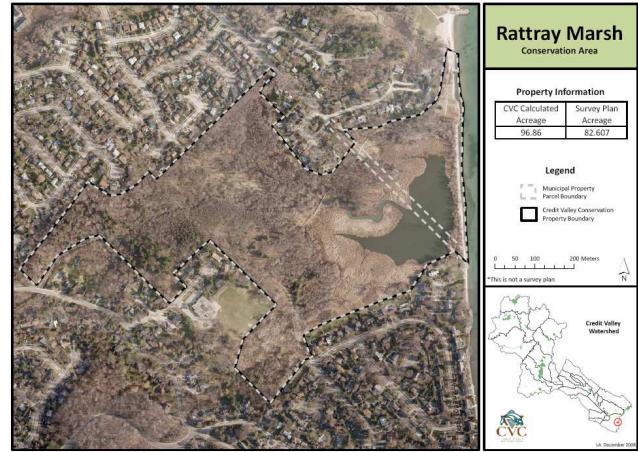
Rattray Marsh Conservation Area

Part of Lots 25, 26 and 27, Con 3 S.D.S., City of Mississauga

Area Size: 82.67 acres

Amount of Shoreline: 540 m

- Property was acquired between 1973 and 1975.
- Rattray Marsh is managed by CVC and is part of the Core 10 system of conservation areas.
- One of the last remaining coastal wetlands between Toronto and Hamilton
- Management assistance provided by the Rattray Marsh Protection Association (Foundation Subcommittee)



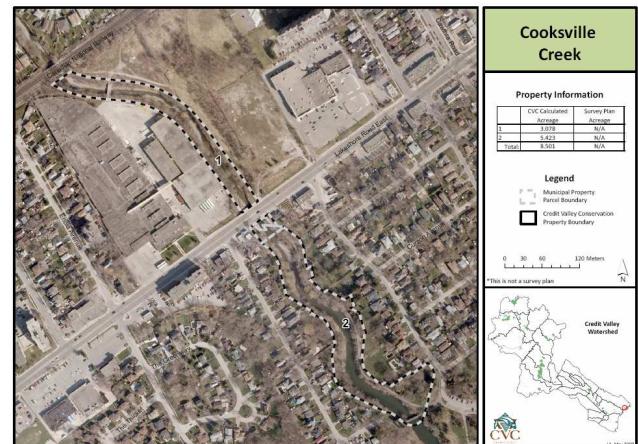
Cooksville Creek

Part of Lots 11 & 12, Con 3 S.D.S., and Part of Lots 11 & 12, Con 2 SDS, City of Mississauga

Area Size: 8.05 acres

Amount of Shoreline: 20 m (mouth)

- Acquired through expropriation between 1973 and 1979
- Land was expropriated to construct flood and erosion control works along lower part of Cooksville Creek.



Adamson Estate

850 Enola Avenue, Mississauga, ON
 Part of Lot 12, Con 3 S.D.S., and Part of the Water Lot
 in front of Lot 12, Con 3 S.D.S., City of Mississauga.

Area Size: 19.83 acres

Amount of Shoreline: 204m

- Property Acquired in 1975
- Leased to the City of Mississauga which operates the grounds as a park, with sublease of the house to the Royal Conservatory of Music.

**Lakeside Park**

2250 Lakeshore Rd. W, Mississauga, ON
 Part of Lot 32, Con 4 S.D.S., City of Mississauga

Area Size: 4.05 acres

Amount of Shoreline: 87 m

- Property acquired in 1972 from MOE
- Leased to the City of Mississauga in 1973 and currently operated as a public park

**Watersedge Park**

1630 Watersedge Rd, Mississauga, ON
 Part of Lots 27 and 28, Con 4 S.D.S., City of Mississauga

Area Size: 0.288 acres

Amount of Shoreline: 61m

- Property acquired in 1972 and 1973
- Leased to the City of Mississauga and is operated as part of a public park



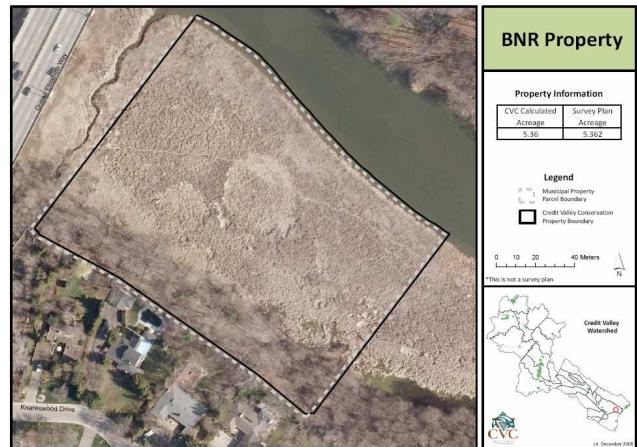
BNR Property

Part of Lots 7 and 8, Range 2 C.I.R., City of Mississauga

Area Size: 5.36 acres

Amount of Shoreline: 163 m

- Property acquired in 1972 from BNR Developments
- Leased to the City of Mississauga; non-operational
- Shoreline is on the Credit River flats, immediately south of the Queen Elizabeth Way



