CREDIT RIVER PARKS STRATEGY

part 1 - the strategy

part 2 - the background

part 3 - the appendices

prepared by

SCHOLLEN & Company Inc
North-South Environmental Inc.
Lura Consulting
Aquafor Beech Ltd

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Foreword

This document, Part 1 – The Strategy – is one of the three inter-related reports that comprise the Credit River Parks Strategy.

The Strategy sets out the vision, principles and objectives that guided the development of the overall Credit River Parks Strategy. The Strategy provides a description of the components that comprise the overall Master Plan for the valley corridor and Concept Plans for each of the seven "Feature Sites" which are positioned as integral destinations within the Master Plan. This report also includes an Executive Summary that provides a synopsis of the key components of the Strategy. This report sets out directions to guide the implementation of the proposed Strategy over a 25-year timeframe.

This document is supported by:

- Part 2 – The Background
  This document provides a description of the characteristics and context of the Credit River Parks Strategy study area. The report describes the natural and cultural heritage resources of the study area as well as the policies and legislation that guided on the recommendations included in the Strategy. The findings documented in this report provided the foundation for the development of the Credit River Parks Strategy.

- Part 3 – The Appendices
  This document provides the detailed technical information that was compiled as a product of the research, inventory and assessment processes. This information served as the foundation for the Strategy. In addition, the document provides a summary of the public consultation process and includes a comprehensive response document.

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The Credit River Parks Strategy Team

Champion
Paul Mitcham, Commissioner of Community Services

Sponsor
Laura Piette, Director of Parks and Forestry

Controller
David Marcucci, Manager of Park Planning

Project Lead
Mark Howard, Planner, Park Planning

Steering Committee
Susan Burt, Howie Dayton, Ruth Marland, Geoff Smith

Core Team

City of Mississauga: *Jeremy Blair, Heather Coupey, Jill Goldie, Jacquelyn Hayward Gulati, Michael Gusche, Mel Kayama, Eva Kliwer, Gavin Longmuir, Hazel McColl, Brenda Osborne, Scott Perry, Andy Wickens, Paula Wubbenhorst, and Haig Yeghouchian*

Credit Valley Conservation: *Josh Campbell, Jesse DeJager, Garry Murphy, and Mark Thompson*

Region of Peel: *Brock Criger and Janet Wong*

Resource Team

City of Mississauga: *Steve Barrett, Mary Bracken, Frank Buckley, Jessika Corkum-Gorrill, Jessica McEachren, Elaine Eigl, Anne Farrell, Joanne Foote, Alexis Fung Fook, Teresa Goncalves, Amber Griffin, Annemarie Hagen, Lincoln Kan, Julie McAuliffe, Karen Mewa Ramcharan, Stephanie Myhal, Ron Sanderson, Diana Simpson, Stef Szczepanski, Laura Waldie, Stuart Young, and the Environmental Network Team*

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Country Club, David J. Culham (and "The Friends of the Valley"), the David Suzuki Foundation, Department of Fisheries and Oceans, Dufferin-Peel Catholic District School Board, EcoSource Mississauga, Enbridge Consumers Gas, Enbridge Pipelines Inc., Erin Mill's Men's Slo Pitch Baseball, Evergreen Canada, Halton-Peel Woodlands and Wildlife Stewardship Council, Hydro One Networks, Kraft Canada Inc., Meadowvale Village Community Association, Ministry of the Environment, Ministry of Natural Resources, Ministry of Transportation, MIRANET, Mississauga Bassmasters, Mississauga Bicycle Racing Club, Kane Road Ratepayer's Association, Mississauga North Ball Association, Mississauga Oakridge Ratepayer's Association, Mississauga Road Sawmill Valley Ratepayers Association, Mississaugas of the New Credit First Nation, Mississaugua Golf and Country Club, Ontario Archaeological Society, Ontario Nature, Peel District School Board, the Rotary Club of Mississauga – Streetsville, Sarnia Products Pipelines, Peter Orphanos and the Sierra Club of Peel, Six Nations of the Grand River, Sanford Farm, South Peel Naturalists Club, Streetsville BIA, Streetsville Credit Valley Residents Association, Streetsville Founders' Bread and Honey Festival, Streetsville Historical Society, Sun-Canadian Pipe Line Company Limited, The Erindale-Woodlands Community Association, The Evergreen Foundation,, The Riverwood Conservancy, Trans-Northern Pipelines Inc., University of Toronto – Mississauga, and Visual Arts Mississauga

Consulting Team

Schollen & Company Inc.	Project Management, Landscape Architecture and Strategic Planning
North-South Environmental Inc.	Natural Heritage Resource Planning
Lura Consulting	Community Engagement
Aquafor Beech Ltd.	Civil and Water Resources Engineering

Technical Advisors:

Urban Forest Innovations	Arboriculture
Archaeological Services Inc.	Archaeological Resources and First Nations Consultation
Geoterre Limited	Geotechnical Engineering
Poulos & Chung	*Transportation Planning*

Credit River Parks Strategy
Part 1 - The Strategy

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Photographs

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Executive Summary

The Credit River valley is the largest and most diverse contiguous natural area within the City of Mississauga. The parklands that are situated along the valley corridor offer a range of passive and active recreational opportunities and experiences that contribute to the health, well-being and quality of life of residents of the City. The Credit River Parks Strategy (CRPS) has been developed to guide the programming, management and restoration of this important landscape over the next two and a half decades.

The Study Area

The study area encompasses a 27km (16.75 mile) segment of the Credit River valley comprising 650ha (1600 acres). Seven "Feature Sites" are situated along the valley corridor. The "Feature Sites" are integral components of the study area that warrant special consideration in the process of generating the CRPS. The seven "Feature Sites" consist of:

- Sanford Farm: Lands in Private Ownership north of Highway #401
- P-505: Not Yet Named (former Harris Lands);
- P-122: Credit Meadows;
- P-114: Streetsville Memorial Park;
- P-462: Not Yet Named (former Pinchin Lands);
- P-331: Riverwood; and,
- P-60: Erindale Park.

Prior to initiation of the study, the seven "Feature Sites" were selected as a result of their size, location along the river corridor, relation to surrounding neighbourhoods, proximity to known cultural and natural features, and potential to accommodate unique programs and amenities that would strengthen the diversity of the park system. Some of the "Feature Sites" are long-established parks that support existing activities and programs (Riverwood, Streetsville Memorial Park and Erindale Park) whereas others are largely undeveloped (the former Harris and Pinchin properties and Credit Meadows Park). The "Feature Sites" hold the potential to become important destinations along the valley corridor, offering opportunities for access to the river and an experience of the natural and cultural attributes of the study area.

Goal

The goal of the study is to develop a sustainable, innovative and environmentally responsible Master Plan to guide the planning, development, conservation and management of a contiguous system of publicly-owned and publicly accessible parkland and natural areas along the Credit River.

Process

The process of generating the CRPS comprises three component phases:

- Phase 1 – Inventory and Assessment;
- Phase 2 – Master Plan and Concept Development; and,
- Phase 3 – Finalization of the CRPS and Implementation Plan.

Each phase of the process was supported by community engagement and consultation. The community engagement program included public meetings as well as outreach initiatives, including a bus tour, random interviews at 10 sites throughout the City and a web-based survey. The consultation process involved user groups, stakeholders, landowners, residents, City and Credit Valley Conservation (CVC) staff and First Nations representatives. In total, the Strategy reached out to approximately 35,000 residents with over 1000 people being directly engaged in this

process. Their contributions assisted in defining the vision, principles and objectives for the CRPS and informed the development of the Master Plan and Concept Plans for the seven "Feature Sites".

Key messages arising from the consultation process included:

- Preservation and enhancement of natural heritage features and functions is of paramount concern to the residents for the City of Mississauga;
- The Credit River valley should be positioned as the City's most important natural asset; and,
- Connection/access to the valley is necessary for the health and recreation of residents and should be primarily for passive uses such as cycling, walking, hiking, canoeing and kayaking.

The process of inventory, analysis, consultation and synthesis revealed a series of issues to be addressed and opportunities to be capitalized upon in the process of generating the Strategy. Key issues identified as a product of the process included:

- Requirements for conformity with policies and regulations;
- Private land ownership;
- Ecological sensitivity within many parts of the parks system;
- Natural hazards – floodplain, slope stability, ice, potential impacts on natural and cultural heritage resources from uses, geomorphic change;
- Barriers to connectivity – railways and roads, topography and environmental sensitivity;
- Integration with existing facilities – University of Toronto Mississauga Campus (UTM), Riverwood and Erindale Park;
- Public safety; and,
- Requirements for accessibility.

Opportunities afforded by the site and its context are numerous and relate primarily to the diversity of the landscape, cultural context of the site within the City, and richness of its cultural and natural heritage resources. In addition, the valley corridor is largely intact and well-connected, both along its length and to the communities beyond. The seven "Feature Sites" each have unique attributes and hold the potential to complement one another and the valley corridor as a whole in terms of ecological function, programming and diversity of user experience. The river itself holds great potential as a regional attraction for anglers and offers opportunities for water-based recreation including canoeing and kayaking.

The river is relatively healthy but there is the potential to enhance water quality and habitat through the implementation of technical solutions both within the park system and within the community beyond the limits of the valley.

Several precedents exist as models to guide tourism development and each of these provided inspiration to direct the generation of a strategy to optimize the recreational and tourism potential of the Credit River Parks System within Mississauga.

Vision

The vision defined through the public consultation process is stated as:

"The Credit River Parks System is envisioned as the natural centerpiece of Mississauga's parks and open space network. It will support a diverse, self sustaining ecosystem and will afford appropriate opportunities for recreation, socialization and education while protecting, enhancing and celebrating the natural and cultural heritage of the Credit River."

The set of principles established to guide the development of the CRPS related to:

- Natural Heritage;
- Cultural Heritage;
- Community;
- Sustainability; and,
- Regulation.

Alignment with the Strategic Plan

The City's Strategic Plan sets out a vision and recommendations to guide the transformation of Mississauga into a more sustainable, healthy and vibrant community. The Strategic Plan sets out five Strategic Pillars for Change:

Move Belong Connect Prosper Green

The CRPS supports the recommendations of the Strategic Plan by contributing to the following:

Connect

- Capitalizing on the Credit River to Foster All-Season Activities
- Positioning Riverwood, the former Pinchin Lands and Erindale Park as a "Central Park"
- Celebrating the heritage of the Credit River
- Creating More Bike Friendly Facilities

Green

- Planting One Million Trees
- Acquiring/Enhancing Land for Recreational and Ecological Value

The Structure of the Strategy

The CRPS is comprised of three components:

- A Master Plan for the valley corridor;
- Concept Plans for each of the seven "Feature Sites"; and,
- An Implementation Plan.

The Master Plan recommends the establishment of a continuous 'Natural Corridor' that is comprised of a mosaic of woodlands, wetlands and diverse habitats that stretches the length of the corridor, enhancing connectivity and ecological function. The 'Natural Corridor' is supported by the 'Transitional Beltlands' which are proposed to buffer the 'Natural Corridor' from the effects of the adjacent urban matrix and make it more resilient and sustainable over time. The Master Plan promotes the establishment of the 'Credit River Heritage Route' as a connected trail that encompasses segments of existing trails, including the David J. Culham Trail and the Samuelson Trail, along with proposed new trail segments to create a unified multi-use trail that connects the waterfront to the north limit of the City and links the communities along the length of the river together.

The river itself is envisioned as a key element within the Master Plan, affording ecological benefits while at the same time providing opportunities for recreation, education, tourism and economic development.

The "Feature Sites" are positioned as destinations along the valley corridor, each characterised by a unique theme and offering a different range of experiences. Riverwood is envisioned as the centrepiece of the Master Plan, serving as the centre of visitor experience and orientation and, in combination with Erindale Park and the former Pinchin Lands, creating a "Central Park" in close proximity to Mississauga's downtown core.

The Implementation Plan sets out directions to guide the realization of the Master Plan and Concept Plans for the "Feature Sites". The Implementation Plan sets out a process to facilitate the development of detailed designs for the various elements proposed. Requirements for technical investigations, public and First Nations consultation and the securement of the necessary permits and approvals from various regulatory agencies are addressed within this component of the overall Strategy.

The Implementation Plan also addresses recommendations related to land ownership, requirements for business and operations plans, funding and partnership-building.

Maintaining Momentum

The process of generating the CRPS served to elevate the prominence of the Credit River as an important environmental, recreational, social and educational asset within the City of Mississauga, inspiring genuine interest in the implementation of the Strategy. This interest will catalyze the momentum necessary to propel the Strategy forward to implementation, assisting the City to realize the "Pillars of Change" in its Strategic Plan.

1.1

1.1 Introduction

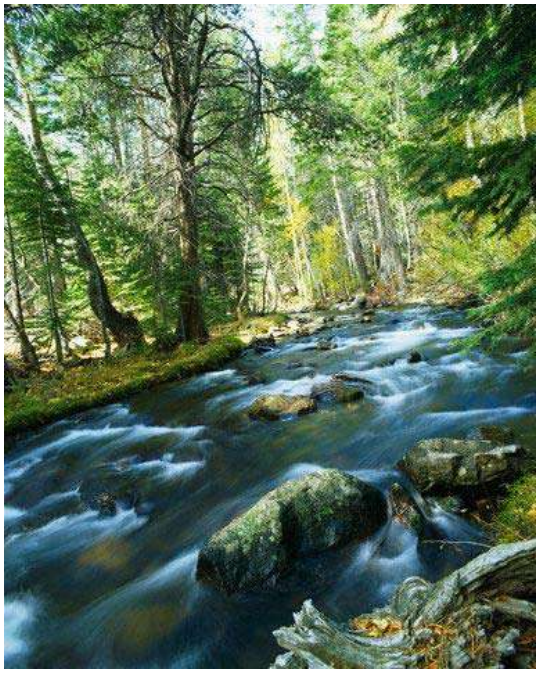
The Credit River is a defining natural feature of the City of Mississauga. It is the principal reason for the establishment of the City, exerting a profound influence on the development of the City's economy and culture, especially in the formative years when the City was comprised of a number of smaller communities founded along the river valley. The Credit River Parks Strategy (CRPS) respects the special role that the River has played in the evolution of the City. It recognizes the value of the River from the natural, economic, recreational and cultural perspectives.

The CRPS was developed to guide the long-term management and use of the lands identified by the City of Mississauga as the CRPS study area. The CRPS study area includes both valleylands and selected tableland areas along the Credit River.

The CRPS is the blueprint to guide the long-term enhancement, management and use of the Credit River valleylands with the objective of reinforcing the prominent position of the river corridor as one of Mississauga's most important environmental, cultural and recreational assets. The CRPS sets out recommendations to guide the preservation and enhancement of natural heritage features and the protection and interpretation of cultural heritage resources as well as promoting a range of active and passive recreational pursuits, including the establishment of a fully connected trail system.

1.1.1 The Overview

Extending from the shores of Lake Ontario to the Oak Ridges Moraine, the Credit River Watershed supports a diverse and healthy ecosystem that sustains hundreds of rare and significant species of fauna and flora. The river has supported generations of human populations ranging from First Nations to European settlers and provided the foundation of the early economy of Toronto Township. The river served to catalyze the establishment and growth of the many settlements that would eventually become the major municipalities within the watershed, including the City of Mississauga. The valley corridor associated with the Credit River now exists as the largest continuous open space system in the City of Mississauga, affording recreational, social, economic and environmental benefits.



The study area included seven "Feature Sites" within the context of the river valley corridor extending from just north of the Lake Ontario waterfront to Highway #407. The study area was defined by the City of Mississauga Natural Areas System (NAS). The NAS was determined on the basis of habitat sensitivity and species richness, as well as a complexity of biophysical factors, as the product of a separate study process. The CRPS study area also included buffers to protect existing natural features. In addition, the scope of the study extended

beyond this set boundary to ensure that linkages to the contextual greenway system, circulation network, community facilities and historical resources were fully integrated into the strategic plan.

The goal of the study as set out by the City of Mississauga was to:

"Develop a sustainable, innovative and environmentally responsible master plan to guide the planning, development, conservation and management of a contiguous system of publicly owned and publicly accessible parkland and natural areas along the Credit River."

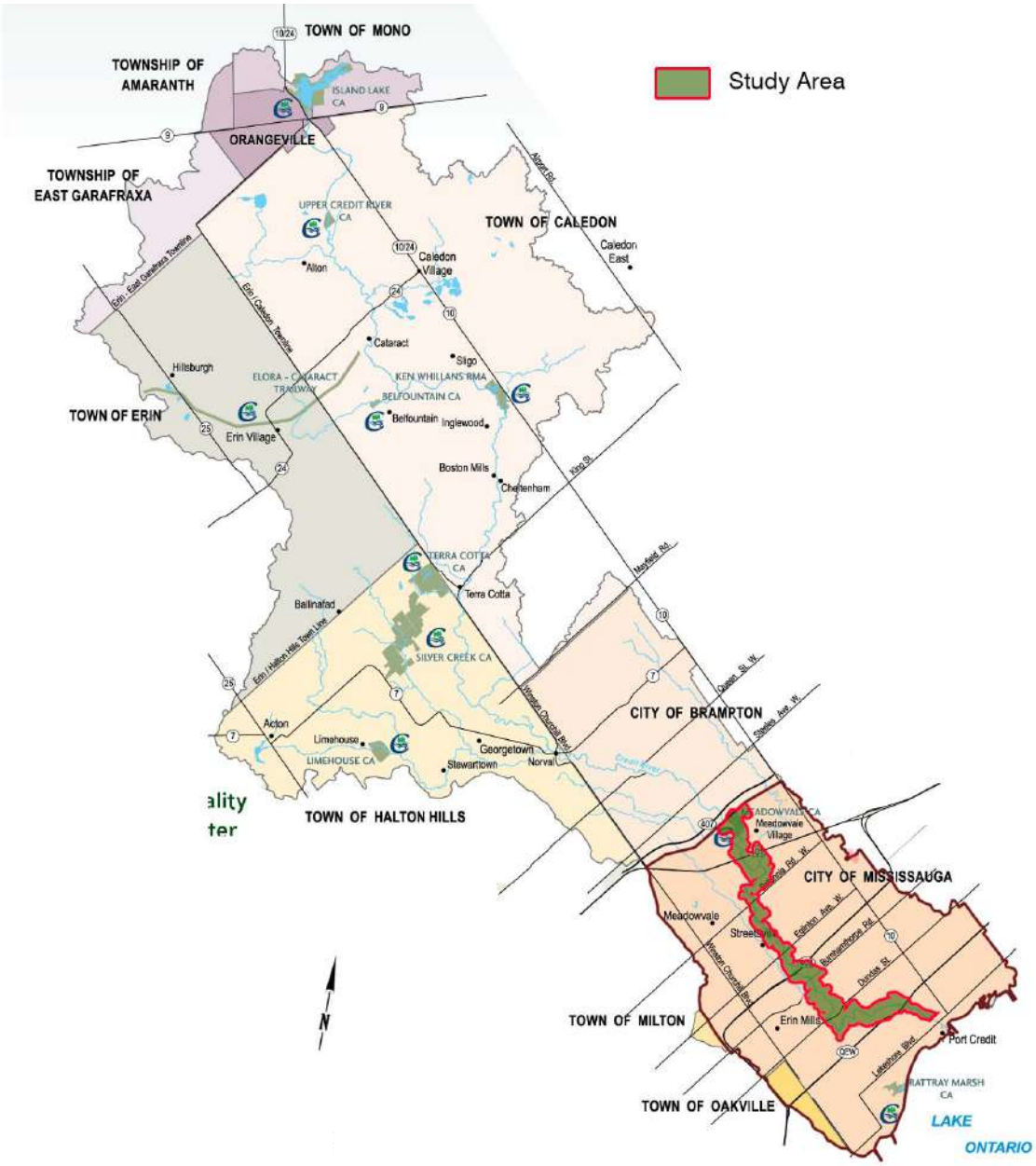


Figure 1.1: Credit River Watershed (CVC) and Study Area

1.1.2 The Inception

The CRPS owes much to the Mayor; members of Council; staff; and the seminal work of former Councillor, David J. Culham and "The Friends of the Valley" consisting of: Ted Baker, a landscape architect responsible for the initial design in the Valley; Eric Fisker, a resident active in the Erindale Woodlands; Jim Holmes, former president of the Meadowvale Village Ratepayers Association; Jim Lewis, a lawyer, who lived adjacent to the river; Roslynne Mains, former president of the Erindale Ratepayers; John Rogers, a planner and resident adjacent to the valley; Glen Schnarr, former general manager of the CVC; Bob Semenyk, former president of the Glen Erin Ratepayers to the east; and, Paul Stafford, an architect and resident in Erindale Village.

Their collective efforts, between 1981 and 2000 contributed directly to Mississauga's parks system and to the specific development of Erindale, Riverwood, Credit Meadows and Hewick Meadows as well as the acquisition of specific lands north of River Grove Community Centre, the routing of Derry Road by-pass at minimum valley exposure through the appeal to the Environmental Assessment Review Board, soil conservation programs, and the centralizing valley trail. The Credit River Valley (Mississauga) Foundation, which was established by the City in 1981 at the recommendation of "The Friends of the Valley", became the vehicle for donations of valleyland. The valleylands in Riverwood were donated, as where the lands south of Burnhamthorpe and Hewick Meadows, through this Foundation. "The Friends of the Valley" has planted approximately 100,000 potted trees during the preceding 20 years, contributing directly to the ecological 'health' of the river. Its members have coordinated numerous annual and seasonal trail walks to educate and raise awareness of the importance of the valley corridor. The important work of this dedicated group served as the impetus for the CRPS.

1.1.3 Definition of Study Area and "Feature Sites"

The study area encompasses the Credit River valleylands extending from the Canadian National Railway Bridge at Port Credit (south boundary) to Highway #407 at the Brampton-Mississauga border (north boundary). One of the most important factors in determining the study area was the City's Natural Areas System, as defined in the Official Plan; and information from the Natural Areas Survey annual updates.

The limits of the study area as illustrated on Figure 1.2 were defined by the City of Mississauga and were determined to be the greater of the following features and/or policy limits within the valley corridor:

- All natural area boundaries within Mississauga's NAS;
- Buffers to existing natural features;
- Regional Woodlands – within the study area and those contiguous beyond the boundary in some cases;
- A setback into residential areas – generally one lot depth;
- CVC Regulated Area (pursuant to Ontario Regulation 160/06);
- Other biophysical factors such as topography, hydrology and soils;
- All bridges, roads and infrastructure crossing the corridor;
- Land use designations;
- Landownership boundaries;
- Areas/features of cultural interest;

- Areas containing known archaeology (as per Ministry of Tourism, Culture and Sport); and,
- Areas of archaeological potential (lands within 300m of the centre of the river).

Seven "Feature Sites" were selected based upon their size, location along the river corridor, relation to surrounding neighbourhoods, proximity to known cultural and natural features, and potential to accommodate unique programs and amenities that would strengthen the diversity of the parks system. Some of the "Feature Sites" are long established parks that support existing activities and programs (Riverwood, Streetsville Memorial Park and Erindale Park) whereas others are largely undeveloped (the former Harris and Pinchin properties and Credit Meadows Park). The "Feature Sites" hold the potential to become important nodes along the valley corridor, offering opportunities for access to the river and an experience of the natural and cultural attributes of the study area.

The "Feature Sites" included the following:

- Sanford Farm: Lands in Private Ownership north of Highway #401;
- P-505: Not Yet Named (former Harris Lands);
- P-122: Credit Meadows;
- P-114: Streetsville Memorial;
- P-462: Not Yet Named (former Pinchin Lands);
- P-331: Riverwood; and,
- P-60: Erindale Park.

1.1.4 General Description of Study Area

The Credit River stretches over 90km from its headwaters in Orangeville and Alton to Lake Ontario. The CRPS study area encompasses over 27km of the river and surrounding valley corridor as it meanders through Mississauga to its confluence with Lake Ontario at Port Credit. Prominent characteristics of the CRPS study area are described below.

Recreation:

- Comprised of 37 parks constituting 650 ha (1600 ac) of open space;
- Constitutes 20% of total City parkland;
- Includes 27km existing trails; and,
- Supports a world-class salmon fishery.

Cultural Heritage:

- Central to the history and civic identity of the City;
- Continuously occupied by First Nations peoples for over 10,000 years;
- Encompasses 21 archeological sites;
- Provided a constant source of food, water, building materials, transportation and energy;
- Supported transportation and industry;
- Served as the foundation for the communities of Port Credit, Erindale, Streetsville and Meadowvale; and,
- Includes 87 former mill and dam sites.

Natural Heritage:

- Located at the northern limit of the Carolinian Forest Zone;
- Includes 17 contiguous natural areas with connections to 10 watersheds;

- Encompasses 2714 identified flora, 832 identified fauna and 127 locally rare species;
- Supports 7 provincially rare species and numerous SAR;
- Serves as a major migratory corridor for birds and mammals; and,
- Sustains a productive and healthy habitat for salmon, trout, smallmouth bass and a variety of other fish species.

1.1.5 Study Area Context

The study area is located within the Credit River Watershed and encompasses natural areas, parks, agricultural lands and active recreational amenities. The study area transects the City on a north to south axis.

1.1.5.1 Credit River Watershed

The Credit River Watershed has a drainage area of 850km^2. Over 80% of the watershed is located upstream of the City of Mississauga. Of the 16 centres of development within the watershed, Brampton and Mississauga are the largest. The majority of the agricultural land within the Credit River watershed is located upstream of Mississauga.

The Credit River through Mississauga is considered to be a modified system. Upstream of Highway #401 the river flows in a broad, flat floodplain and has a moderate slope. The river is free to meander across its floodplain but is constrained in a few locations by engineered structures such as bridges and revetments.

Downstream of the Queen Elizabeth Way (QEW), the river becomes broad and flat and the valley slopes decrease to the point where Lake Ontario backwaters to create a marsh. This area is lined with residential properties with docks and manicured areas that extend to the water's edge. This lower reach of the river is subject to the influence of changing Lake Ontario water levels and consequently alternates between periods of erosion and deposition. The marsh is generally a settling basin for the sediment and debris that originate upstream.

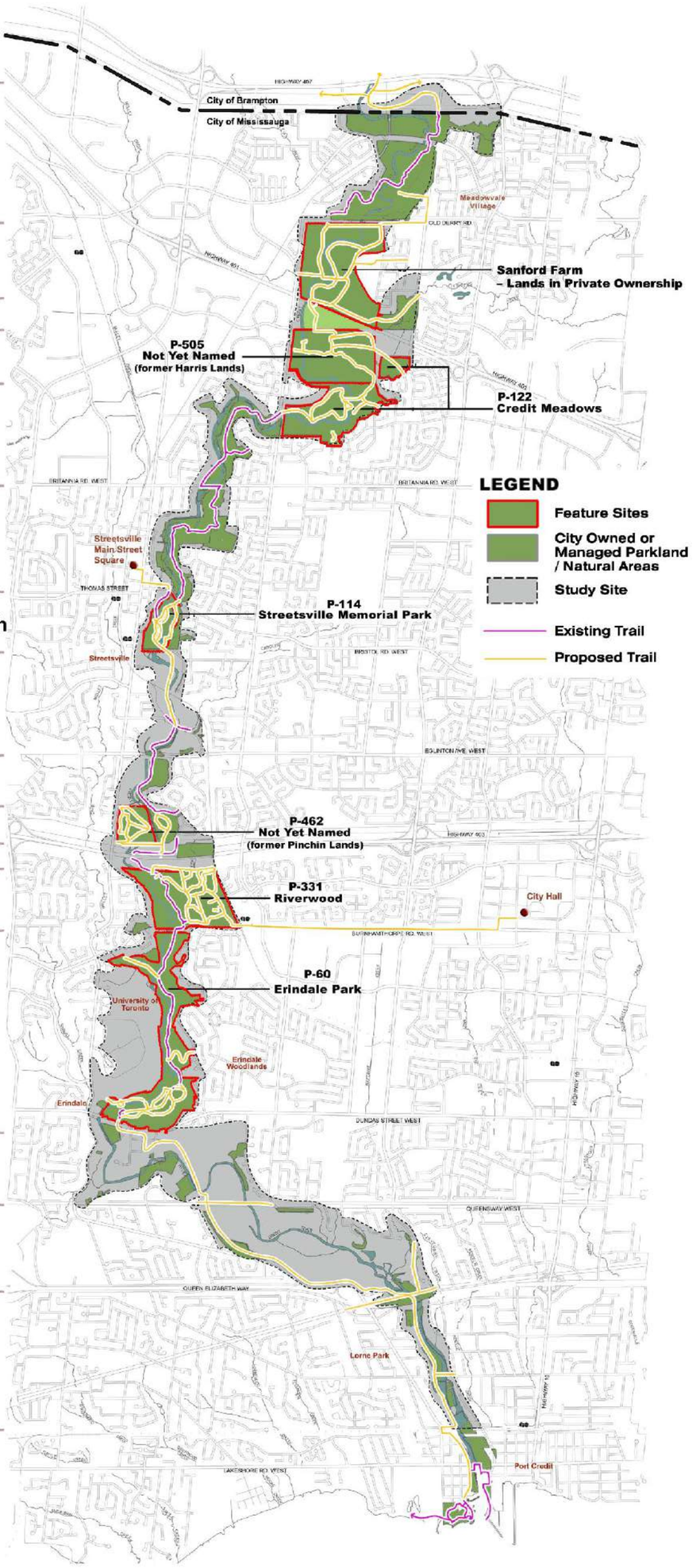
1.1.6 Land Ownership

The majority of the lands that comprise the CRPS study area are held in public ownership. Lands under the ownership of the City of Mississauga (approx. 326ha), the CVC (approx. 195ha) and Region of Peel (approx. 15ha) comprise 536ha of the total 650ha site area. The remaining 114ha is comprised of lands in provincial and private ownership. Figure 2.5 in Part 2 report provides an illustration of the patterns of land ownership within the study area.

Large areas of open space within the CRPS study area are held in private ownership including lands under the ownership of the Mississaugua and Credit Valley Golf and Country Clubs. The Kraft and ADM mill properties, as well as the lands north of Highway #401, are privately-owned and thus impose limitations on public access at this time.

Study Area

- Brampton Border
- Highway #407 to Old Derry Road Reach
- Sanford Farm – Lands in Private Ownership Reach
- Highway #401 Reach
- P-505 – Former Harris Lands Reach
- P-122 – Credit Meadows Reach
- Britannia Road West to Bristol Road Reach
- P-114 – Streetsville Memorial Park Reach
- Kraft and ADM Mills Reach
- Eglinton Avenue to Former Pinchin Lands Reach
- P-462 – former Pinchin Lands Reach
- Highway #403 Reach
- P-331 – Riverwood Reach
- P-60 – Erindale Reach
- Dundas Street to Queensway Reach
- Queensway to QEW Reach
- Lorne Park Reach
- CNR Bridge in Port Credit



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credit river parks strategy

Figure 1.2: Study Area

1.2

1.2 Overview: Foundation of the Master Plan

The realization of the long-term vision of the Credit River valley as proposed by the Credit River Parks Strategy will result in establishing the Credit Valley corridor and its *"Feature Sites"* and *"Reaches"* contained within it as Mississauga's premier natural heritage asset. The restoration initiatives proposed as a component of the Master Plan will enhance the Credit River corridor, the habitats it sustains and the species it supports, thereby improving biodiversity and ecological integrity.

The Master Plan is divided into 18 segments or "Reaches" providing trails and habitat enhancements to support the "Natural Corridor" and connection to surrounding neighbourhoods. Within this framework, the seven "Feature Sites" are positioned as distinctive destinations, each of which has been assigned a unique theme that is rooted in the natural and cultural heritage of the site and its physical and historical context within the Credit River valley and the City of Mississauga. The "Feature Sites" celebrate nature, culture, agriculture, heritage, the arts and the community and will make the assets of the river accessible to the community. They will promote environmental education and will interpret the rich cultural heritage resources and history of the valley and the City.

The extent of recreational pursuits and cultural amenities proposed along the Credit River is tempered by a commitment to the environmental enhancement objectives that emerged as a priority as an outcome of the community engagement process. The Credit River Parks Strategy emphasizes the paramount importance of ensuring that the ecological health of the Credit River is sustained and enhanced in the future.

The Master Plan is intended to be the foundation of the Credit River Parks Strategy (CRPS). It illustrates the recommended spatial structure of the overall strategy that will be implemented incrementally over the coming 25-year period. The Master Plan is grounded in the findings of the technical research and public and stakeholder engagement processes and is aimed at realizing the vision, principles, and objectives defined in the course of completing the inventory, analysis and consultation tasks. The community and stakeholder engagement process assisted in determining the relative degree of emphasis that should be attributed to each objective in the process of generating the Master Plan and the Preferred Concept Plan for each of the "Feature Sites".

As a fundamental outcome of both the research and consultation processes, the importance of the CRPS study area as an ecological asset within the City of Mississauga emerged as the over-arching theme. For the majority of stakeholders and participants in the public consultation program, the parkland that constitutes the CRPS study area is viewed foremost as the City's most significant natural heritage asset, contributing to the health and character of the City and the well-being of its residents. The predominant opinions expressed throughout the consultation process supported the protection, enhancement and expansion of the natural heritage features and functions associated with the Credit River valley. The study area is regarded as a rare and valuable natural asset that is unique within the urban fabric of the City.

In response to these considerations and the findings of the community and stakeholder engagement program, the Master Plan was structured with a connected, protected and expanded "Natural Corridor" as its central spine and key organizing element.

The Master Plan was also designed to reinforce the primacy of natural heritage objectives, considering ecological sensitivity while integrating initiatives related to cultural heritage, recreation and leisure programming amongst others. Specifically, the initiatives address cultural heritage interpretation, appropriate land and water-based recreation, arts and culture, agriculture and public education. The proposed initiatives were founded on the opportunities afforded by the biophysical attributes of the study area, its history and its context.

With this in mind, the Master Plan is intended to reposition the Credit River valley as the centrepiece of Mississauga's Natural Heritage System, both physically and in the collective consciousness of the residents of the City, the Greater Toronto Area (GTA) and beyond.

1.2.1 Guiding Principles

To facilitate the preparation of the CRPS, the City established the overall goal for the study as follows:

> *"Develop a sustainable, innovative and environmentally responsible master plan to guide the planning, development, conservation and management of a contiguous system of publicly owned and publicly accessible parkland and natural areas along the Credit River."*

The vision for the CRPS is based upon this goal and is reflective of the importance of protection and enhancement of the valleyland ecosystem in response to the findings of the inventory and assessment, policy research, field review and community consultation exercises.

In response to the outcomes of the community and stakeholder engagement program, the vision, principles and objectives for the CRPS were established. The vision, principles and objectives that underpin the Master Plan are stated below.

Vision
The vision for the CRPS is:

"The Credit River Parks System is envisioned as the natural centerpiece of Mississauga's parks and open space network. It will support a diverse, self sustaining ecosystem and will afford appropriate opportunities for recreation, socialization and education while protecting, enhancing and celebrating the natural and cultural heritage of the Credit River."

Goals

The following principles were established to guide the development of the CRPS to ensure that this vision is realized:

Natural Heritage

- Re-establish a viable, self-sustaining, natural *ecosystem* through the protection, maintenance and enhancement of natural features, functions and systems within the CRP System;
- Recognize, respect, preserve, restore and enhance the *biodiversity* and *biofunction* of ecosystem features and linkages that comprise both the *terrestrial*, riparian and *aquatic* habitat of the Credit River valley corridor;
- Ensure long-term sustainability of the Credit River valley corridor through connection, protection, restoration, enhancement and expansion of natural areas and functions within the CRP System area; and,
- Protect and enhance water quality and ensure the geomorphic stability of the Credit River.

Cultural Heritage

- Protect, enhance, restore and celebrate cultural heritage including archaeological resources.

Identity

- Foster a sustainable relationship between people and nature by supporting educational programming in partnership with local school boards and community organizations and encourage community stewardship;
- Create diverse, vibrant, and appropriate places for socialization and recreation in consideration of ecological sensitivity, that enhance the quality of life for residents and visitors alike;
- Advance public safety in consideration of the implications of natural hazards and built facilities as well as potential impacts on the natural environment;
- Promote the park system as a defining element in Mississauga garnering civic pride, rejuvenating of both spirit and mind, and inspiring active and healthy lifestyles;
- Value and work towards *Universal Accessibility* for all public facilities and portions of the trail system;
- Provide appropriate, accessible opportunities for recreation and education which reflect the diverse culture and demographic of Mississauga; and,
- Promote continuous public access in partnership with private landowners.

Sustainability

- Establish a connected system of trails that link to transit and multi-modal transportation systems in order to promote cycling and walking;
- Optimize the application of *Green Building Standards* to strive to attain *LEED®* Certification. Incorporate, *Low Impact Development (L.I.D)* and sustainable construction techniques in the implementation of new and retrofitted park facilities;
- Strengthen the integration between the *CRP System* and the overall parks and open space system within Mississauga; and,
- Ensure fiscal sustainability.

Policy & Regulation

- Be consistent with existing policies and regulations across all jurisdictions.