Public Lands

In addition to CVC shoreline property, the municipal, provincial, federal government, as well as other public authorities, own portions of the Lake Ontario shoreline in the Credit River Watershed.

Public land accounts for approximately **43%** of the Lake Ontario shoreline in CVC's watershed. This means that between Conservation Authority (CVC), Municipal (City of Mississauga and Peel Region), Provincial (MNR, MOE) and Federal (DFO) lands approximately **12,160m (12.16 km's)** of the total **28,469m (28.47 km)** Lake Ontario shoreline in CVC's watershed is in public hands.²

Private Lands

The remaining 57% of Lake Ontario shoreline lands in CVC's watershed are assumed to be in private ownership – both as residential lots or in major commercial and industrial use (e.g. private marina, cement production, petroleum refining, coal-electric generation, etc.). Information on the exact ownerships and land uses are not readily available, but should be compiled.

Lake In-Filling and Shoreline Hardening

The physical character and contour of the shoreline has been altered in many significant ways by the Conservation Authority itself. Upon acquisition of shoreline properties and water lots (both owned and leased from MNR), two extensive infilling projects were

²All numbers are approximate, calculated using existing CVC GIS information. The Shoreline, as used in the calculation, is comprised of the shore, major anthropogenic piers & outcroppings, and the Credit River banks up to the QEW. Amount of publicly owned shoreline property may be greater than shown, as ownership data is from 2003

undertaken by CVC to expand lake-based and shoreline recreational opportunities in the urbanized area of Mississauga (Lakefront Promenade Park and J.C. Saddington Park).

This infilling activity required massive amounts of fill, originating from development projects within and bordering the Credit River watershed. Thousands of tonnes of armour stone were used to create the hardened shoreline to establish and protect the new headlands from wave erosion. The cost of these infilling and shoreline activities was enormous, with the Lakefront Promenade Park Project alone costing a total of \$22,193,344.00.

The result of these activities was that CVC had created approximately **4716 m (4.7 km)** of new shoreline, 90% of which was hardened. Using a GIS calculation of the current shoreline compared to the shoreline 1954 shoreline (extrapolated from 1954 waterfront aerial photos), the following results are produced which demonstrate the level of shoreline alteration:

Lakefront Promenade Park

Shoreline in 1954:	1111m
<u>Shoreline after CVC Lake Infilling:</u>	<u>5317 m</u>
NET Shoreline Increase:	4206 m (4.2 km)

The infilling created approximately 246,100 square metres (60.81 ac or 24.61 ha) of new land mass.

J.C. Saddington Park

Shoreline in 1954:	435 m
<u>Shoreline after CVC Lake Infilling:</u>	<u>935 m</u>
NET Shoreline Increase:	510 m (0.5 km)

The infilling created approximately 68,153 square metres (16.86 acres or 6.8 ha) of new land mass.

Lease Status and Mississauga Waterfront Parks Strategy

As most of CVC's significant shoreline land ownership is currently under lease to the City of Mississauga, it is necessary to analyze the City's plans and management regime for the waterfront property under lease. The City of Mississauga has developed the *Waterfront Parks Strategy (2008)*, wherein long term plans for park [re]development and management are outlined – with specifics being determined in the implementation phases.

Most of the leases of CVC land to the City of Mississauga are not standardized and vary between properties. However, there are common stipulations and themes across lease agreements, including:

- Land to be used for parks, recreation and conservation purposes only
- Lease terms of 25 to 50 years
- Permission to alter or develop the land or to erect any signage requires written authorization from CVC
- Guarantee of standard of care and maintenance by the Municipality
- Reservation of CVC's right to terminate lease or to enforce proper maintenance standards
- Allocation of responsibility for costs associated with maintaining built works
- Liability, Indemnity and Insurance clauses
- CVC not responsible for paying taxes or levies on leased lands
- Right to arbitration over disagreements arising from lease

Recent CVC reviews of these and other land lease or management agreements has found significant deficiencies in form and content, and new lease agreements need to be drafted and executed to replace existing ones.