Objectives

In addition, a catalogue of objectives was created with the intent of addressing specific aspects of the project. Although the objectives are stated independently, they are to be regarded as a single integrated unit that emphasizes the benefits afforded as a result of their synergies. The objectives relate to natural heritage, cultural heritage, community, sustainability and regulation and speak to both physical intervention and management initiatives. These objectives include the following:

Natural Heritage

1. Protect existing *woodland* and *wetland* habitats and all natural features;
2. Provide a continuous core habitat corridor throughout the valley system;
3. Restore degraded habitats and enhance and expand existing natural features;
4. Improve connectivity and enhance habitat patch size and shape;
5. Utilize best practices to manage stormwater runoff (improve *water quality* and control *water quantity*) and promote infiltration;
6. Protect groundwater quality as well as *recharge* and *discharge* patterns;
7. Improve riparian cover and enhance aquatic habitat diversity;
8. Manage or eradicate *invasive species*;
9. Mitigate barriers to aquatic and terrestrial migration;
10. Close *ad-hoc* trails that impact sensitive sites and features;
11. Partner with private landowners to achieve natural heritage objectives; and,
12. Maintain and enhance canopy cover of the urban forest.

Cultural Heritage

13. Identify and protect *cultural* heritage including archaeological and landscape resources;
14. Restore/rehabilitate degraded features with an emphasis on authenticity and sensitivity;
15. Identify and preserve important vistas and views;
16. Respect and celebrate *First Nations* heritage; and,
17. Implement interpretive programs and elements to heighten public awareness of the cultural and natural heritage of the Credit River.

Identity

18. Integrate amenities and programs to promote environmental education, nature appreciation and stewardship;
19. Create spaces to accommodate a range of passive and active recreational pursuits appropriate to environmental context;
20. Afford opportunities for a diversity of cultural activities including performing arts, visual arts, social events, cultural customs and celebrations;
21. Focus public use away from natural hazards and sensitive ecosystem components;
22. Provide accessible opportunities to experience the Credit River;
23. Create a recognizable signature for the CRP System within the City's overall signage program;
24. Ensure accessibility wherever possible and appropriate to residents and visitors of all ages and abilities;
25. Apply Crime Prevention *(CPTED)* principles in the design of public use areas;
26. Connect the valley system to the adjacent communities and the City at

large through integration with local and regional transit;

27. Integrate the park system with the University of Toronto – Mississauga campus (UTM) while addressing issues related to accessibility, safety and security;
28. Provide opportunities for community gardening and urban agriculture; and,
29. Where opportunities exist, seek to secure public access through private lands to achieve connectivity objectives.

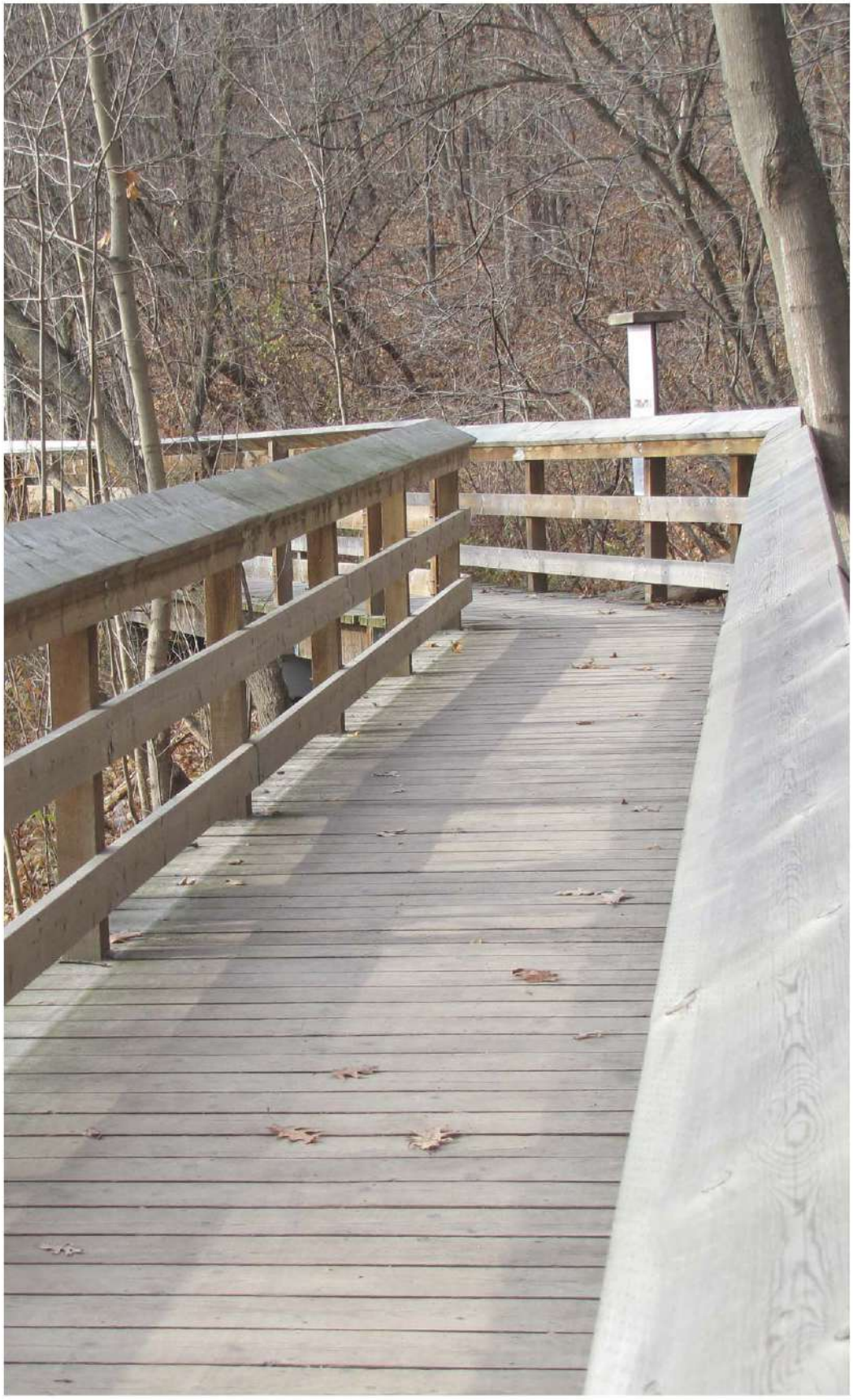
Sustainability

30. Link valleyland trails to local and regional bicycle and transit networks;
31. Integrate L.I.D. and sustainable design techniques in the implementation of recreation and support facilities to achieve the following:
    - Conserving energy;
    - Minimizing water use;
    - Managing stormwater;
    - Enhancing canopy cover;
    - Mitigating urban heat island effect;
    - Preventing pollution;
    - Striving to attain the City's Green Building Standards and *Canadian Green Building Council (CGBC)* LEED® Silver criteria; and,
    - Mitigating potential influences of climate change.
32. Enhance connectivity to neighbourhood destinations and nearby parks and open spaces to promote walking and cycling; and,
33. Capitalize on opportunities to promote tourism and integrate commercial/revenue generation opportunities in order to offset capital and operational costs.

Policy & Regulation

34. Ensure conformity with federal, provincial, regional, local and Conservation Authority policies related to:
    - Natural Heritage Protection (Tree Protection By-law, Encroachment By-law)
    - Flood protection;
    - Natural hazards;
    - Species and habitat protection;
    - Development and site alteration;
    - Land use;
    - Community structure;
    - Transportation;
    - Natural heritage;
    - Cultural heritage; and,
    - Recreational facilities.
35. Ensure conformity with local by-laws, codes and guidelines with respect to accessibility, fire protection and public safety.

The vision, goals and objectives were refined and confirmed in consultation with the Steering Committee, Core Team, stakeholders and the public at large. They formed the foundation for the CRPS and a basis for the Master Plan and Preferred Concept Plans for each of the seven "Feature Sites".



1.3

1.3 Structure of the Master Plan

The Master Plan illustrates an extended vision for the CRP System that is to be realized over a 25-year period. Although the CRPS has been designed with a specific focus on publicly owned or managed lands, the plan sets out recommendations to achieve the vision, principles and objectives that relate to both public and private lands.

The Master Plan addresses both the overall CRP System as well as the seven "Feature Sites" contained within it. The plan has regard for the context of the site within the urban matrix of the city, as well as within the Credit River Watershed. Based upon a review of aerial photography, the CRP System is the largest contiguous portion of the City of Mississauga's Natural Areas System. Within the context of the watershed, the segment of the Credit River valley within Mississauga forms the critical linkage between the upper watershed and Lake Ontario. However, given its situation at the southern end of the watershed, this section of the Credit River valley is also subject to the negative cumulative effects of actions and activities implemented further upstream within the watershed. Furthermore, the influences imposed by the surrounding urban landscape induce additional pressures on the ecological health of the CRP System.

In response to these considerations and the findings of the community and stakeholder engagement program, the Master Plan is structured with a connected, protected and expanded "Natural Corridor" as its central spine and key organizing element. This "Natural Corridor" encompasses all sensitive existing natural heritage features and habitats as well as the restoration areas that are necessary to reduce fragmentation, enhance buffering, expand habitat patch size and improve the shape of habitat patches. The "Feature Sites" are positioned as a series of destinations along the corridor that provide venues for complementary recreational, social, cultural, community and sustainability activities. Each "Feature Site" is intended to celebrate a different theme and afford a unique user experience inspired by the attributes of the site-specific landscape related to cultural heritage, patterns of use, context within the structure of the City and environmental considerations.

Knitted within this base structure, amenities are proposed to afford appropriate opportunities for recreation, socialization and public education, including the establishment of a continuous trail system that will extend from the south end of the study area to Brampton. The trail is envisioned to traverse private lands, connect the seven "Feature Sites" and make linkages to trail systems within the Levi Creek, Sawmill Creek and Fletcher's Creek corridors.

The Master Plan is comprised of the following components:

"Natural Corridor"

The Master Plan promotes the establishment of a contiguous "Natural Corridor" along the length of the Credit River valley from the north limit of the City to Lake Ontario. This Corridor will be configured to encompass existing important natural features and will be augmented with restoration areas that are intended to enhance the function and resilience of the corridor in consideration of surrounding and upstream urban influences.

"Transitional Beltlands"
Situated adjacent to the edges of the "Natural Corridor", the "Transitional Beltlands" are intended to protect the ecological functions of the "Natural Corridor" while establishing an appropriate spectrum of landscapes extending from the natural landscape, in the vicinity of the corridor, to the managed or urban landscape beyond. The "Transitional Beltlands" are intended to accommodate a broader range of activities while reinforcing the ecology and natural functions of the corridor. The "Transitional Beltlands" classification relies upon both physical intervention and policy direction to achieve this management objective.

1.3.1 Identity

The CRPS sets out a number of recommendations to guide public use and enjoyment of the study area. Presently, the CRPS study area includes amenities that accommodate a range of environmental, recreational, social and cultural activities. Given the firm bias towards natural heritage objectives arising as a product of the consultation process, the appropriateness of some of these activities in their present locations required reconsideration. Given the commonly expressed opinion that the CRP System should not be viewed as needing to accommodate the active recreational programming requirements of the community, as existing facilities become outmoded and places to accommodate replacement facilities are secured outside of the valley corridor, it is intended that facilities for active recreation be located outside of the "Natural Corridor". Proposed amenities to support recreation and cultural heritage should generally be situated outside of the limits of the "Natural Corridor".

Creating a strong and recognizable identity for the CRP System is important to elevate its prominence within the City and to promote efforts to position the valleylands as an important natural and recreational asset within the City of Mississauga. This identity is proposed to be promoted through the implementation of the following initiatives:

- Establishing signature gateway treatments at all major road and railway crossings of the Credit River valley. Gateway features should be bold and iconic with a strong relationship to the cultural heritage of the river;
- Implementing a cohesive, uniform system of way-finding that extends outward from the valley into the adjacent communities. Signage should be designed to be instantly recognisable and integrated with the Credit River 'brand' but should also be complementary to the overall Parks Signage Program;
- Establishing a series of overlooks at prominent vistas and view points along the river, each of which is augmented with interpretive signage;
- Marketing the Parks System within Mississauga as a component of the larger Credit River Watershed and making connections to prominent and desirable destinations upstream such as the Forks-of-the-Credit, Island Lake, Belfountain and Alton Mill Pond as well as Lake Ontario. Opportunities for joint marketing and cohesive branding should be explored with the upstream Municipalities, CVC and existing tourism marketing associations such as the "Hills of the Headwaters" and "Niagara Escarpment World Biosphere Reserve" initiatives; and,

- Providing interpretive opportunities in the Credit Valley in order to afford users and visitors enjoyable, stimulating experiences while at the same time, working to convey instructional and promotional messages to the public about the historical, cultural and natural elements of the park. Interpretation will not only enhance visitor experience it will also contribute to fostering stewardship, ultimately contributing to the protection of natural and cultural features within the valley system.

The CRPS envisions the Credit River valley as a community amenity that promotes tourism, recreation, socialization, education, conservation, economic development, wellness and most importantly, the opportunity to escape to nature.

1.3.2 Policy & Regulation

The CRPS is designed to conform to both the letter and spirit of Federal and Provincial legislation and the policies of the Region of Peel, City of Mississauga, and Credit Valley Conservation. The Master Plan is consistent with the objectives of the policies of all of these agencies related to natural heritage, cultural heritage, transportation, water resources, community and sustainability.

The CRPS considers the following legislation (refer Appendix D for further detail):

Federal

- Fisheries Act - R.S.C., 1985, c. F-14 Amended 2012, henceforth referred to as "the Fisheries Act" - The Federal Fisheries Act, enforced by Fisheries and Oceans (DFO), regulates the protection of fish and fish habitat; and,
- Navigable Waters Protection Act - R.S.C., 1985, c. N-22, henceforth referred to as "the Navigable Waters Protection Act" - The Navigable Waters Protection Act, enforced by Transport Canada under the – Navigable Waters Protection Program (NWPP), ensures the public's right to navigate Canada's waters without obstruction. Moreover, the NWPP approves works such as bridges, weirs and dams that are located on navigable waters in Canada.

Provincial

- Provincial Policy Statement 2005 –
  Places to Grow Act, 2005, S.O. 2005, Chapter 13 (Last amendment: 2012, c. 8, Sched. 46.);
- Growth Plan for the Greater Toronto Golden Horseshoe (2006)
- Endangered Species Act, 2007,Ontario Regulation 230/08,S.O. 2007, Chapter 6 - The Endangered Species Act regulates the habitat of "Species at Risk" in Ontario;
- The Greenbelt Plan (2005) - The Greenbelt Plan established the Protected Countryside which is comprised of a Natural System and an Agricultural System along with defined Settlement Areas. The Greenbelt Plan supports the Parkway Belt West Plan as well as other provincial level initiatives;
- The Parkway Belt West Plan, 1978 (Consolidated to June 2008) - The 'Parkway Belt West Plan' (PBWP) was introduced in 1978 for the purposes of creating a multi-purpose utility corridor, urban separator and linked open space system;
- Bill 51 (The Planning and Conservation Land Statute Amendment Act (2006));
- Conservation Authorities Act, Ontario Regulation 160/06 Section 28 - Within the Credit River Watershed, the CVC acts under the Conservation Authorities Act, which mandates the CVC to prevent, eliminate, or reduce the risk to life and property from flooding and erosion; and,

- Ontario Heritage Act, 1990.

Municipal

- Region of Peel – Office Consolidation November, 2008;
- Region of Peel – Regional Official Plan Amendment – Number 21 (ROPA 21);
- City of Mississauga Official Plan – September 2010; and,
- City of Mississauga Zoning By-Law – As Amended.

The strategy recognizes that policies have been enacted to achieve the following:

- Eliminate encroachment on valleylands by adjacent residential properties (see City's Encroachment By-law 0057-04);
- Promote appropriate behaviour within the Credit River Parks System by limiting access by motorized vehicles and other uses that may degrade the natural environment (see City Parks By-law 186-05);
- Facilitate the protection of existing native vegetation (see City's Private Tree By-law 254-12);
- Prohibit the removal of trees (see City's Private Tree By-law 254-12); and,
- Prohibit grading, filling and site alteration (see City's Erosion and Sediment Control By-law 512-91.

In addition, the strategy recommends that new policies be enacted to achieve the following:

- Facilitate the protection of public trees outside the private tree by-law; and,
- Promote the enhancement of ecological features and functions.

New facilities or proposed expansions to existing facilities should be located outside of the area designated as "Greenlands" in the City of Mississauga and Region of Peel Official Plans.

The concept of the 'Transitional Beltlands' and the continuous "Natural Corridor" is recommended to establish zones that are proposed to be subject to new policies that complement existing encroachment and public and private Tree Protection By-laws in order to protect the integrity of the valleyland ecosystem. The "Beltlands", are wholly outside of the Regional Floodplain however they are located entirely within the Regulation Limit and therefore any proposed works within this area will be subject to approval by the CVC.

Recommendation: While there are a number of existing policies and regulations in force that address tree removal and site alteration, including those of both CVC and the City (refer to Figure 1.3), a comprehensive regulation, similar to the City of Toronto's Ravine Protection By-Law, but specific to the Credit River Parks System, is recommended to achieve the natural heritage objectives of the Credit River Parks Strategy.

The CRP System and the "Feature Sites" contain a variety of natural heritage features and habitats that are subject to federal policies (see below) as well as provincial, municipal and Conservation Authority policies. With respect to Provincial Policy Statement, the PPS states that:

Development and *site alteration* shall not be permitted in:

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
b) *significant woodlands* south and east of the Canadian Shield;
c) *significant valleylands* south and east of the Canadian Shield;
d) *significant wildlife habitat*; and,
e) *significant areas of natural and scientific interest*

In addition, federal and provincial regulations stipulate the following limitations on disturbance to vegetation, species and habitats:

- Vegetation removal is prohibited during the breeding bird season (April-July); and,
- Amphibian breeding and migration season (April-June).

Works proposed within the CRP System should be designed and implemented with regard for these policies.

The timing of implementation of the recommendations set out in the CRPS will be influenced by legislation. For example, the breeding bird construction-free timing window and Migratory Bird Convention Act prohibit construction works at specific times of the year. DFO also prohibits in-water construction works at specific times of the year. The permit processes for alterations within the floodplain and work near ecologically sensitive habitats such as ESAs, ANSIs or PSWs require approval from MNR and CVC.

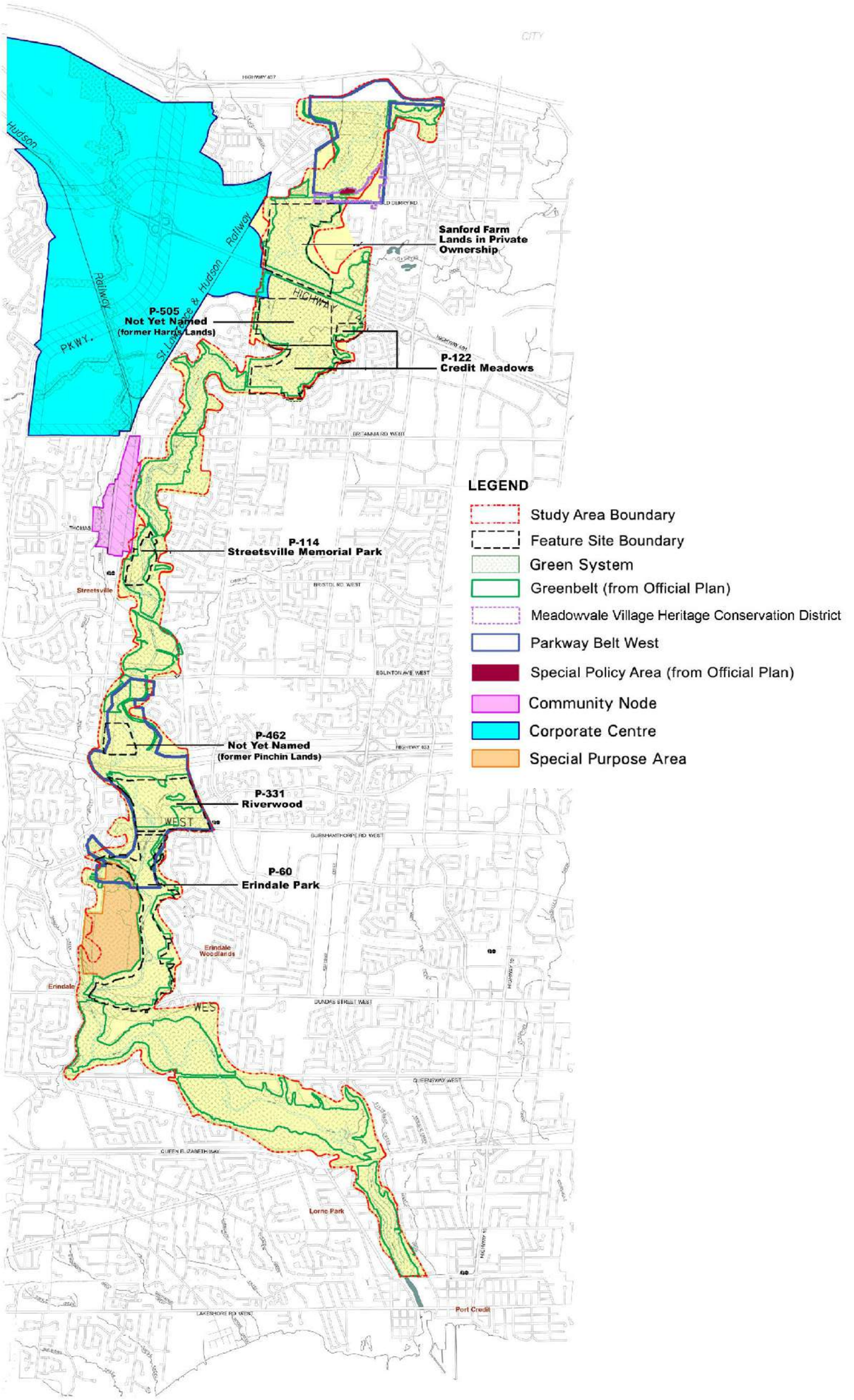
1.3.3 Management of the River

The Master Plan (as illustrated in Figure 1.6) recommends for a number of initiatives that are designed to address the protection, enhancement, expansion and restoration of the natural heritage features, strengthening the inter-related functions of "Natural Corridor" and enhancing the cultural connectivity amongst the 37 parks along the Credit River valley.

Paramount to the Strategy is the protection of the Credit River. The river is not only the preeminent ecological asset of the strategy; it is a character-defining element of the City of Mississauga. The river corridor is also identified within the Provincial Greenbelt Plan as an "External Connector" to Lake Ontario. The river is a unique recreational resource, offering opportunities for canoeing, kayaking and angling, all within the heart of Canada's 6th largest city. Respect for the river and for its evolutionary processes is essential as the river is a powerful modifying element within the landscape. The forces imposed by the flow of water and the formation and movement of ice have the ability to enact large-scale change that can affect vegetation and habitats as well as the stability of the river channel and morphology of the valley landform. In response, the CRPS promotes avoidance of areas that are prone to be impacted by fluvial processes, erosion and ice movement in considering the location of proposed trails and infrastructure.

The underlying approach with respect to designing the parks system is to position elements, such as trails, to accommodate predicted changes in meander geometry, gradient and slope stability wherever possible. This philosophy will minimize requirements to 'harden' the river or to implement 'river-training' methodologies in the future to protect constructed elements and infrastructure from degradation and damage. The application of this approach will also effectively minimize both capital and long-term repair, maintenance and management costs, contributing to the overall economic and environmental sustainability of the Strategy.

Within the river itself, several initiatives are proposed to enhance its function and productivity. The initiatives are described in more detail in Sections 1.3.10, 1.3.11 and 1.3.12.



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NORTH

0 0.5 1.0 1.5 2.0 2.5km

credit river parks strategy

Figure 1.3: Policy Areas

1.3.4 Natural Heritage

Within the extent of the CRPS there exist numerous natural heritage features that warrant protection and enhancement in order to generate a connected natural corridor buffered from adjacent development. In order to realize this important goal, the Master Plan is proposed to include the following key components:

Continuous Natural Corridor: Central to the ecology and health of the river, the realization of a continuous connected corridor will involve native plantings, restoration efforts and will necessitate both city and steward cooperation to achieve.

Transitional Beltlands: As a protective buffer to the natural corridor from the potential impacts of the surrounding urban areas, the Beltlands are comprised of both public and privately owned lands and will require legislation and education to achieve encroachment and natural area protection objectives (i.e. establishment of Ravine By-law).

Heritage Route: Intended to be a regional initiative that transcends the geo-political boundaries of the City of Mississauga The Credit River Heritage Route, if fully realized, would provide a connected north-south trail from Lake Ontario to the headwaters near Orangeville and making key east-west neighbourhood linkages across the river. The Route will require inter agency/ municipality cooperation to complete.

The following sections provide detailed considerations in order to achieve Master Plan objectives.

a) Continuous "Natural Corridor"

The establishment of a continuous "Natural Corridor" that links Lake Ontario to the north limit of the City within the Credit River valley is a fundamental component of the Master Plan. The proposed "Corridor" will encapsulate all flood prone lands (corresponding with the Regional Floodlines defined by CVC); the Core Greenlands System (as per Region of Peel Official Plan Amendment 21b); and, established natural areas as determined by the City of Mississauga's Natural Areas Survey. It is the intent of the strategy to enhance the existing "Natural Corridor" by linking existing features through the implementation of restoration and reforestation initiatives. The proposed continuous "Natural Corridor" will meander through the study area in order to capture important natural heritage features while accommodating complimentary programs and uses. Permitted uses are limited to the following:

- Hiking;
- Nature preservation;
- On-trail cycling (David J. Culham trail as well as most primary trails);
- Cross-country skiing;
- Nature-based recreation; and,
- Education and interpretation.

The proposed configuration of this corridor is illustrated on Figure 1.4. The proposed continuous "Natural Corridor" will encompass natural vegetation communities including woodlands and wetlands within the valley and on tablelands adjacent to the valley, as well as the proposed restoration areas that will connect them together. Along the majority of the valley feature, the "Corridor" is proposed to generally correspond with the Regulatory Floodline. The "Natural Corridor" is proposed to extend through the "Feature Sites" as illustrated on each of the Preferred Concept

Plans but will not necessarily correspond with the floodline in these areas. It is acknowledged that given the patterns of private land ownership within the study area, the realization of the vision of the "Natural Corridor" is a long-term aspiration. Partnerships and stewardship arrangements with landowners will be essential to achieve this vision.

The "Natural Corridor" is proposed as a means to sustain the ecological function of the Credit River valley and offset the impacts of the urban matrix on terrestrial and aquatic species and habitats. In response, uses within the "Corridor" are proposed to be limited to passive activities, such as hiking, nature appreciation, cultural heritage interpretation, nature-based recreation and conservation activities. Amenities proposed to be integrated into the corridor to support these uses include trails, wayfinding and interpretive signage and other trail-related amenities. The Credit River Heritage Route, which encompasses portions of the David J. Culham Trail, as well as other hiking trails, will be permitted within the "Natural Corridor".

Restoration and Reforestation

The City of Mississauga is presently undertaking the Natural Heritage & Urban Forest Strategy. The purpose of this study is to develop a strategy to guide City programs and activities for the protection, enhancement, restoration, and expansion of natural areas and the urban forest across Mississauga. Based on best practices and the current science, the Strategy will develop policies and implementation tools to ensure that the City's natural

Figure 1.4: Continuous Natural Corridor

area and urban forest system is protected. A key piece of the study will be the 20-year, Urban Forest Management Plan.

Existing natural areas within the study area are proposed to be reinforced by linking existing natural features through the implementation of restoration and reforestation initiatives. Restoration areas are proposed to connect existing natural features together and provide buffers to adjoining urban areas.

Given that the timeline for implementation of the Master Plan is anticipated to span 25 years, it is important to recognize that the extent of restoration and reforestation areas throughout the study area may change in area and distribution. It is therefore important to note that the ecological sensitivity mapping, and the catalogue of species identified as endangered, at risk or of concern will change over time and therefore site specific design proposals must be developed in recognition of the most up-to-date information.

The following should be considered in the future process of planning restoration initiatives:

- Invasive species control and removal coupled with native species plantings;
- Restoration along the riparian corridor to improve a buffering function;
- The diversity of vegetation communities (forest, wetland, thicket, meadow);
- Avoidance of locally significant plant species, breeding bird windows sensitive, wildlife habitat, etc.; and,
- Monitoring to identify areas where impacts are occurring within natural areas.

b) "Transitional Beltlands"

The proposed "Transitional Beltlands" are intended to buffer the "Natural Corridor" from the influences of the adjacent urban landscape. The "Beltlands" encompass all of the lands that are located outside of the Regional Floodplain and within the Regulation Limit as identified by CVC. The "Transitional Beltlands" are intended to be comprised of a gradation of landscape types extending the natural landscape, in the vicinity of the corridor, to maintained or managed green space. The "Transitional Beltlands" are aimed at mitigating potential encroachment on the valleylands, protecting existing native vegetation and protecting the "Natural Corridor" from the potential impacts that could result from activities occurring on lands adjacent to the valley corridor. Within the overall study area, the "Feature Sites" afford a variety of recreational opportunities and experiences. Beyond the limits of the "Feature Sites", within the areas of the proposed "Transitional Beltlands" that are publicly owned uses proposed are intended to be generally passive in nature. Permitted uses within the proposed "Transitional Beltlands" are limited to the following:

- Multi-use trails and associated amenities;
- Nature appreciation;
- Conservation and habitat enhancement;
- Education and interpretation;
- Nature-based recreation;
- Parking areas (with appropriate L.I.D. technologies);
- SWM facilities;
- Urban agriculture; and
- Small group picnics (only within managed green space areas).

The "Transitional Beltlands" designation is also proposed to pertain to private lands adjacent the valley with policies to facilitate the protection of the ravine implemented through municipal standards and by-laws.

The configuration of the "Transitional Beltlands" is illustrated in Figure 1.5. Given that the CRPS sets out a long-term vision, the "Transitional Beltlands" are illustrated on both private and public lands with the acknowledgement that the realization of the objectives of the "Transitional Beltlands" on private lands will be achieved through the application of a ravine protection by-law and cooperative arrangements with landowners.

c) Credit River Heritage Route

The establishment of a continuous recreational and interpretive route is a fundamental ambition of the Master Plan.

The trail would extend the entire length of the Credit River from its headwaters near Orangeville to where it empties into Lake Ontario at Port Credit. The "Heritage Route" being an umbrella identifier for existing and proposed river trails along the length of the Valley Corridor within Caledon, Brampton and Mississauga.

At the present time, the David J. Culham and Samuelson Trails form a portion of the proposed Heritage Route in Mississauga. The Master Plan and Concept Plans for the "Feature Sites" promote the expansion and extension of the trail system, completing the north-south route.

The Master Plan envisions the river as a water-based "trail" that forms a component of the proposed "Heritage Route". It is acknowledged that to achieve this ambition, segments of the

Figure 1.5: Credit River Heritage Route

route will need to traverse private lands and will require the forging of partnerships with private landowners.

Designation of the overall Credit River Heritage Route will allow for trail segments that comprise the overall "Heritage Route" to be named to commemorate important persons, places or events, providing interpretive opportunities and elevating recognition of the heritage of the river. The Credit River itself is proposed to form part of the "Heritage Route", existing as a waterway trail to promote canoeing and kayaking. Given the presence of private lands, segments of the "Heritage Route" will be located along roads adjacent to the valley corridor until such time that access across private lands can be attained in cooperation with the landowners.

For orientation and wayfinding purposes, the "Heritage Route" is proposed to be subdivided into "reaches" that would have signage that identifies the location of each area within the Credit River Parks System. For example, the segment that is situated immediately south of Highway #407 situated at the north end of the study area is identified as the "Highway #407 to old Derry Road Reach". The area south of Old Derry Road is identified as the "Sanford Farm Reach" and so on. Figure 1.2 identifies the seven (7) "Feature Sites" and nine (9) 'Reaches" of the Heritage Route through the study area.

The route is not intended to be accessible to emergency vehicles along its entire length – access will be afforded at key locations and the application of the proposed system of assigning a specific identifier to each reach of the route will aid in locating persons that require assistance in an efficient manner should an emergency situation occur.

Where washroom facilities have been identified, the City shall undertake a washroom study prior to the budgeting for permanent washroom facilities to determine if a permanent washroom, temporary washroom or no washroom facilities are required at the identified locations. This study shall be undertaken through an upcoming Future Directions review.

Given the topography, sensitivity and influences of the river in terms of ice and erosion, not all segments of the "Heritage Route" will be fully accessible. Some segments of the route will not accommodate bicycles. Examples include areas in the vicinity of the Pinchin site where the valley walls are steep and the north end of the Samuelson Trail where stairs are required to traverse the side slope of the valley and enable bicycle access through the provision of a ramp. Where these situations occur, bicycle routes are proposed to follow roads adjacent to the valley. It is not intended that the route in its entirety be cleared of snow during the winter months. It is recommended that a cohesive system of wayfinding signage be implemented that is both consistent with the City's overall signage program and specific to the "Credit River Heritage Route".

Interpretive signage is proposed to be located at key points along the route to highlight important natural and cultural heritage features and tell the stories associated with the unique history of the Credit River, including First Nations habitation and use of the valley corridor.

Canoe launches are proposed to be situated at key locations along the length of the river to afford access for canoeists and kayakers. Landing areas are proposed at several locations to allow access to the "Feature Sites" and points of interest along

the river "trail". Interpretive and orientation signage will be provided along the river along with signs that provide information regarding downstream conditions or potential navigation hazards. Proposed programs related to canoe and kayak instruction will foster interest in the river route and will promote its use. Canoe and kayak rentals will afford visitors the opportunities to explore the river. The proposed kayak course will pose an exciting challenge to experienced paddlers seeking to advance their skills.

Canoe tours are proposed to allow visitors to experience the Credit River valley from the unique perspective afforded by paddling the river.

d) Low Impact Development (L.I.D.) Opportunities

Public Lands:

All proposed or existing development or alterations that will result or have resulted in the transformation of natural landscape to impervious areas should incorporate, or be retrofitted to incorporate, state-of-the-art L.I.D. solutions that are intended to reduce the quantity and improve the quality of stormwater runoff and promote infiltration where practical.

In addition, opportunities to implement facilities that manage untreated runoff emanating from existing outfalls should be capitalized upon. Within the overall Credit River catchment area, opportunities should be explored to retrofit streetscapes and public facilities to incorporate L.I.D. initiatives that are aimed at managing stormwater runoff.

Private Lands:

Although the CRPS is focused upon City owned and managed parkland, it is advisable to encourage private landowners within the valley and on adjacent lands to implement SWM and L.I.D. initiatives where opportunities exist. Partnerships should be explored to assist private landowners in this regard.

For residential properties within the CRP System study area, a public education program aimed at promoting the implementation of source control solutions are presently being undertaken by the City of Mississauga Transportation and Works Department (T&W) in the form of pilot projects, City-wide programs or when opportunities arise in the development process. The programs may include:

- Downspout disconnection;
- The use of rain barrels;
- The replacement of impervious driveways with permeable paving;
- The installation of rain gardens and infiltration galleries;
- The planting of trees to increase interception and evapo-transpiration; and
- The promotion of appropriate behaviour relating to dumping, car washing, and other activities that introduce pollutants to the storm sewer system.

Currently, T&W is updating the "Mississauga Stormwater Quality Control Strategy" which is the main guidance document that will address such programs.

Once successful within the CRP System study area, the public education program could be expanded to encompass all properties within the Credit River Watershed in Mississauga.

1.3.5 Cultural Heritage

The CRP System study area is rich in cultural heritage resources affording tremendous opportunities for interpretation and celebration. The river valley is regarded as the thread that binds together all of the cultural heritage and archaeological resources and story lines within the historic areas of Meadowvale, Streetsville, Erindale and Port Credit (refer to Part 2 document Section 2.5.8.9 Cultural Heritage Context). Within the extent of the CRPS there exist numerous features that warrant interpretation. These range from First Nations encampments, to homesteads, mills and other built resources and landscapes.

For the purposes of evaluation and recommendation, the Cultural Heritage Resources within the study area have been categorized pursuant to the pending Mississauga Official Plan (2011).

1.3.5.1 Cultural Heritage Properties

There are numerous cultural heritage resources and landscapes within and adjacent to the study area. The entire Credit River corridor itself is listed as a Cultural Landscape in the City of Mississauga's Heritage Register. Key features include visible remnants of hedgerows, dams, foundations, orchards, homesteads, church properties and cemeteries. By contrast many of the remnant mills or homesteads and dam sites are not well known by the general public. An extensive list of Heritage Designated and Listed Heritage properties as well as those identified through the Mississauga Cultural Landscape Inventory has been provided. Please refer to Figure 2.14 in Part 2 report.