Pertinent goals, objectives and recommendations arising from the Lake Ontario Integrated Shoreline Strategy should be integrated into the overall review and re-drafting of new lease agreements occurring concurrently with the production of this report.

4 GREENLANDS SECUREMENT STRATEGY

For over 50 years, Credit Valley Conservation (CVC) has worked cooperatively with partners to secure greenlands throughout the Credit River watershed. CVC works with municipal partners such as the Region of Peel, the Ontario government and non-governmental organizations such as the Nature Conservancy of Canada. Together, we have secured and managed over 2,400 hectares (6,000 acres) of greenlands within the watershed. To help facilitate land securement, the CVC Board of Directors approved the Credit Valley Conservation Greenlands Securement Strategy in 2004; the Strategy subsequently received the Ontario Minister of Natural Resources' approval in 2006.

The Greenlands Securement Strategy is science-based and uses prioritized criteria to identify significant conservation lands for protection. The Strategy sets a goal for securement of an additional 5,670 hectares (14,011 acres) of key priority greenlands over a 20 year timeframe. However, CVC staff have recently identified the need to accelerate the land securement program and to set a new 10 year timeframe for the same goal. This need has been dictated by opportunities and the urgency to secure high priority lands in the Credit River watershed.

Strategy Methodology

The criteria used within the Greenlands Securement Strategy ranked all greenlands found within the Credit River Watershed (34,692 hectares) in relation to both terrestrial and water based functions. More specifically, landscape-scale terrestrial and aquatic sensitivity (fisheries), and source water protection (groundwater recharge) measures were used. Credit Valley Conservation (CVC) identified 14,588 hectares of Priority Greenlands for Securement. Greenlands were required to meet high scores for one or more of the following criteria:

1. Representative within their physiographic region
2. Comprise part or all of a major corridor
3. Comprise part of the regional trail system
4. Identified as a key access area to the Credit River fishery
5. Enhance or protect the value of existing public land
6. Comprise part of a bioregional corridor
7. Comprise part of the Credit River valley or **Lake Ontario shoreline**
8. Maintain or enhance community connections

Updates and Recommendations

CVC's new **Terrestrial Ecosystem Enhancement Model (TEEM)** will identify a Natural Heritage System for the Credit watershed. Following science-based provincial policy guidelines, such a system will allow municipalities to identify and conserve natural spaces and their services for future generations. The outcome of this modelling exercise will assist CVC staff in 2010 to update the Greenlands Securement Strategy Priority Greenlands for Securement. Based on the Terrestrial Ecosystem Enhancement Model, the Lake Ontario shoreline may receive a higher priority for securement. Additionally, unsecured high-priority land identified through the Lake Ontario Integrated Shoreline Strategy should be incorporated into the Greenlands Securement Strategy.

While there are many barriers to acquiring shoreline properties, average higher cost of such land being the foremost, acquisition of land, as a securement method, should be considered the only way to permanently protect important Lake Ontario shoreline in perpetuity.

5 LANDS MONITORING PROGRAM

The Lands Monitoring Program is an adaptive management tool for conservation land planning at Credit Valley Conservation (CVC). The Lands Monitoring Program is designed to collect baseline property and visitor data, in order to create a foundation of information on various aspects of CVC conservation areas. The program was created with the intention of continually building upon existing knowledge and monitoring of the conditions on CVC land holdings. The directives for the Lands Monitoring Program are deeply rooted in CVC's "A Conservation Areas Strategy for the Credit River Watershed" (1994). The strategy outlines CVC's goals for the sustainable management of

conservation areas based on the principles of Protection, Appreciation and Recreation. The Lands Monitoring Program contributes to these management goals through two key sustainable sub-program components: the Visitor Information Needs (VIN) Program and the Property Inventory and Monitoring (PIM) Program. Collectively, the two Lands Monitoring component programs provide CVC with the necessary information for appropriate and responsible land management decisions.

The *Visitor Information Needs Program* component, established in 2002, has been an essential asset to the Lands Monitoring Program. Through the VIN Program, a baseline of data is collected on the anthropogenic dimensions associated with our conservation areas system. Data collected through the VIN Program helps define visitor demographic trends, visitor and site attributes and visitor attitudes regarding CVC's conservation areas. Through this data collection, the VIN Program addresses the important interactions that occur between the human experience and the natural environment. By recognizing visitor dimensions to conservation areas, the VIN program also helps to achieve CVC's corporate goal: "to promote the social and economic health of the community through effective watershed management" (Credit Valley Conservation, Strategic Plan, 2006). Data from the VIN Program is a necessary land management resource as it incorporates the implications of invested human interest in conservation areas.