There are a number of good examples of important culturally significant heritage features within the "Feature Sites" of the study including (but not limited to) the following:

- Sanford Farmhouse;
- Agricultural fields and outbuildings (former Sanford Farm and Harris lands);
- Mill remnants such as the Simpson Sawmill race; nearby Silverthorn Grist Mill (Sanford Farm); and, the Hyde Mill ruins (P-114, Streetsville Memorial Park);
- Vestiges of the historical Toronto Guelph Radial Railway (P-505, the former Harris Lands);
- Pearson-Harris Farmhouse, outbuildings and steel bridge (P-505, the former Harris lands);
- Timothy Street House (proximate to P-114, Streetsville Memorial Park);
- Leslie Log House which is OHA designated (P-462, the former Pinchin Lands);
- MacEwan House, Barn and outbuildings (P-331, Riverwood); and,
- Parker/Chappell House and Zaichuk Terrace (P-331, Riverwood).

Recommendations (Master Plan):

- Ensure cultural heritage features and cultural landscapes within the study including the Credit River itself, are protected and that proposed facilities near protected features mitigate impacts and establish buffers to such features where appropriate;
- Where appropriate, enable heritage features to be adapted for a suitable re-use in order to ensure the feature's upkeep and potential for restoration and interpretation;

- Preserve and celebrate the rich legacy of the Credit River by advocating to have the river recognized under the Canadian Heritage Rivers System (CHRS);
- Pursuant to the proposed Meadowvale Village Heritage Conservation District Plan it is recommended that remnants be exposed sufficiently to be professionally conserved and the introduction of interpretive opportunities be undertaken in cooperation with partners such as CVC and historical societies;
- The location of many of the original mill sites along the Credit River should interpret the working life of the river to relate to the historic homesteads that have survived to the present day;
- The Mississaugua Golf and Country Club is the site of the Credit Mission Native Village and is an important cultural resource that warrants interpretation; and,
- Promote opportunities to tell the stories of cultural heritage features and landscapes which will heighten public awareness of their importance and contribute to their ultimate protection.

It is important to note that proposed changes to heritage properties will follow the Parks Canada Standards and Guidelines for the Conservation of Historic Places (as adopted by Mississauga Council in 2009) and be subject to review by the municipal Heritage Advisory Committee and may require a heritage permit.

Recommendations ("Feature "Sites):

- The development of passive recreational facilities such as trails and other amenities as well as natural heritage restoration activities proposed in the "Feature Sites" must be planned with regard for the river's heritage status;
- Dam sites may be sensitively modified to permit navigation;
- Interpretation of cultural features (archaeological, landscape, buildings); and,
- The functional relationship of the recreational amenities and programs proposed to be offered by the various "Feature Sites" must have consideration for built heritage and cultural landscape features within and adjacent to the site respecting appropriate setbacks.

1.3.5.2 Heritage Conservation Districts

A Heritage Conservation District contains a collection of cultural heritage attributes that contribute to the character and appearance of an area, including buildings, structures, cultural landscapes, open spaces, roads, fences, and other property features. Although these districts may include individual cultural heritage properties, they may also encompass areas where individual buildings or elements may not be significant on their own but collectively they contribute to an increase in cultural heritage value that is worthy of preservation.


Replica train station in Historic Meadowvale Village

The City of Mississauga has two heritage conservation districts: Meadowvale Village, the first proposed district in Ontario, designated in 1980, is located at the north extent

of the study area; the second, Old Port Credit Village, designated in 2004 is located just outside the south extent of the study area.

Recommendations (Master Plan):

- Enhanced connectivity with the Meadowvale Heritage Conservation District;
- Review of Historic Streetsville for designation under Part V of the Ontario Heritage Act;
- Development of an interpretive signage program that is integrated with the interpretive strategy for the Heritage Conservation Districts; and,
- Review and documentation of key vistas, sightlines and viewsheds of significant cultural landscapes and built heritage features to ensure their long-term conservation.

Recommendation ("Feature Sites"):

- Direct connection of the Credit River Heritage Route within the former Sanford Farm site to the Meadowvale Heritage Conservation District;
- Restoration and interpretation of the former Simpson Sawmill race within the former Sanford Farm site;
- Identification and interpretation of the historic abutments of the Radial Railway bridge crossing of the Credit River north of the former Sanford Farm site;
- Strengthening of the connection between Streetsville Memorial Park and Historic Streetsville; and,
- Provision of a direct link to the Hyde Mill ruins and dam north of the Streetsville "Feature Site".

1.3.5.3 Archaeological Resources

There are 287 known archaeological sites within Mississauga, of which 19 sites are situated within the study area. Sites below QEW have yielded evidence of occupation during the Middle Archaic and Middle Woodland periods, a one-time orchard and the historic centre of Mississauga, Fort Toronto. Within the Mississaugua Golf and Country Club lands evidence was uncovered of Woodland, Iroquoian and Mississauga First Nations inhabitation including the presence of a historical Mississauga Indian Village. Within the Chappell Terrace in Riverwood, 602 artifacts were uncovered with evidence of the middle-late Iroquoian period. At the northern end of the Streetsville Memorial "Feature Site" the historic Timothy Street Mill site marks one of the earliest mill locations along the Credit River and is important to understanding the growth and development of the City of Mississauga and vicinity (Mayer 1986).

Both Master Plan-wide and "Feature Site" specific recommendations relate to the protection and celebration of all archaeological sites.

Recommendation: Protecting Archaeological Sites from Impact

Any area within the study that may be impacted by any form of facility development, or by grading/subsurface disturbances required to implement initiatives of the CRPS, must be subject to Stage 2 archaeological assessment. Impacts to any sites discovered as a result of such work must be appropriately mitigated.

Should one or more sites of heritage value be documented archaeological assessment in the future, the following mitigation options, alone or in combination, will require implementation:

- *Preservation*: the preferred mitigative option. Preservation may involve long-term protective measures such as project design changes (site avoidance) that integrate the resource within the overall plan. To further avoid both accidental impact and intentional vandalism and looting, additional protective measures may include fencing, screening, or capping (the latter only in special circumstances);
- *Stabilization*: may be required in the case of eroding archaeological deposits. This may involve the salvage excavation of the eroding area and/or the construction of retaining walls or barriers;
- *Systematic Data Recovery*: involves the recovery of data from significant archaeological sites, when other mitigative options are not feasible. It includes a complete or partial systematic surface collection, excavation, or both; a comparative analysis and interpretation of content and contextual information; and production of an investigative report. This mitigation strategy ultimately results in the destruction of the archaeological site; and,
- *Monitoring*: monitoring may be undertaken (only in very specific circumstances) to ensure that adverse impacts on archaeological sites which could not be predicted or evaluated prior to construction are addressed. Monitoring requires the presence of a licensed archaeologist during the construction phase of a project. This takes the form of scheduled site visits and on-call availability during a long-term project.

It should be noted that decisions regarding mitigative options or preservation strategies are subject to Ministry of Tourism, Culture and Sport review and approval. In the case of precontact Aboriginal sites, First Nations consultation is critical. The First Nations consultation process developed for the CRPS was designed to involve the participation of all formal First Nations groups that are—or may potentially be—concerned with the on-going Master Plan process.

Recommendation: Framework for Managing Unknown Archaeological Resources

Should any archaeological sites be documented within those portions of the CRPS where alterations to the existing conditions are required, the process of their heritage value evaluation would be based on a number of overlapping considerations that are to be applied on a case-by-case basis. These considerations fall into three basic categories: *information value*, *value as a public resource*, and *community value*.

- *Information value*: refers to the likelihood that investigation of a site should contribute to an increased understanding of the past. Such an assessment must be carried out in consideration of several major criteria: the degree to which a site should contribute to an understanding of the past (its cultural, historical and scientific value); the relative rarity or commonness of similar sites locally or regionally; its productivity or richness in terms of the artifacts it contains; and the degree to which it has been disturbed by more recent land uses or natural processes;
- *Value as a public resource*: refers to the degree that a site should contribute to an enhanced understanding and appreciation of Ontario's past on the part of the general public; and,
- *Value to a community*: refers to whether or not the site has intrinsic value to a particular community, First Nations or other group.

All assessments must be made by a qualified archaeologist in accordance with the requirements of the Planning Act, Environmental Assessment Act and the Ontario Heritage Act.

1.3.5.4 Cultural Infrastructure

Pursuant to the Official Plan, culture contributes to the creation of engaging, lively and richly textured places where people want to live and visit. Culture plays a significant role in creating vibrant and liveable communities and contributes to the economy. Cultural infrastructure reflects and celebrates the culture, histories and traditions of the community. Incorporating culture creates a social environment that supports community building.

Recognizing the Mississaugas' continual habitation of portions of the study area for in excess of 10,000 years, representatives of the First Nations consulted throughout the public engagement process identified three key aspirations:

- **Recognition:** It is important to recognize and respect the First Nations peoples that used the river and inhabited the landscape throughout the previous eras;
- **Respect:** First Nations archaeological sites should be respected and the stories associated with First Nations heritage should be told; and,
- **Celebration:** A place or places for ceremonies and traditional celebrations is necessary along the river.

Recommendation: Celebration Site

As a result of discussions with the Mississaugas of the New Credit (Archaeological Services Inc. and Heritage Mississauga), it was determined that two sites within the Credit River Parks System are preferable for ceremonies and traditional celebrations. They are as follows:

a) A venue located within the Mississaugua Golf and Country Club lands. Although these lands are located outside the immediate influence of this study and on private property, the Mississaugua Golf and Country Club lands contain a registered archaeological site—the Mississauga Indian Village site (AjGv-14).

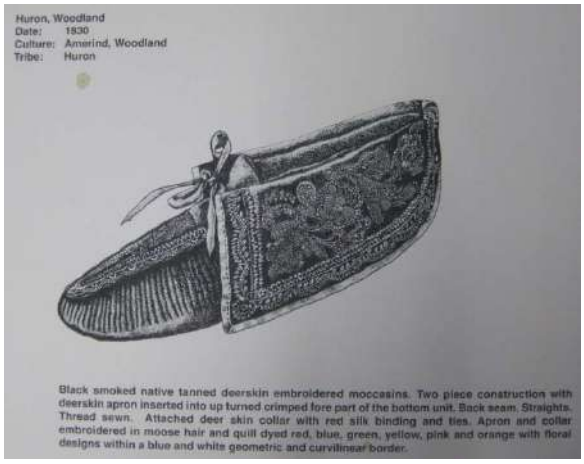
or

b) A venue located at J.C. Saddington Park - as this was historically the location of the trading post and there is archaeological evidence of a much longer history of First Nations habitation. Situated at the mouth of the Credit, this site was an extremely important place for the Mississaugas in the eighteenth and nineteenth centuries and was equally important to the earlier precontact aboriginal peoples of the area. The harbour at Port Credit was originally developed as a joint venture between Euro-Canadians and the Mississaugas which was a unique arrangement at the time.

The appropriateness of the site within the context of the City as it relates to the Mississauga's is of vital importance to the City of Mississauga and therefore the careful selection of a site with a strong historical connection to the aboriginal peoples of the area is of paramount importance. As the City of Mississauga is in ownership of the J.C. Saddington lands and has indicated a willingness to accommodate a site for First Nations ceremonies and celebrations, it emerged as the recommended site.

Recommendation: Interpretive Opportunities for Archaeological Resources

Concomitant with planning measures intended to conserve and manage archaeological resources within the CRPS as a whole, means by which the general public might be made more knowledgeable of the wide range of archaeological resources present within or near "Feature Sites", and of their significance as part of the area's cultural heritage should also be sought (bearing in mind the necessity that site locations remain confidential).



Moccasin - Photo Courtesy of Carolyn King – Mississauga of the New Credit.

While the public is generally supportive of environmental causes, the Strategy must share with others the act that humans exist in time as well as space, and that the record of our temporal environment is slowly vanishing. As a science, archaeology often suffers from the attitudes and actions that result from public misconceptions about its motives, aims and methods. It is encouraging to note that when members of the public are made aware of archaeological sites, there exists a genuine interest not only in the pre-contact and Euro-Canadian history of a region, but also in archaeology itself as an academic discipline.

Public education programmes regarding archaeology increase popular knowledge and consequently increase public support for the protection of valuable cultural features. Such programmes could take many forms, ranging from the creation of a long-term "on site" interpretive facility to the creation of a network of sign panels and vista boards throughout the area.

On-site interpretive facilities can provide the public with an excellent opportunity to view archaeology in its proper context, as an ongoing process. Such facilities would be associated with an archaeological site, especially one which has high values for information potential, and would have to be accessible to the public, be within an area where the integrity of the natural setting has been maintained to provide an ecological context, be close to existing support facilities and be available for long-term archaeological research.

A more "passive" type of public programming in the form of a system of sign panels and vista boards established at key locales along trail and/or road systems within the study area would also represent a suitable means of commemorating the pre-contact and Euro-Canadian history of the Credit River valley as it is reflected in the archaeological record. Such features could be supported by a series of pamphlets or other publications.

Precedent Photo: A similar interpretive program to that proposed in the CRPS was implemented in Washington D.C.

The exact form and type of interpretive or public educational programming should take must be determined through consultation with all relevant stakeholders, including the First Nations with whose history interpretation is planned. Such First Nations may be expected to take an active role in any subsequent implementation.

The CRPS promotes the development of a comprehensive interpretive program centred on the establishment of a "Credit River Heritage Route". Interpretive information will be conveyed utilizing both conventional techniques such as signage, as well as through wireless technology where interpretive information is streamed to 'smart phones' or other similar devices. The intent is to provide the broader public with the opportunity to understand and appreciate the rich history of the Credit River and the important role that the river played in the founding of the City of Mississauga. These initiatives would require planning and promotion of the "Route" and interpretive and wayfinding signage.

One example of an interpretative program proposed for the CRPS includes signage that will build upon the program being promoted by the Mississaugas of the New Credit First Nation that will acknowledge the "peoples that have gone before" through the use of images of the unique footwear of the peoples that walked the land along the Credit River and relied on its resources to sustain themselves. The continued involvement of First Nations groups will be necessary to develop an appropriate interpretation program within the CRP System.

1.3.5.5 Cultural Heritage and Archaeological Resource Interpretation

Potential opportunities for interpretation within the Credit River Parks System could include:

- Public art that reflects the historical significance in the local surroundings or circumstances;
- Signage that communicates the historical or archaeological significance of a particular area;
- Guided, thematic and informational tours of the park system;
- A well-programmed Visitor's Centre at Riverwood; and,
- Exhibits at local museums or heritage buildings that express the historical significance.

Recommendations:

- Interpretive opportunities that exist in the historic communities adjacent the Credit River valley should be integrated within the overall interpretation and visitor experience program; and,
- A heritage consultant with the expertise in the development of interpretive programs should be retained to develop a comprehensive interpretation plan for the entire CRP System.

1.3.6 Multi-Modal Transportation

Notwithstanding the fact that the CRP System seeks to emphasize and reinforce the position of the Credit River valley as a natural heritage asset that will contribute to the overall sustainability of the City of Mississauga, the CRPS also promotes sustainability through the implementation of the following proposed initiatives:

The trail system proposed within the CRP System will improve connectivity for pedestrians and cyclists through and across the valley. The strategy will facilitate the connection of long-standing missing links within the city-wide trail and cycling network. In consideration of the fact that some segments of the David J. Culham Trail are not suitable to accommodate road bikes, on-road routes will form an integral part of the overall multi-modal system to achieve connectivity objectives. Additional bicycle parking facilities should be provided at each of the "Feature Sites" as well as key access points into the CRP System. Opportunities to enhance pedestrian use of the roads that run parallel to the Credit River valley should be investigated. The implementation of multi-use trails on regional roads such as Erin Mills Parkway should be explored as a means to increase accessibility and encourage use of alternative modes of transportation. Key destinations within the system should be designed to be accessible by public transit and the strategy promotes the expansion of public transit to better serve key destinations within the study area, including Riverwood.

1.3.7 Community Health

The CRP System will establish a network of trails that will afford new opportunities for recreation and active living. In addition, facilities proposed within the plan will provide opportunities for public education in relation to alternative energy, urban farming, healthy food and organic agriculture. Additional canopy cover that will be established through reforestation of the valley corridor will contribute to improved air quality. Combined with active recreational opportunities, the CRP System will contribute to the health and physical and spiritual well-being of residents of the City and beyond.

1.3.8 Sustainable Technologies

The various facilities proposed as components of the strategy should be designed to incorporate state-of-the-art L.I.D. technologies. Parking lots and impervious areas are intended to be fitted with permeable pavement, biofilters and other elements to promote infiltration and cleanse stormwater runoff. Structures should be designed to be bird-friendly. Lighting should be directed downward and should be dark-sky compliant. All elements should employ the latest technologies to minimize energy consumption and conserve potable water. All of these technologies will be supported by interpretive information as a means to educate the public and encourage widespread application.

1.3.9 Education and Stewardship

Educating park users and the general public about the Credit River is crucial to the ongoing implementation of the CRPS and overall protection of the natural environment.

Preservation and protection of the environment requires public understanding and support, which arises, in part, through education. Most people are not well informed on the specifics of ecology and conservation biology. The activities that the public may regard as acceptable, in many cases, may result in impacts to natural areas. Due to this, providing opportunities to educate the public, especially nearby residents, school children and university students can contribute substantially to sound long-term stewardship of the system and the successful implementation of the Strategy. In addition to educating people about the environment and promoting participation in activities such as human settlement studies, orienteering, arts and crafts, and other interests can also work to strengthen the connection between users and the natural environment.

1.3.10 Removal/Retrofitting of the Reid (Kraft) Dam

Removal or retrofitting of the Reid (Kraft) Mill dam in Streetsville is proposed to enhance the potential for movement of a more diverse range of fish species and age classes. Removal or retrofitting of the dam to enhance fish passage will allow bass to access and utilize the excellent habitat that exists upstream of the dam and will provide benefits that will accrue both upstream in the watershed and downstream in Lake Ontario.

The plan for removal or retrofitting of the dam must take into account the present function of the structure as a barrier to American Lamprey. This barrier function should be maintained in its present location or should be provided for at another location downstream of the dam. Removal or retrofitting of the dam will require the approval of DFO, under the Fisheries Act and the MNR under the Lakes and Rivers Improvement Act, as well as a permit from CVC. Consultations with all of these agencies will be necessary to confirm the most appropriate solution to achieve fish passage, optimize benefits to aquatic habitat, manage sediment transport and ice movement and enhance the function of the river. The dam is identified on the City's Heritage Register and Designated through Part IV of the Ontario Heritage Act. Therefore, any plan to alter or remove the structure will be at the discretion of Council and will need to be vetted through the City's Culture Division.