The main elements of the VIN Program include: visitor surveys; electronic trail counts; staff observations; and additional appropriate data collection methods. Visitor surveys are an integral element of the VIN Program; and surveys conducted at CVC conservation areas provide qualitative and quantitative user information. Specifically, they provide useful demographic, visitor attribute, site attribute, visitor perception and reflection information that helps to identify important indicators that guide future property planning and management. Trail counts are also a useful element of the VIN Program. Like Visitor Surveys, data collected through trail counts provide quantitative information regarding trail use, access points and site attributes, which are used for future responsible planning decisions. Finally, staff observation and other data collection methods for the VIN Program may also be incorporated depending on field season focus and CVC Lands department initiatives.

Conducting visitor surveys at shoreline CVC conservation lands would be an appropriate method for gathering necessary public user information relevant to the Lake Ontario Integrated Shoreline Strategy. A series of questions should be developed and reviewed that seek to gauge and understand public views on:

- Value of access to shoreline and Lake Ontario
- Public ownership of shoreline
- Desired recreational and appreciation opportunities met or unmet.
- Understanding of the shoreline ecosystem

These questions should be integrated into the 2010 Lands Monitoring field season.

6 LEGISLATIVE CONSIDERATIONS FOR CONSERVATION LANDS AND SHORELINE WORKS

Water's Edge and Lakebed Ownership

Determination of water's edge and lakebed ownership and resultant riparian rights requires careful scrutiny of original Crown Patents, related Government Acts, and judicial rulings. Interpretation of original Federal and Provincial land grants has established unequivocal private ownership above the average annual high water mark, 74.87 metres IGLD. Ownership above the average annual low water mark, 74.39 metres IGLD, however, is open to debate. The Beds of Navigable Waters Act establishes land below the water's edge as crown land. In turn, most original land patents tend to suggest private ownership of the foreshore to the low water mark. As a result, ownership of the foreshore between high and low water is poorly defined. It is also suggested that lakefilling or man-made sediment entrapment cannot extend property ownership. Natural accretion of sediments is, however, considered to be a private entitlement. A riparian owner may also lease or obtain a licence of occupation or letter of patent to a water lot extension of the land base. Unequivocal ownership of the lakebed water lot is also possible. Ultimate ownership determination should be based on a defined immovable boundary description in the original patent or, failing this, a judicial ruling is necessary.

Relevant Acts of Legislation

In addition to all Acts and Regulations applicable to development projects, shoreline projects or works, conducted as a result of the Lake Ontario Integrated Shoreline Strategy, will also need to carefully consider the requirements of the following acts of legislation:

Conservation Authorities Act, R.S.O. 1990, CHAPTER C.27

Conservation Authorities Act provides for the establishment of conservation authorities for the purpose of establishing and undertaking in the area over which they are given jurisdiction, programs designed to further the conservation, restoration, development and management of natural resources. Conservation Authorities Act authorizes conservation authorities to pass regulations regulating construction and placement of fill in areas which the regulations identify as areas which are subject to flooding.

Land Titles Act, R.S.O. 1990, CHAPTER L.5 & Registry Act, R.S.O. 1990, CHAPTER R.20

In Ontario, two separate pieces of legislation provide the legal framework for land registration. The older (18th century) **Registry Act** provides a simple transaction recording mechanism. However, in the 19th century, the **Land Titles Act** was introduced, not as a replacement for the Registry Act, but as an alternative to the older act. The Land Titles Act provides many improvements, including a form of government guarantee.

Public Lands Act, R.S.O. 1990, CHAPTER P.43

Public Lands Act provides for:

1. The disposition of Crown land for a variety of purposes by sale, lease or licence, and by auction or tender;
2. The management of Crown land by the Ministry by zoning for land use, setting apart for public use, research, etc., and through agreements with municipalities on beaches and water lots;
3. The administration of roads on Crown lands including the designation of public forest roads and agreements with occupiers of private forest roads respecting the use by the public of private forest roads;
4. The administration and control of the construction and maintenance of dams;
5. The granting of water powers and privileges.

Beds of Navigable Waters Act, R.S.O. 1990, CHAPTER B.4

Beds of Navigable Waters Act is declaratory legislation relating to title in the beds of navigable waters. It followed the decision in the 1911 case of Keewatin Power versus the Town of Kenora. By the Act, the beds are deemed not to have passed to the grantee of bordering Crown land in the absence of an express grant.

Navigable Waters Protection Act, R.S., c. N-19, s. 1. (FEDERAL)

A public right of navigation exists in Canada. This right is not written anywhere; it is a Common Law right. If the waters are navigable, then the public has the right to navigate. This right can only be restricted by an Act of Parliament. The NWPA is one of these Acts. It ensures a balance between the public right of navigation and the need to build works, such as bridges, dams or docks for example, in navigable waters. The NWPA provides for the prohibition to build works in navigable waters, unless the work, its site and plans have been approved by the Minister of Transport on such terms and conditions as he deems fit. In addition, the Act provides for measures regarding removal of wreck or other obstacles to navigation and for the prohibition to throw or deposit any material in navigable waters.

Lakes and Rivers Improvement Act, R.S.O. 1990, CHAPTER L.3

Lakes and Rivers Improvement Act provides for the use of the water of lakes and rivers and regulates improvements in them. The Act requires Ministry approval for some construction in lakes and rivers. The Minister is given discretionary powers relating to the repair, reconstruction and removal of dams, maintenance of water levels, and regulation of use of waters or works.

Environmental Assessment Act, R.S.O. 1990, CHAPTER E.18

The Environmental Assessment Act (EAA) provides for the betterment of the people of Ontario through the protection, conservation and wise management of the environment. It applies to activities or projects of public bodies, and major commercial or business undertakings of non-public entities, if designated by regulation.

7 DATA GAPS AND RECOMMENDATIONS

- Develop and integrate desired LOISS information into the *Visitor Information Needs Program*; targeted visitor surveys are needed to gauge and understand public views of shoreline access, waterfront public lands, natural heritage values, appreciation opportunities and recreational needs.
- Update and evaluate current land use and ownership of Lake Ontario Shoreline in Study Area. (obtain updated public land information and detailed land use data (residential, commercial, etc)).
- Seek current legal opinion on lakebed ownership and riparian rights, integrating recent court rulings and new legislation.
- Research and produce a detailed history of significant shoreline events or changes since 1988.
- Integrate the TEEM information into Greenlands Securement Strategy to help generate recommendations for property acquisition priorities.
- Conduct staff review of CVC conservation land lease agreements with the City of Mississauga and generate recommendations for integrating LOISS priorities with new lease agreements.
- Conduct policy review of applicable legislation to identify barriers and needs of the Authority in carrying out works in the shoreline and lakebed (e.g. exemptions under the Lakes and Rivers Improvement Act, requirements for acquisition/expropriation under Public Lands Act, etc).

**Appendix A: Historical Shoreline Land Use within the Credit River Watershed
(1749 – Present)**

APPENDIX A

Historical Shoreline Land Use within the Credit River Watershed (1749 – Present)

1749	1749 French military engineer Chaussegros de Lery suggested that a trading post be set up near the Mississaugas “Indian Village” which was located near the mouth of the “Rivière du Crédit”, the Credit River, named from the custom of trading with the Mississaugas on credit if they did not have enough furs to pay for the supplies they needed
1793	The widening of an old aboriginal trail to build the first major roadway in Upper Canada was called Dundas Street – it was just a narrow, tree-stump littered trail but was province’s main east-west artery (completed by 1796) – purpose of the road was for the safe movement of troops, if Americans were to attack
1798	“Government House” an inn and trading post near the mouth of the Credit River is constructed
1805	The Crown purchases shore lands from the Mississauga Indians except for one mile on either side of the Credit River.
1806	Granting of land ownership rights from Crown Patent begins, requiring settlers to clear the primeval forest of 45- to 60-metre pines and 15-metre white oaks.
1818	Treaty 19 “the Second Purchase” signed and subsequently 600,000 acres of land, making up most of the modern day region of Peel.
1819	Newly surveyed land acquired from the signing of Treaty 19 is opened for settlement.
1820's	By 1820s Port Credit listed 8 businesses: 2 taverns, 2 general stores, a blacksmith, shoemaker, wagonmaker and tailor ⁷
1820	Remaining Mississauga Indian lands given up to the Crown.
	First sawmill along the Credit River was built by Amaziah Church
	A rough bridge was constructed over the Credit River near the lakeshore because the ferry was no longer capable of handling the volume of traffic
1822	Wharves and docks are built at Port Credit.
1826	Credit Mission is built for the training and education of the Mississauga Indians
1827	At least 15 sawmills and 9 grist mills running on the - Credit River now rivaled Dundas St as the major artery of settlement and enterprise in Toronto Township
1834	1834 the government chartered the Port Credit Harbour Company, a joint stock company established to construct a harbour at the mouth of the Credit River through which pot and pearl ash, pork, whiskey, salt, beef and lard, flour, merchandise, butter and lard, West India staves, wheat and other grain, lumber, pine timber, oak timber and firewood were shipped ⁸