1.3.11 Removal/Retrofitting of Armouring

Armouring, in the form of concrete blocks, gabion or armourstone has been implemented at several locations along the length of the river. In some locations, these stabilization works have become degraded or damaged by water flow and ice movement. The primary purpose of these structures is to protect constructed elements and/or private property from damage that could result from erosion or slope failure. Consistent with the Credit River Adaptive Management Study (CRAMS) the necessity for armouring should be minimized in the future through the application of the 'avoidance' approach which is aimed at locating trails and infrastructure away from the active river channel wherever possible and feasible. However, in many locations the need to "fix" the alignment of the river will persist to protect property

and address public safety concerns. In recognition of the above, the following recommendations are provided:

- Wherever possible, all proposed trails, facilities and amenities should be located and designed in anticipation of changes that will occur in the geometry of the river over time. With the exception of bridges, proposed facilities and infrastructure should be situated outside of the anticipated area of potential influence of the river as defined by the meander belt and 100-year erosion limit; and,
- Existing structures should be assessed to verify their structural integrity and to forecast their anticipated service life. In anticipation of the potential for failure or the need for repair or replacement should be addressed pro-actively. The planning process should include the following:
  - An assessment of the potential to relocate the amenity or structure that is being protected by the armouring in order to determine if an alternate location is viable with the objective of achieving the avoidance maxim; and,
  - Should the avoidance approach be determined to be unfeasible, options to replace hard armouring with biotechnical stabilization techniques and solutions designed to work with natural fluvial geomorphological processes should be pursued.

1.3.12 Water Quality Enhancement

Protection and enhancement of the quality of water within the Credit River is a key consideration. Presently, water quality within the Credit River is relatively good in comparison to other urban rivers in the GTA. However, as urbanization within the mid-watershed continues, further impacts on water quality are anticipated to occur. Notwithstanding the implementation of modern SWM strategies, water quality within the Credit River is anticipated to decline. Several initiatives are proposed as a component of the overall CRPS to assist in maintaining and enhancing the quality of water and health of aquatic habitat within the river as described below.

- All proposed or existing development or alterations that will result or have resulted in the transformation of natural landscape to impervious areas should incorporate, or be retrofitted to incorporate, state-of-the-art L.I.D. solutions that are intended to reduce the quantity and improve the quality of stormwater runoff and promote infiltration where practical. Examples of characteristics associated with L.I.D. parking lots include biofilters, infiltration galleries, permeable pavements and cisterns; and,
- Opportunities to integrate SWM quality enhancement facilities into the CRP System to address stormwater discharged from uncontrolled catchment areas should be capitalized upon.

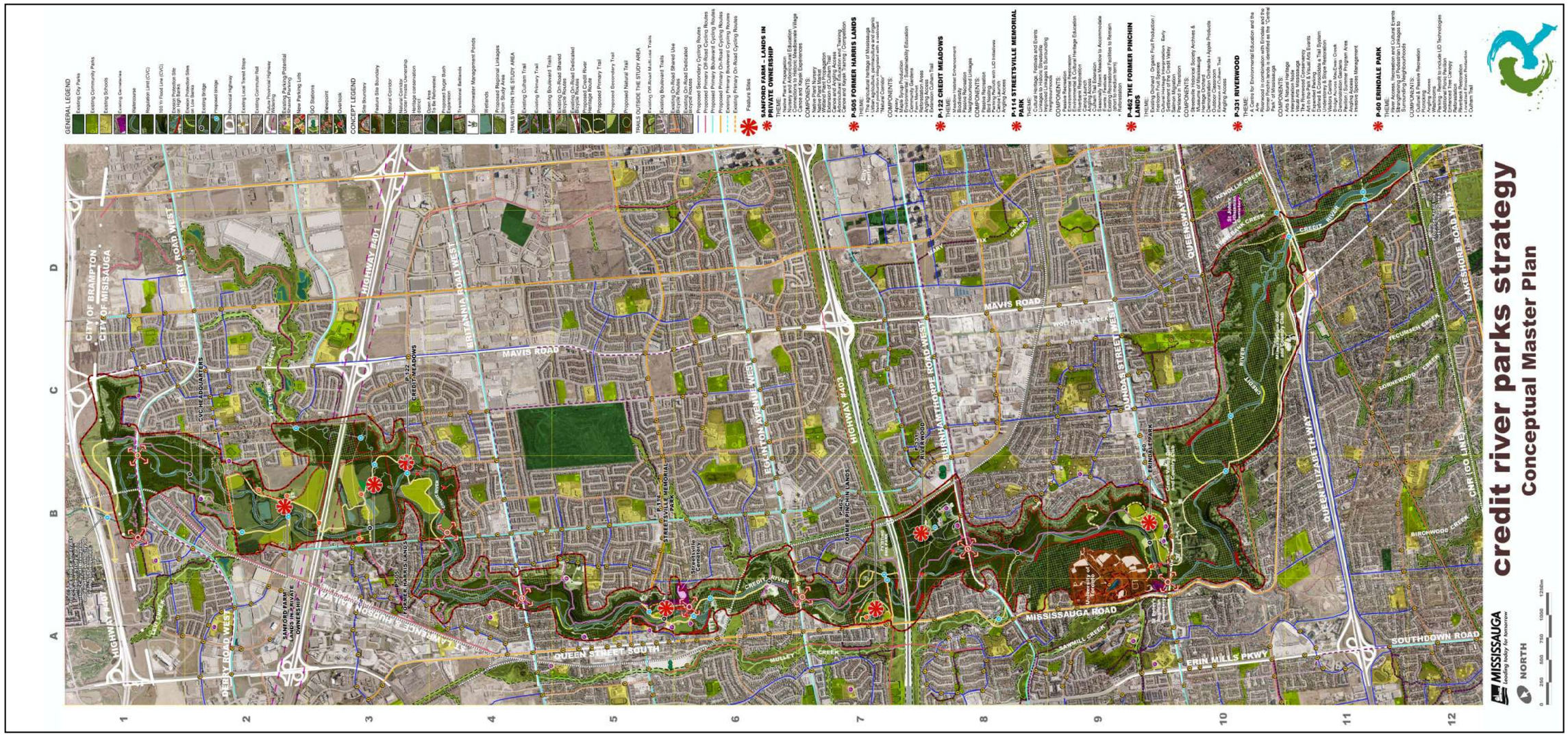


Figure 1.6: Conceptual Master Plan

1.3.13 Open Space Expansion

A number of private land owners currently retain lands within the CRPS study area. Private lands can represent a barrier to establishing a fully connected trail system and self-sustaining natural corridor. The CRPS recognizes that the opportunities to enhance connectivity through open space enhancement pose a challenge but are important none-the-less in order to achieve the objectives of the Strategy.

Rational and Criteria

The creation of a fully-connected, self-sustaining natural corridor along the length of the Credit River valley is a primary ambition of the CRPS. Within this continuous corridor, the "Credit River Heritage Route" is proposed to link Lake Ontario to the north limit of the City. In addition, there are a number of important links to and across the valley corridor that are necessary to achieve desired connections within the City. Expanding the area and extent of publicly owned open space within the CRP System is a priority to achieve these connectivity objectives. Figure 1.7 – Open Space Expansion illustrates schematically areas within the CRP System where "Open Space Expansion" is desirable to improve the connectivity of the "Natural Corridor". The figure also illustrates "Priority Connections" which are intended to address "missing links" in the proposed "Credit River Heritage Trail".

The proposed expansion of open space is consistent with the policies and directions set out in the Provincial Policy Statement, the Growth Plan for the Greater Golden Horseshoe, the Region of Peel Official Plan, the City's Strategic Plan, the City's Official Plan, the 2009 Future Directions Master Plan for Parks and Natural Areas and the City's Strategic Plan.

Priority regarding acquisition of lands within the Open Space Expansion areas should be based upon established acquisition criteria identified within section 6.3.6 of Future Directions (2009) namely to:

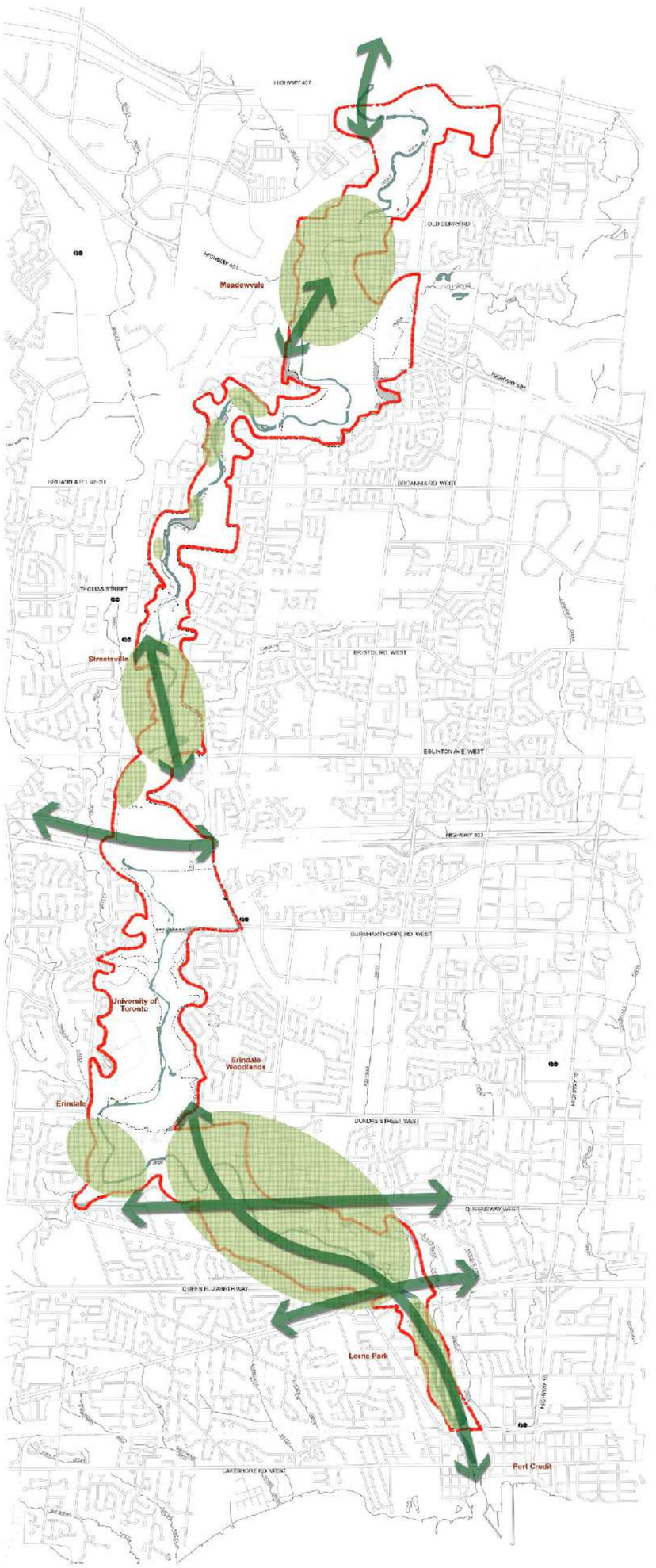
a. protect and enhance Natural Areas;
b. support the Waterfront Strategy;
c. support completion of the trails system; and,
d. support population growth and sustainable community design (where no/limited opportunities for parkland dedications exist).

It is recommended that the previously established criteria be augmented to recognize the CRPS, through the addition of:

e. support the Credit River Parks Strategy

More specifically, future acquisition would seek to achieve the following within the Credit River valley:

- Protection, enhancement and expansion of the proposed "Natural Corridor";
- Protection and enhancement of sensitive natural heritage features;
- Protection and interpretation of cultural heritage features;
- Contribution to the establishment of the proposed "Credit River Heritage Route" and priority trail connections;
- Improvement of physical and visual access to the river; and,
- Accommodation of facilities to support proposed recreational, social and educational programs.



MISSISSAUGA Leading today for tomorrow

SCHOLLEN & Company Inc.

NORTH 0 0.5 1.0 1.5 2.0 2.5km

credit river parks strategy

Figure 1.7: Priority Connections and Open Space Expansion

In addition to these criteria, **the value of the land and costs associated with potential requirements for rehabilitation are important considerations in the process of determining priority for securement**. The extent to which a parcel achieves one or more of these criteria will determine its relative priority for securement. Parcels that span the width of the valley corridor pose the most significant opportunity to enhance trail connectivity and bind the components of the "Natural Corridor" together.

Securement Options

There are a number of potential options available to secure lands in order to achieve the recommended Open Space System Expansions and Priority Connections. Although bringing priority lands into public ownership represents the best opportunity to achieve the CRPS vision, alternatives exist to achieve specific objectives related to natural and cultural heritage protection and enhancement, public access and trail connectivity on lands held in private ownership. The full spectrum of securement options is set out below.

1 – Bringing strategic private lands into public ownership

A – Dedication through the Development Approvals Process

For land parcels that comprise both valleylands and tableland areas that have the potential for development or redevelopment, the valleyland portion outside of the limit of development is typically conveyed into public ownership as a component of the development approvals process.

In situations where it is desirable to achieve an Open Space Expansion on the tableland portion of a site with development potential, incentives such as density bonusing should be explored.

B – Acquisition through Outright Purchase

The outright purchase of candidate open space expansion properties is a securement option. For sites that do not have development or redevelopment potential, purchases should be negotiated on a willing vendor basis.

C – Land Exchanges

In certain circumstances existing City-owned lands could be exchanged for privately-owned lands to achieve CRPS objectives.

D – Expropriation

Although the City of Mississauga does not typically undertake such an approach, the City may acquire private lands, under the Ontario Expropriations Act, offering fair market value for such lands.

2 – Achieving CRPS objectives on private lands

The provision of public access or natural and cultural heritage enhancement initiatives on private lands must be at the discretion of the landowner and should be the product of encouragement, communication and negotiation, not legislation. There are a number of methods available to promote public access on private lands include the following:

A – Tax Incentives

A reduction in property taxes can be offered in exchange for easements to facilitate access through private property. Tax incentives can also be offered to encourage reforestation of private lands.

B – Partnership Programs

Programs that are aimed at encouraging landowners to participate as "partners" by offering them recognition and incentives such as plant material at reduced cost have been implemented with success in other jurisdictions. For example, the Rouge Watershed "Riverkeepers" program, administered by Rouge Park offers recognition to landowners who undertake environmental stewardship and restoration projects on their properties. The program offers advice, materials and volunteer labour to landowners who are interested in implementing restoration initiatives on their properties. Each participating landowner is provided with a sign identifying them as a "Riverkeepers".

C – Trail Association

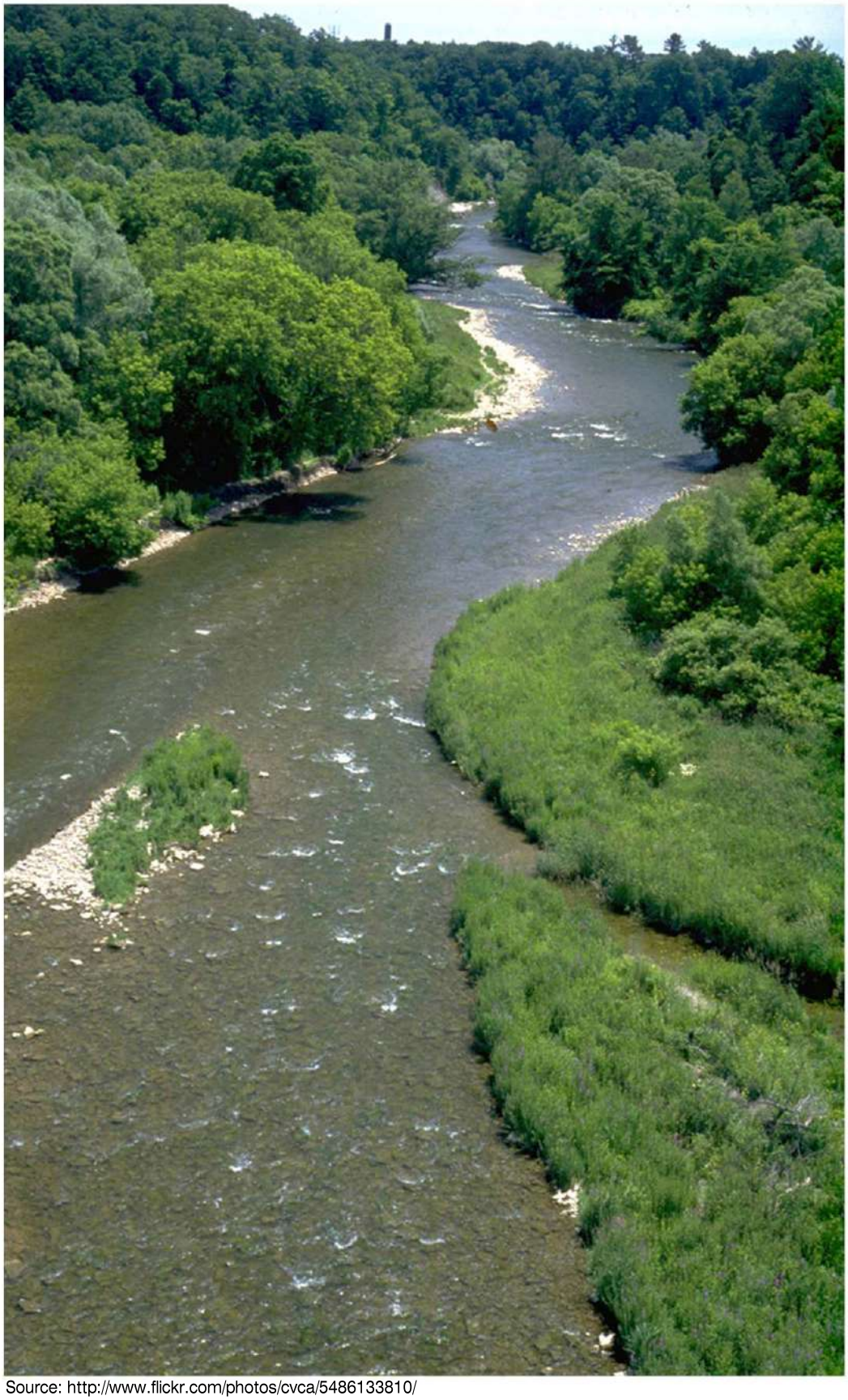
The establishment of a dedicated Trail Association can be instrumental to implement publicly accessible trails on private lands. The purpose of the Trails Association would be to work with landowners to promote public access, have the responsibility for establishing and maintaining trails, carry the insurance necessary to safeguard landowners should actionable incidents occur on their property, educate trail uses to encourage appropriate behaviour and instill respect for private property and privacy. One notable example is the Bruce Trail Association which administers the Bruce Trail along the length of the Niagara Escarpment from Queenston to Tobermory, Ontario.