1835	<p>The government planned the village of Port Credit on the west bank of the river to compliment the harbour project (the village did not spring up around a mill or at a crossroads like other communities), survey is carried out and roads cut:</p> <ul style="list-style-type: none"> - The village plot, bounded by Lake Ontario, the Credit River and Joseph Street (today's Mississauga Road South), was laid out as a grid, modified by the curvature of the Credit River bank and Lake Ontario shore²⁵ - The rectangular blocks typically contained eight lots of one-quarter acre each²⁶ - Homeowners had gardens, raised livestock, and disposed of rubbish on their lots – large lots made for very low population density in the village and a landscape of few buildings and much open space - In the area south of Toronto Street (now Lakeshore Road West), there were thirteen blocks²⁷ - Front Street was closest to the Credit River, and extended along the original shoreline of Lake Ontario – most of the land east of Front Street was marsh - A gravel beach lined Lake Ontario
1837	<p>After much petitioning from the settlers, the lieutenant governor of Upper Canada (Sir John Colbourne) ordered to have the mouth of the Credit River dredged and deepened to form a harbour so that an industry could be built. The river mouth was not a good natural harbour and could only initially accommodate small sailing</p>
	<p>Port Credit Harbour is constructed with 2 wharves and a warehouse are built on east bank of the Credit</p>
	<p>1837 Centre Road, from Dundas St. to Lakeshore Rd, was macadamized (a gravel road) – a system devised by Scottish master road-builder, John Loudon</p>
1840's-50's	<p>Peak shipbuilding years for sailing vessel commerce</p>
Late 1840's	<p>James Wilcox built the Wilcox hotel on Front Street – used until the building of the Great Western Railway between Toronto and Hamilton and the fire in Port Credit in 1855 – much of the traffic which would have passed through Port Credit was then diverted (building still stands today – Port Credit's oldest)</p>
1846	<p>British Corn Laws introduced – this caused a reduction in the volume of grain sent through Port Credit's harbour.</p>
1847	<p>The Mississauga's (First Nations) relocated and settle on the New Credit Reserve at Hagarsville.</p>
1848	<p>Salmon fishing is eliminated by upstream damming and mill sites. As a result, exploitation of Lake Ontario fishery begins.</p>
1850	<p>By this time Port Credit was the fourth largest Lake Ontario port after Kingston, Toronto and Whitby</p>

1850's-1867	A small crude oil refinery, located on the northeast corner of Front and Port streets, its storage tanks on the northwest corner, produced kerosene for lamps and axle grease <ul style="list-style-type: none"> - May have processed product from the Petrolia district - - Property was not redeveloped until after the 1930s (perhaps due to the presence of refinery waste products in the ground)
1855	Fire destroys dock facilities and railways take over the shipping industry December 3, Great Western Railway connected Port Credit to Toronto. This would lead to the decline of Port Credit harbour as goods could be transported to Toronto much more easily by rail.
1857	Stonehooking is prohibited within a 50-foot are beyond the low water mark because inshore operations had eroded and damaged the shoreline
1858	57 sawmills ⁹ and 26 flour or gristmills had been established along Credit River
1860's	Stone hooking for offshore, shallow water boulders begins.
1861	The Government Inn is destroyed by fire
1863	1863 first Port Credit lighthouse was constructed by English businessman, Frederick Capreol, at outer end of the breakwater pier: this was a 36 foot high white frame building with a wooden crib, which stood on a stone foundation at the end of a pier on the east side of the Credit River
1879	Credit Valley Railroad begins operation
1880's	Stonehooking at its peak When the trade in lumber and grain languished Port Credit became known for its stone hooking trade – a "stonehooker" dragged large rakes along the bottom of Lake Ontario, near the shore, collecting stones - mainly Dundas shale - for use in constructing many buildings in Toronto, as well as in Port Credit and its surrounding communities Port Credit, Clarkson, Cooksville, and Dixie areas start developing as market garden centres – transporting soft fruits and apples to market by train to Montreal and by ship to Rochester
1882	The Light House in Port Credit it taken over by the provincial government
1883	The government closed the out-port of Port Credit in 1883
Late 1880's	A second major fire breaks out in the harbour rendering the harbour virtually useless.
1889	St. Lawrence Starch Works purchases shoreline land and begins operation <ul style="list-style-type: none"> - Was built on Lakeshore Road East under the management of John Gray - - At this time the plant ground about 2,000 bushels of corn per week to produce corn starch and glucose for industrial use