In some instances, opportunities may not exist to achieve full access through private lands however seasonal or limited access may be possible. In these cases the Trail Association would bear responsibility for informing trail users of access limitations and enforcing such limitations on trail use.

D – Access Agreement

Negotiated agreements to provide easements or rights-of-way to facilitate public access are a potential mechanism to provide public access on private lands. Access agreements entail the payment of an annual fee or rental charge in exchange for a right of access along a prescribed route through a property.

In addition to lands held specifically in private ownership, the CRP System includes properties under the ownership of railways, utility companies and the Province of Ontario, including hydro corridors, railway rights-of-way, and highway corridors. Partnerships with the agencies having jurisdiction over these lands will be required to facilitate public access in order to attain the Priority Connections illustrated on Figure 1.7.



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1.4 Master Plan Reaches

The implementation of the CRPS is anticipated to be completed in a sequence of prioritized stages over 25 years. The availability of funding is unknown at this time and will be subject to review by the City budgetary process and opportunities through external funding sources.

The implementation strategy for the CRPS was focused on prioritizing initiatives within the reaches and "Feature Sites". Although priorities varied in response to the individual site characteristics of the properties, the provision of a continuous trail connection was sought throughout the system.

Implementation phases were established in 5 years intervals. The implementation strategy categorizes the priority of specific development recommendations on the basis on the following:

0-5 Years – Immediate Priority Initiatives

- These initiatives should be implemented immediately to address concerns related to public safety and protection of natural and cultural heritage resources.

5-10 – High Priority Initiatives

- These initiatives are aimed at expanding the trail system to make primary connections to trails and pathway systems within and outside of the "Feature Sites", improving accessibility, addressing public safety and achieving environmental protection objectives.

10-15 – Moderate Priority Initiatives

- Once the primary trail connections are completed, the implementation of secondary trails and linkages is recommended.

>15 – Low Priority Initiatives

- Secondary recreational amenities and areas designed as informal use areas are proposed to be enhanced in response to programming that may change over time.
- In some instances, the implementation of segments of trails will be undertaken in conjunction with stormwater management initiatives and other amenities or improvements to roads and other infrastructure that traverse the CRP System. The implementation of these components will be coincident with the timing of these actions by others.

The following sections describe the existing conditions and initiatives proposed for each of the "Reaches" and "Feature Sites" in the Master Plan. An implementation plan accompanies each "Reach" and "Feature Site". The plan identifies the initiatives from highest to lowest priority of implementation as well as the estimated costs for studies, consultation, design and construction.

The following table provides a summary of the total estimated cost of implementation of the various Master Plan initiatives for each "Reach".

Master Plan Reaches	Total Estimated Costs
Highway #407 to Old Derry Road Reach	$ 1,971,900.00
Sanford Farm – Lands in Private Ownership Reach	$ 14,574,363.00
Highway #401 Reach	$ 938,050.00
P-505 – former Harris Lands Reach	$ 13,636,094.00
P-122 – Credit Meadows Reach	$ 4,199,119.00
Britannia Road West to Bristol Road Reach	$ -
P-114 – Streetsville Memorial Park Reach	$ 5,005,398.00
Kraft and ADM Mills Reach	$ 465,125.00
Eglinton Avenue to Former Pinchin Lands Reach	$ -
P-462 – former Pinchin Lands Reach	$ 5,334,375.00
Highway #403 Reach	$ 410,243.00
P-331 – Riverwood Reach	$ 10,945,286.00
P-60 – Erindale Reach	$ 6,770,681.00
Dundas Street to Queensway Reach	$ 2,880,950.00
Queensway to QEW Reach	$ 6,178,000.00
Lorne Park Reach	$ 5,736,575.00
TOTAL ESTIMATED COST - ALL REACHES	$ 79,046,159.00

1.4.1 Highway #407 to Old Derry Road West Reach

Existing Site Characteristics

This stretch of the study area extends from Derry Road West north to the Brampton border. The entire reach is subject to the provincial policies of the Parkway Belt West Plan. There is also a small parcel of land designated as Special Policy Area (within the Mississauga Official Plan). The majority of the lands are within the floodplain of the river which is very broad in this location and includes wet meadows, wetlands and a fenced off stormwater management facility. The river meanders across the width of the floodplain. The floodplain is also traversed by railway and hydro transmission corridors. The City of Mississauga recently implemented the Samuelson Trail which extends northward from Derry Road West. This trail follows a former railway embankment and connects to Glamorgan Way on the west side of the valley. A second informal trail leads northward around the stormwater pond and terminates near the Brampton border. This trail has a limestone surface, however, it may require augmenting to ensure this part of the Credit River Heritage Route is consistent with other proposed sections.

From the border an informal earthen track leads northward into the MTO owned lands. For trail continuity it is proposed that the Credit River Heritage Route continue northward from this reach into Brampton making a connection below Highway #407 as well as west across the Credit River and east along the south side of Highway #407 within the MTO lands. It is important to highlight that these initiatives are located outside of the City of Mississauga and therefore the costs associated with their design and implementation are intended to be borne by the City of Brampton for the purposes of linking their municipal trail system with the greater Heritage Route.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-328: Meadowvale Conservation Area

Existing parks within the proposed "Transitional Beltlands" include:

- P-428: Fletcher's Flats; and,
- P-431: Knotty Pine Flats.

Proposed Initiatives

Formalization of the existing trail to enable safe access and a connection beneath Highway #407 into Brampton's existing trail network is proposed. The wide right-of-way for the Highway #407 corridor also offers an opportunity to extend trails east and west on the study area. A westerly connection would require a bridge to be constructed over the Credit River and be subject to discussion with City of Brampton. This trail would provide a connection to existing trails within the Levi Creek corridor enabling a looped trail system in this area. Collaboration with the municipality of Brampton and MTO would be required to assess linkage opportunities and requirements for trail development.

Hydrologic studies as well as a wildlife corridor study will be required to facilitate the design of the improvements to the Highway #407 underpass.

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Implementation Plan - Highway #407 to Old Derry Road West Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (1,480m)**	**Studies**	Conduct Environmental Impact Statement	$7,500	✓			
		Natural Heritage Study	$7,500	✓			
		Refine trail route based on risk assessment	$1,500	✓			
	Consultation	CVC, MTO (Hwy # 407 underpass)	$1,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$12,500	✓			
	Design & Construction	Design development for trail and habitat enhancements	$15,000		✓		
		Establish approval from CVC and MTO/ Region	$3,500		✓		
		Prepare tender documentation	$25,000		✓		
		Construct the trail	$273,800		✓		
		Prepare post construction monitoring and maintenance program for trail	$2,500		✓		
2. Bridge (1 item - 45m span)**	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$18,000	✓			
	Consultation	MNR, CVC, Transport Canada (NWPA)	$15,000	✓			
	Design/ Construction	Prepare detailed design submission for approval	$72,000	✓			
		Construct the bridges	$425,000		✓		
3A. Orientation Signage (3 items)	**Design & Construction**	Develop sign design, graphics and layout	$1,300		✓		
		Produce and install signage	$5,250		✓		
3B. Interpretive Signage (2 items)	**Consultation**	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750		✓		
	Design & Construction	Develop sign design, graphics and layout	$800		✓		
		Produce and install signage	$4,200		✓		
4. Expansion to Meadowvale Conservation Area Parking (at 2nd Line) Sustainable L.I.D. Parking Lot (2,500m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$50,000			✓	
	Consultation	CVC, City of Mississauga engineering and T&W	$9,000			✓	
	Design	Detail design and tender documentation	$120,000			✓	
	Contruction	Construct the parking area expansion	$718,750			✓	
5. Landscape Enhancement Plantings (parking lot and trail entry points)	**Design**	Prepare detailed planting plans and tender documentation	$16,000				✓
	Construction	Supply and install the planting	$64,250				✓
6. Habitat Enhancement Plantings (10,000m²) (below Hwy # 407)	**Studies**	Conduct natural heritage and archaeological assessments	$4,000				✓
	Consultation	MTO, City of Mississauga Parks and Forestry	$800				✓
	Design	Develop design plans and details.	$15,000				
	Construction	Install under guidance from CVC and City	$80,000				✓
		TOTAL ESTIMATED COST	**$1,971,900**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

***Costs Associated with these initiatives are to be borne by the City of Brampton as they are outside of the City of Mississauga*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the Reach that interface with residential areas

Policy Note 3: Incorporate Credit River Heritage Route into City of Mississauga Trails and Cycling Plans

Note 4: Land acquisition/ easements may be required to implement some of the initiatives in this Reach. Costs to be determined.

1.4.2 Sanford Farm – Lands in Private Ownership Reach

Existing Site Characteristics

The reach extends from Old Derry Road to Highway #401 and identified as the "Sanford Farm – Lands in Private Ownership Feature Site". The property is privately-owned as an operating farm. The property is designated through the Ontario Heritage Act and as a cultural landscape within the City's Cultural Heritage Inventory. It includes two heritage dwellings, outbuildings, a remnant mill race and an informal underpass beneath Highway #401 on the east side of the Credit River that affords a connection to the agricultural lands located on the south side of Highway #401 and the former Harris Lands. Specific details with regard to the property are located within Section 1.5.1.

Existing parks within the proposed "Continuous Natural Corridor" include:

- Sanford Farm – Lands in Private Ownership

Existing parks within the proposed "Transitional Beltlands" include:

- P-388: Not Yet Named;
- P-398: Missinihe Park; and,
- P-478: Millstone Park.

Proposed Initiatives

See Section 1.5.1 for details.

1.4.3 Highway #401 Reach

Existing Site Characteristics

Currently the lands are in private ownership and are proposed to be acquired by the City of Mississauga for the purposes of connecting parkland both north and south of Highway #401. The majority of the reach is comprised of agricultural lands within floodplain. The Credit River bisects these lands and provides a narrow band of riparian habitat.

Proposed Initiatives

A large swath of the reach is proposed to be reforested in order to strengthen the "Natural Corridor" in this part of the study area and connect with reforestation areas proposed as part of the Sanford Farms "Feature Site" Concept Plan.

Formalization of the existing farm access lane connection beneath Highway #401 is proposed as part of this reach as a means to connect the proposed Credit River Heritage Route southward from the former Sanford Farms "Feature Site" to that of the former Harris Lands site. Optimally, the underpass improvements would facilitate wildlife passage separate from the trail component.

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Existing parks within the proposed "Continuous Natural Corridor" include:

- none

Existing parks within the proposed "Transitional Beltlands" include:

- none

Implementation Plan - Highway #401 Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (330m)	**Studies**	Conduct Environmental Impact Statement	$5,000	✓			
		Natural Heritage Study	$3,500	✓			
		Refine trail route based on risk assessment	$1,500	✓			
	Consultation	CVC permit, MTO permit (Hwy # 407 underpass)	$1,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$10,000	✓			
	Design &	Prepare preliminary design drawings for trail and habitat enhancements	$7,500		✓		
	Construction	Establish approval from CVC and MTO/ Region	$2,500		✓		
		Prepare tender documentation	$15,000		✓		
		Construct the trail	$61,050		✓		
		Prepare post construction monitoring and maintenance program for trail	$1,500		✓		
2. Orientation Signage (1 item)	**Design &**	Develop sign design, graphics and layout	$750		✓		
	Construction	Produce and install signage	$1,750		✓		
3. Habitat Enhancement Plantings	**Studies**	Conduct natural heritage and archaeological assessments	$3,500		✓		
(5,000m²) (below Hwy #401)	**Consultation**	MTO, City of Mississauga Parks and Forestry	$500		✓		
	Design	Develop design plans and details.	$6,000		✓		
	Construction	Install under guidance from CVC and City	$40,000		✓	✓	
4. Woodland Reforestation (124,000m²)	**Studies**	Conduct natural heritage assessment, study impacts of ice jams, develop stewardship program	$55,000	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations	$9,500	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$5,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$85,000	✓	✓	✓	✓
	Construction	Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$620,000	✓	✓	✓	✓
		TOTAL ESTIMATED COST	**$938,050.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the Reach that interface with residential areas

Policy Note 3: Re-zone 'Development Zone' (D) to 'Greenbelt' (G)

Policy Note 4: Incorporate Credit River Heritage Route into City of Mississauga Trails and Cycling Plans

Note 5: Land acquisition/ easements may be required to implement some of the initiatives in this Reach. Costs to be determined.

1.4.4 P-505 – former Harris Lands Reach

Existing Site Characteristics

The reach extends from the privately owned lands directly south of Highway #401 to the shared property boundary with "Feature Site" P-122 Credit Meadows Park. As a "Feature Site", the property is viewed as the future centre of urban agriculture in the City and home for organizations that promote sustainable living, environmental responsibility and community involvement through environmental stewardship. Specific details with regard to the property are located within Section 1.5.2.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-505: the former Harris Lands; and,
- P-122: Credit Meadows Park.

Existing parks within the proposed "Transitional Beltlands" include:

- none

Proposed Initiatives

See Section 1.5.2 for details.

1.4.5 P-122 - Credit Meadows Reach

Existing Site Characteristics

The reach extends from the shared property boundary with P-505 (the former Harris Lands) to Britannia Road West. The "Feature Site" includes the confluence of the Credit River and Fletcher's Creek and contains a modest picnic area, small parking lot and a network of formal /informal trails. Specific details with regard to the property are located within Section 1.5.3.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-128: Pinecliff Park;
- P-122: Credit Meadows Park; and,
- P-119: Riverrun Park.

Existing parks within the proposed "Transitional Beltlands" include:

- P-281: Tillsdown Park; and,
- P-282: Hyde's Mill Hollow.

Proposed Initiatives

See section 1.5.3 for details.

1.4.6 Britannia Road West to Bristol Road Reach

Existing Site Characteristics

An existing stretch of the David J. Culham Trail traverses the full extent of this reach linking Streetsville Memorial Park to Riverview and Riverrun Parks as well as the River Grove Community Centre. There are also a number of trail connections to the surrounding neighbourhoods. No initiatives are proposed within this section of the study area.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-118: Riverview Park;
- P-127: Timothy Street Park; and,
- P-304: River Grove.

Existing parks within the proposed "Transitional Beltlands" include:

- None

Proposed Initiatives

There are no initiatives proposed within this reach.

1.4.7 P-114 – Streetsville Memorial Park Reach

Existing Site Characteristics

The reach extends from Bristol Road to the southern extent of Streetsville Memorial Park. This "Feature Site" is the principal festival park for the City and is home to the annual Streetsville Bread and Honey Festival. It includes a baseball field; soccer pitches, parking for approximately 90 cars, picnic facilities for approximately 100 people, a washroom and concession building as well as a Parks Operations depot. Specific details with regard to the property are located within Section 1.5.4

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-412: Streetsville Memorial Cemetery;
- P-114: Streetsville Memorial Park; and,
- P-414: Trinity Wesleyan Cemetery.

Existing parks within the proposed "Transitional Beltlands" include:

- P-303: Not to be Named

Proposed Initiatives

See Section 1.5.4 for details.

1.4.8 Kraft and ADM Mills Reach

Existing Site Characteristics

The Kraft Mill property encompasses a large industrial operation on portions of both the east and west side of the Credit River just south of the Streetsville Memorial Park "Feature Site." The mill property encompasses 15.28ha and public access to the property is restricted. The existing section of the Culham Trail diverts from the valley to Queen Street to circumnavigate the mill property. Development of the mill property has included stabilization work along the west bank of the Credit River. The historic Streetsville dam and fishway are located within the Kraft Mill property.

The ADM Mill is located on the east side of Queen Street approximately 500m south of the Kraft Mill property. The mill includes a number of silos, an administration building, shipping and receiving and outdoor storage and parking areas. Public access to the property is not permitted, however an existing pedestrian trail is routed around the north side of the property. This trail crosses the railway right-of-way at a level pedestrian crossing and connects to a bridge that traverses the Credit River.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-354: Not to be Named; and,
- P-306: Not to be Named.

Existing parks within the proposed "Transitional Beltlands" include:

- P-250: Carolyn Creek.

Proposed Initiatives

A section of the David J Culham Trail is proposed to complete a gap in the trail network from the ADM Mill to the south edge of Streetsville Memorial Park. Due to steep grades and erosion on the east banks of the river, the trail is proposed to make this connection along the west bank of the river. Riparian habitat enhancement plantings are proposed for the edge of the river where the trail is proposed and bank stabilization may also be required. The implementation of the trail will require that a licensing agreement, easement or land acquisition be secured to gain public access across the privately owned lands. To make the transition from the east side of the river to the west a bridge will be required to span the Credit River approximately 250m south of Streetsville Memorial Park. This bridge is proposed as part of the Streetsville "Feature Site" (refer Figure 1.11).

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Implementation Plan - Kraft and ADM Mills Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (1,750m)	**Studies**	Conduct Environmental Impact Statement	$6,500		✓		
		Natural Heritage Study	$4,500		✓		
		Refine trail route based on risk assessment	$1,500		✓		
	Consultation	CVC permit	$3,500		✓		
	Field Work	Stake confirmed trail alignment in field	$1,500		✓		
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$25,000			✓	
	Design & Construction	Prepare working drawings for trail and habitat enhancements	$12,500			✓	
		Establish approval from CVC	$5,000			✓	
		Prepare tender documentation	$17,500			✓	
		Construct the trail	$323,750			✓	
		Prepare post construction monitoring and maintenance program for trail	$3,500			✓	
2A. Orientation Signage (1 item)	**Design & Construction**	Develop sign design, graphics and layout	$750			✓	
		Produce and install signage	$1,750			✓	
2B. Interpretive Signage (3 items)	**Design & Construction**	Develop sign design, graphics and layout	$1,575			✓	
		Produce and install signage	$6,300			✓	
3. Riparian Habitat Enhancement	**Studies**	Conduct natural heritage and archaeological assessments	$1,000			✓	✓
Plantings (500m edge along river)	**Consultation**	City of Mississauga Parks and Forestry	$500			✓	✓
	Design	Develop design plans and details.	$8,500			✓	✓
	Construction	Install under guidance from CVC and City	$40,000			✓	✓
		TOTAL ESTIMATED COST	**$465,125.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: Implementation of the Credit River Heritage Route within this Reach will require an access agreement/ easement to be established with the Kraft private landowner

Policy Note 3: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the Reach that interface with the Kraft and ADM Mills site

Policy Note 4: Re-zone 'Development Zone' parcels to 'Greenbelt'

Policy Note 5: Incorporate Credit River Heritage Route into City of Mississauga Trails and Cycling Plans

1.4.9 Eglinton Avenue to Former Pinchin Lands Reach

Existing Site Characteristics

An existing stretch of the David J. Culham Trail traverses the full extent of this reach providing a direct link from Eglinton Avenue to the Credit Pointe Village community following the eastern bank of the Credit River. No initiatives are proposed within this section of the study area.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-286: Hewick Meadows

Existing parks within the proposed "Transitional Beltlands" include:

- none

Proposed Initiatives

There are no initiatives proposed within this reach.