	<p>Thomas Nightingale established Nightingale Pressed Brick Company in Port Credit:</p> <ul style="list-style-type: none"> - Located on land immediately west of Joseph Street (Mississauga Road South) and south of Toronto Street (Lakeshore Road West)¹² - Yard employed 15 men in the beginning, by 1909 employed 250 full-time¹³ - Brickyard later called Port Credit Brick Company Ltd.
1895	Iron bridge built across the Credit River – the importance of a reliable bridge and being able to cross the river easily was emphasized by previous floods washing out the bridges
1908	Spring flood washed away the pier
1909	In 1909, the newly formed police village of Port Credit was formed - - Council decided to replace boardwalks with concrete sidewalks ³²
1910	Erindale Power Company established a dam on the river upstream of Dundas Street, creating a large lake (125 acres in the 1920s) – ran until 1923
1912	An improvement society was organized by Charles Elliott with the purpose of removing rubbish and unsightly fences, planting trees and gardens and painting buildings ³³
	Domestic electricity arrived – hydro poles and lines were installed on village streets
1913	The Dominion Government purchases major holdings in the Lakeview area and establishes Militia Rifle Ranges.
1915	Paving of Lakeshore Road (the first big highway paving job in Ontario) between Toronto and Hamilton completed
	Curtiss Aeroplanes and Motors, Ltd establish first aerodrome and flying school in Canada on future site of the Lakeview Thermal Generating Station.
1918	Dundas Street was widened and paved to relieve traffic pressure along Lakeshore Road
1919	The Lighthouse in Port Credit Burns was abandoned
	A concrete bowstring bridge replaced the earlier narrow iron bridge over the main channel of the Credit in Port Credit
Late 1920's	Lake Ontario's shoreline had eroded, submerging Front Street and parts of lakefront lots
1920	The practices of stone hooking on Lake Ontario ends.
1923	Waterworks opened at the foot of Joseph Street (Mississauga Road South) in Port Credit ¹⁴ – the waterworks consisted of two small brick buildings and an 85 foot tall steel water tower (the tallest structure in Port Credit) ¹⁵
1927	Port Credit Brick Company Ltd. Closes, Lloyds Tankers purchases the property from the Port Credit Brick Co, and begins refinery construction.
1933	First tankers arrive at the refineries

1934	Record low Lake Ontario water levels, 73.6 metres IGLD in December; initiates residential land-use interests.
1936	The Lighthouse in Port Credit burns down
1937	Good Rich Refining Company purchased the refinery Good Rich Refinery adds 17 grey steel storage tanks, thermal cracking unit and boilers, an administration building in a converted mansion, rose gardens, lawns and 15 acres of woodlands The King's Hwy (later called Queen Elizabeth Way) was completed through Toronto Township. It followed the course of Middle Road and was Canada's first paved four-lane highway and the first to have lights
1941	British American Oil Co. (later Gulf and later Petro Canada) purchases the Clarkson headland and begins refinery construction.
1946	Trinidad Leaseholds acquired refinery - Additions to the refinery are made and included a steam plant in 1947, a platforming unit in 1954, a new crude stilling unit in 1955
1952	Record high Lake Ontario water levels, 75.61 metre IGLD in June.
1955	St. Lawrence Cement Co. begins factory and pier construction on shoreline in the Clarkson area Land purchase by the Ontario Water Resources Commission (OWRC) and construction begins on the G.E. Booth (Lakeview) Waste Water Treatment Facility on the shoreline between Cawthra and Dixie.
1957	Deep-sea marina construction begins at Port Credit. Operational by 1963, this facility is initially run by Canada Steamship Lines as a distribution centre. 1957 under McColl Frontenac (Canadian subsidiary of Texaco) a fluid catalytic cracking unit producing 7,500 barrels per day was put into operation.
1958	Militia Rifle Range is handed over to the Township of Toronto and then sold to Ontario Hydro. Construction of the Lakeview Thermal Generating Station begins, including lakefill.
1959	1959-1962 Texaco Canada Limited, the new name for McColl Frontenac, built a new steam plant with four smokestacks close to Mississauga Road South Village council decided to encourage increased population density: - existing zoning permitted duplexes but a new zoning by-law allowing high-rise apartments was passed in 1961
1960's	1960s development of Port Credit: - For town planners, modern development meant changes that suited a "machine-oriented civilization", including road-widening ³⁴
1960	Opening of new four-lane bridge to connect to the widened Lakeshore Highway – the two-lane concrete bowstring bridge was demolished
1961	Port Credit became a town

	G.E. Booth (Lakeview) Waste Water Treatment Facility officially opens
1962	First coal shipments arrive at Lakeview Thermal Generating Station.
1965	Township's engineer declared that Rattray Marsh not worth saving because run-off water quality would become so poor and the marsh would degenerate
1967	Work crews begin Phase 1 of the Rattray Park Estates, despite protests
1970	Lake fill program started for J. C. Saddington Park.
1971	Clarkson Waste Water Treatment Plant constructed
	Credit Valley Conservation Authority (CVCA) purchased 9.7 hectares (24 acres) of the marsh, the site of a proposed marina
1973	High lake levels and storm events result in major losses of shoreline properties. All residential and industrial development as seen today has been established by this time.
	Developer sold the remaining 23 hectares of Rattray Marsh area (57 acres) to CVCA
1974	The Ridgetown, a freighter, was sunk to serve as a break water for Port Credit Harbour
1975	Rattray marsh and buffer land was opened to the public as Rattray Marsh Conservation Area – accessible through Jack Darling Park on the lakeshore.
	Start of lakefilling project to contain contaminant pond at Ministry of the Environment Water Purification Control Plant. Port Credit Marina converted to recreational boat mooring. Shoreline protection assessed as 34 percent coverage.
	Lorne Park Water Treatment Facility commissioned as a filtration facility
1976	Lakefilling program started for Western Headland of Lakefront Promenade Park.
1978	Refinery closed when Texaco built a new facility at Nanticoke – Port Credit's residential and commercial development was confining refinery
1979	Lakefilling program started for Central Headland of Lakefront Promenade Park.
1981	Shoreline protection assessed as 57 percent coverage.
1986	Demolition of Texaco Refinery begins.
1987	Lakefront Promenade Park fill, armouring, and breakwater requirements are complete. Shoreline protection of other areas assessed as 64 percent.
	Texaco dismantles the refinery's process units, tanks, buildings and pipelines.
1988	Sedimentation tanks built at the Lorne Park Water Treatment Facility to convert the facility to a conventional water treatment facility

	St. Lawrence Starch Works closes
1990	Mississauga expanded its existing Lakeside Park by acquiring the westerly 5.3 hectares (13 acres) of the former National Sewer Pipe Property from Petro Canada
	In December the Province of Ontario agreed that a Waterfront Trail in Mississauga should be established
1991	Lakefill project, Lakefront Promenade Park, undertaken by CVCA, officially opens in May – park included an extensive boat basin with a public marina as well as an area for the relocated Credit Valley Yacht Club
	Replica of historic Lighthouse built at the entrance to Port Credit harbour
1995	The Trust opens the Waterfront Trail, a 350-kilometre, virtually continuous trail along the Lake Ontario shoreline, which connects hundreds of parks, historic and cultural sites, wildlife habitats and recreation areas from Stoney Creek to Trenton.
1997	Mississauga New Credit First Nations land claim for most of the lands in the City of Mississauga settled with the federal government with the Mississaugas receiving \$12 million payment
2002	Lorne Park Water Treatment Facility was expanded as an upgrade to accommodate a higher capacity.
2005	Construction completed on the final segment of the Waterfront Trail in Mississauga between Ben Machree Park and JC Saddington Park.
	Operations ceased at Lakeview Thermal Generating Station
2006	Lakeview Thermal Generating Station Demolished
2007	Construction began on lengthening the outfall tunnel at the Clarkson Waste Water Treatment Plant – projected completion for this and plant expansion set for 2012.
2008	March 2 nd , approval made for a 22-storey condominium tower to be built close to the <i>Mississauga</i> waterfront in <i>Port Credit</i> City of Mississauga approves the Waterfront Parks Strategy which will instigate redevelopment of the shoreline to match individual waterfront park characteristics and needs of users – (note: of high priority are Marina Park, Port Credit Memorial Park West and J.C. Saddington Park.) Construction begins on Lorne Park Water Treatment plant expansion – projected completion for end of 2011 – designed to increase capacity to 500 milliliters per day(ML/d) which will make this the largest membrane filtration system in the world.
2009	Expansion began for the Clarkson Waste Water Treatment Plant Construction began to further expand Lorne Park Water Treatment capacity. To be completed by 2012

2009	The Credit River is identified as a proposed Action Site under the Lake Ontario Biodiversity Strategy
2010	City of Mississauga formally initiated <i>Inspiration Lakeview</i> , a visionary concept plan for the Former Lakeview Generating Station and Adjacent Business Employment Lands