1.4.10 P-462 - former Pinchin Lands Reach

Existing Site Characteristics

The reach extends from the northern property boundary of this "Feature Site", located approximately mid-way from Eglinton Avenue West to Highway #403, and terminates just north of the Highway Right-of-Way of Hydro One. The lands contain the remnant orchard of the former Riviere Fruit Farm and the Leslie Log House. The lands constitute 'Parkland in Transition' as the orchard is approaching or has exceeded its conventional lifespan. Moreover, the limited availability of tableland within the park system makes this property unique amongst the "Feature Sites" due to its ability to accommodate prospective uses that would conflict with natural heritage protection requirements within the valley corridor. Consistent with the City's Strategic Plan, three "Feature Sites": Riverwood, the former Pinchin Lands and Erindale Park, are proposed to comprise a "Central Park" within the City. Accordingly, the Concept Plans for these "Feature Sites" complement one another in terms of theme, proposed programming and facilities. Specific details with regard to the property are located within Section 1.5.5

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-286: Hewick Meadows; and,
- P-462: former Pinchin Lands

Existing parks within the proposed "Transitional Beltlands" include:

- none

Proposed Initiatives

In addition to the initiatives detailed in section 1.5.5, the former Pinchin Lands may be considered for the location of an "Adventure Experience" comprised of a ropes course, suspended walkway, zip-lines and lookout structures is proposed to be implemented along the southern edge of the tableland component of the site. This attraction will be visible from both Mississauga Road and Highway #403 and will offer a unique play experience while affording excellent views over the valley. The Adventure Experience is proposed to be available to the general public as well as for use by school groups, local organization such as scouts and guides, and summer day camp operators.

Similarly, a Business Plan should be developed to determine the best arrangement for the ownership and operation of the proposed "Adventure Experience" course.

1.4.11 Highway #403 Reach

Existing Site Characteristics

The lands within this reach are situated east and south of the former Pinchin Lands "Feature Site" extending to the boundary with the Riverwood Park "Feature Site" to the south. The lands within this section of the study area encompass the Parkway Belt West Lands, an existing BMX park, Hewick Meadows and an existing section of the David J. Culham Trail which extends from Riverwood Park under Highway #403 and terminates on the east side of the valley at Wellsborough Place.

Existing parks within the proposed "Continuous Natural Corridor" include:

- none

Existing parks within the proposed "Transitional Beltlands" include:

- P-487: Ellis Leuschner Challenge Park

Proposed Initiatives

Formalization of a northward link between two sections of the existing David J. Culham Trail is proposed through the meadow area on the east floodplain of the river. There are a plethora of existing tracks in this area and the proposed looped trail will utilize one of these routes to limit further disturbance to the cultural meadow environment. However, it is proposed that existing trails in this area be closed and the sites restored with native riparian and cultural meadow species. The new trail will link up with another section of the David J. Culham Trail proposed to extend westward over the Credit River as part of the former Pinchin Lands "Feature Site." Several orientation and interpretive signs are proposed to signify the cultural and environmental importance of this part of the river valley.

A new bridge is required to span an existing large outfall pipe and overland flow channel from the adjoining residential area. A stormwater engineering assessment of this structure will be required to address the suitability of the proposed bridge location and design. Hydrological studies to study the impacts of river migration, flooding and potential ice jams on the proposed bridge and the proposed multi-use pathway will need to be assessed to ensure flood risks are mitigated.

The proposed trails will make this area readily accessible from communities on both the east and west side of the river affording anglers multiple vantage points from which to fish.

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Implementation Plan - Highway #403 Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (1,100m)	**Studies**	Conduct Environmental Impact Statement	$3,500	✓			
		Natural Heritage Study	$3,500	✓			
		Refine trail route based on risk assessment	$1,500	✓			
	Consultation	CVC permit	$2,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$15,000		✓		
	Design & Construction	Prepare working drawings for trail and habitat enhancements	$10,000		✓		
		Establish approval from CVC	$5,000		✓		
		Prepare tender documentation	$12,000		✓		
		Construct the trail	$203,500		✓		
		Prepare post construction monitoring and maintenance program for trail	$2,500		✓		
2A. Orientation Signage (4 items)	**Design & Construction**	Develop sign design, graphics and layout	$1,750			✓	
		Produce and install signage	$7,000			✓	
2B. Interpretive Signage (4 items)	**Studies**	Interpretive Strategy	$3,500			✓	
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$1,250			✓	
	Design & Construction	Develop sign design, graphics and layout	$1,575			✓	
		Develop design for 'salmon bridge' interpretive node	$5,000			✓	
		Produce and install signage and node	$25,400			✓	
3. Angling Access (3 items)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500				✓
	Consultation	Establish approval from CVC, DFO and Transport Canada	$850				✓
	Design	Detailed design and tender documentation	$11,500				✓
	Construction	Construct the angling access and overlook structure	$59,418				✓
4. Habitat Enhancement Plantings (300m along river edge)	**Studies**	Conduct natural heritage and archaeological assessments, study impacts of ice jams on planting, map informal trail sites and close to public acces	$1,000			✓	✓
		Apply for relevant funding programs	N/A			✓	✓
	Consultation	MTO, City of Mississauga Parks and Forestry, UTM, colleges, community organizations	$500			✓	✓
	Design	Develop restoration plans, signage and details.	$4,500			✓	✓
	Construction	Install under guidance from CVC and City	$24,000			✓	✓
		TOTAL ESTIMATED COST	**$410,243.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the Reach that interface with residential areas

Policy Note 3: Incorporate Credit River Heritage Route into City of Mississauga Trails and Cycling Plans

Note 4: Land acquisition/ easements may be required to implement some of the initiatives in this Reach. Costs to be determined.

1.4.12 P-331 - Riverwood Reach

Existing Site Characteristics

The reach for this "Feature Site" extends from the Highway #403 right-of-way to the properties south-most boundary at Burnhamthorpe Road West. Consistent with the City's Strategic Plan, three "Feature Sites": Riverwood, the former Pinchin Lands and Erindale Park, are proposed to comprise a "Central Park" within the City. Given Riverwood's central location within the valley, accessibility to transit and proximity to Mississauga's core, Riverwood is envisioned as the focal point for orientation and visitor experience within the CRP System. Specific details with regard to the property are located within Section 1.5.6.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-331: Riverwood

Existing parks within the proposed "Transitional Beltlands" include:

- none

Proposed Initiatives

See Section 1.5.6 for details.

1.4.13 P-60 – Erindale Reach

Existing Site Characteristics

The reach extends from Burnhamthorpe Road West to its southern termination at Dundas Street West. This "Feature Site" is the principal picnic park within the City of Mississauga providing a venue for approximately 1000 people. Pursuant to the City's Strategic Plan, three "Feature Sites": Riverwood, the former Pinchin Lands and Erindale Park, are proposed to comprise a "Central Park" within the City. Accordingly, the Concept Plans for these "Feature Sites" complement one another in terms of theme, proposed programming and facilities. Specific details with regard to the property are located within Section 1.5.7.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-60: Erindale Park;
- P-192: Richard F.C. Mortensen Park; and,
- P-209: Promontory Woods.

Existing parks within the proposed "Transitional Beltlands" include:

- P-504: Erindale Cosmopolitan Cemetery

Proposed Initiatives

See section 1.5.7 for details.

1.4.14 Dundas Street to Queensway Reach

Existing Site Characteristics

This reach is entirely situated within the Credit Valley Golf and Country Club and therefore inaccessible to public access. Dundas Street West traverses the valley north of the golf club property. Views upstream and downstream are afforded from the bridge.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-241: Not to be Named; and,
- P-157: Carriage Way.

Existing parks within the proposed "Transitional Beltlands" include:

- none

Proposed Initiatives

A section of the Credit River Heritage Route is proposed to traverse the east side of the valley south from Dundas Road West utilizing local roads and then tracing the top of valley slope adjacent to residential properties. The trail will then descend into the valley traversing the privately owned lands of the Credit Valley Golf and Country Clubs and crossing the Credit River to the west side where a new pedestrian bridge will be required. Buffer/screen plantings comprised of mixed native hardwood species and associated understorey species are proposed on the golf course side of the trail. A primary trail connection across the golf course from Blythe Road to Queensway West is proposed either utilizing existing pathways that are modified or an entirely separate pathway. A bridge would be required to make the connection across the river in this location. Formalization of access points from Dundas Road West, Blythe Road and Queensway West are also proposed.

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Implementation Plan - Dundas Street to Queensway Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (4,270m)	**Studies**	Conduct Environmental Impact Study	$15,000		✓		
		Natural Heritage and Wildlife Study	$20,000		✓		
		Refine trail route based on risk assessment	$3,500		✓		
	Consultation	DFO, CVC and Transport Canada	$6,000		✓		
	Field Work	Stake confirmed trail alignment in field	$3,500		✓		
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$55,000			✓	
	Design &	Prepare working drawings for trail and enhancements for wildlife passage	$35,000			✓	
	Construction	Establish approval from CVC, MTO (Queensway) and Region of Peel (crossing at Dundas St. W)	$6,000			✓	
		Prepare tender documentation	$45,000			✓	
		Construct the trail	$789,950			✓	
		Prepare post construction monitoring and maintenance program for trail	$8,500			✓	
2. Bridges (2 items - 60m span each)	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$125,000		✓		
	Consultation	MNR, CVC, Transport Canada (NWPA)	$15,000		✓		
	Design/ Construction	Prepare detailed design submission for approval	$64,000		✓		
		Construct the bridges	$1,100,000			✓	
3. Buffer Planting (1,250m)	**Studies**	Conduct natural heritage and archaeological assessments	$15,000			✓	
(golf course side of trail)	**Consultation**	City of Mississauga Parks and Forestry, Golf Course	$1,250			✓	
	Design	Develop design plans and details.	$9,500			✓	
	Construction	Install under guidance from landowner, CVC and City	$100,000			✓	
4. Primary Trails (900m)	**Studies/ Field Work**	Natural, Cultural and Archaeological Heritage Assessments, Topographic Survey, Geotechnical/ Slope Stability Study	$12,500				✓
	Consultation	CVC, Cemetery	$1,250				✓
	Design	Design route based on findings of assessment	$18,000				✓
	Construction	Construct route based on findings of assessment	$130,500				✓
5A. Orientation Signage (5 items)	**Design &**	Develop sign design, graphics and layout	$2,200				✓
	Construction	Produce and install signage	$8,750				✓
5B. Interpretive Signage (6 items)	**Consultation**	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$1,250				✓
	Design &	Develop sign design, graphics and layout	$3,200				✓
	Construction	Produce and install signage	$12,600				✓
6A. Entry features (3 items)	**Design**	Prepare detailed entry concepts, pedestrian crossing, signage and lighting plans, prepare tender documentation	$26,000				✓
	Construction	Construct the entries	$105,000				✓
6B. Landscape Enhancement Plantings	**Design**	Prepare detailed planting plans and tender documentation	$28,500				✓
(entries)	**Construction**	Supply and install the planting	$114,000				✓
		TOTAL ESTIMATED COST	**$2,880,950.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: Incorporate Credit River Heritage Route and Primary Trail into City of Mississauga Trails and Cycling Plans

Policy Note 3: Implementation of the Credit River Heritage Route and Primary Trail within this Reach will require an access agreement/ easement to be established with the Credit Valley Golf and Country Club private landowner

Note 4: Land acquisition/ easements may be required to implement some of the initiatives in this Reach. Costs to be determined.

1.4.15 Queensway to QEW Reach

Existing Site Characteristics

In the vicinity of the downstream limit of the study area, the Credit River valley is characterized as a steep-sided feature with a broad, flat floodplain. At this location, the river transitions to a braided system comprised of multiple channels and wetlands. The valley walls are well-forested with native hardwoods. At the south end of this reach the river valley is traversed by the QEW. Forestry staff has coordinated numerous planting projects in this area contributing to the screening of the highway. The QEW bridge that traverses the river is an elegant structure comprised of a series of arches that was originally constructed in 1934 and widened in 1960. Exceptional views over the river are afforded from the highway bridge.

Upstream of the QEW, the valley retains this characteristic form however the natural vegetation within the floodplain gives way to the maintained landscapes associated with the Mississaugua and Credit Valley Golf and Country Clubs. Public access to this area is limited by private land ownership. Mississauga Road provides the western boundary to this stretch of the study area.

Existing parks within the proposed “Continuous Natural Corridor” include:

- P-314: Not to be Named

Existing parks within the proposed “Transitional Beltlands” include:

- P-271: Not to be Named; and,
- P-361: Not to be Named.

Proposed Initiatives

A section of the Credit River Heritage Route is proposed to traverse the west edge of the privately owned Mississaugua Golf and Country Club extending along the edge of Mississauga Road before heading south beneath the QEW. A primary trail connection is also proposed to provide east-west connectivity across the Credit River beneath the QEW. In the event that the existing “holding strategy bridge” is not retained for future pedestrian use an extensive bridge in the order of a 200m span will be required to make this connection. An additional bridge will also be required to span approximately 20m over the Stavebank Creek enabling a trail connection eastward from the Credit River. A separate primary trail leading from Stavebank Road is also proposed to make a key connection from the surrounding neighbourhood into the valley at this location.

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Implementation Plan - Queensway to QEW Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (1,920m)	**Studies**	Conduct Environmental Impact Study	$7,500		✓		
		Wildlife Study (under Derry Rd)	$3,500		✓		
		Refine trail route based on risk assessment	$1,500		✓		
		Conduct Washroom Study	$5,000			✓	
	Consultation	DFO, CVC, MTO (QEW underpass) and Transport Canada	$3,500		✓		
	Field Work	Stake confirmed trail alignment in field	$1,500		✓		
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$22,500			✓	
	Design &	Prepare working drawings for trail and enhancements for wildlife passage	$15,000			✓	
	Construction	Establish approval from CVC and MTO (underpass at QEW and habitat enhancements)	$2,500			✓	
		Prepare tender documentation	$25,000			✓	
		Construct the trail	$355,200			✓	
		Prepare post construction monitoring and maintenance program for trail	$2,500			✓	
2. Bridges (2 items - 20m span over creek near Stavebank Rd and 200m over Credit River)	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$250,000		✓		
	Consultation	MNR, CVC, Transport Canada (NWPA)	$25,000		✓		
	Design/ Construction	Prepare detailed design submission for approval	$350,000		✓		
		Construct the bridges	$4,380,000			✓	
3. Primary Trails (1,250m)	**Studies/ Field Work**	Natural, Cultural and Archaeological Heritage Assessments, Topographic Survey, Geotechnical/ Slope Stability Study	$14,000				✓
	Consultation	CVC, Cemetery	$3,250				✓
	Design	Design route based on findings of assessment	$28,000				✓
	Construction	Construct route based on findings of assessment	$181,250				✓
4. Buffer Planting (2,000m) (golf course side of trail)	**Studies**	Conduct natural heritage and archaeological assessments	$22,500			✓	
	Consultation	City of Mississauga Parks and Forestry, Golf Course	$2,500			✓	
	Design	Develop design plans and details.	$15,000			✓	
	Construction	Install under guidance from landowner, CVC and City	$160,000			✓	
5A. Orientation Signage (5 items)	**Design &**	Develop sign design, graphics and layout	$2,500				✓
	Construction	Produce and install signage	$8,750				✓
5B. Interpretive Signage (6 items)	**Consultation**	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750				✓
	Design &	Develop sign design, graphics and layout	$3,200				✓
	Construction	Produce and install signage	$12,600				✓
6A. Entry features (3 items)	**Design**	Prepare detailed entry concepts, pedestrian crossing, signage and lighting plans, prepare tender documentation	$26,000				✓
	Construction	Construct the entries	$105,000				✓
6B. Landscape Enhancement Plantings (entries)	**Design**	Prepare detailed planting plans and tender documentation	$28,500				✓
	Construction	Supply and install the planting	$114,000				✓
		TOTAL ESTIMATED COST	**$6,178,000.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: Incorporate Credit River Heritage Route into City of Mississauga Trails and Cycling Plans

Policy Note 3: Implementation of the Credit River Heritage Route within this Reach will require an access agreement/ easement to be established with the Mississauaga Golf and Country Club

Note 4: Land acquisition/ easements may be required to implement some of the initiatives in this Reach. Costs to be determined.

1.4.16 Lorne Park Reach

Existing Site Characteristics

Immediately south of the QEW, topographic constraints in the form of steep eroding bluffs characterize the study area. The bluffs are densely forested. Water levels within this reach of the Credit River are influenced by fluctuations in water levels in Lake Ontario. This stretch of the study area is bordered by residential properties who own the land right to the river's edge on both sides.

Existing parks within the proposed "Continuous Natural Corridor" include:

- P-234: Not to be Named; and,
- P-66: Credit River Flats.

Proposed Initiatives

Private landownership presents a challenge in this area. However, through a licensing agreement with private landowners or securement of an easement the implementation of a trail southward from the QEW to the CNR/GO rail line is proposed to be located along the west edge of the River. The trail would require consultation with CNR in order to locate a trail within the rail corridor to make a connection up and out of the valley and westward to Mississauga Road.

A primary trail linkage is also proposed to make a key linkage across the valley to connect neighbourhoods east and west of the river. The trail is proposed to link from the end of Mineola Road West to Indian Road on the east side of the river. This trail would require a substantial investment in two pedestrian bridges spanning a braided section of the river and requiring approximately 150m spans respectively.

All initiatives within this reach are subject to technical assessments, funding and approval through Council.

Implementation Plan - Lorne Park Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Credit River Heritage Route (1,500m)	**Studies**	Conduct Environmental Impact Study	$7,500	✓			
		Natural Heritage Study/ Wildlife Study (habitat enhancement)	$3,500	✓			
		Refine trail route based on risk assessment	$1,500	✓			
	Consultation	DFO, CVC, GO Transit (link along rail line) and Utilities (within utility corridor)	$3,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$20,000		✓		
	Design & Construction	Prepare working drawings for trail and enhancements for wildlife passage	$15,000		✓		
		Establish approval from CVC, MNR	$5,000		✓		
		Prepare tender documentation	$25,000		✓		
		Construct the trail	$277,500		✓		
		Prepare post construction monitoring and maintenance program for trail	$2,500		✓		
2. Bridges (2 items - 150m each over Credit River)	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$150,000	✓			
	Consultation	MNR, CVC, Transport Canada (NWPA)	$50,000	✓			
	Design/ Construction	Prepare detailed design submission for approval	$160,000	✓			
		Construct the bridges	$4,600,000		✓		
3. Primary Trail (500m)	**Studies/ Field Work**	Natural, Cultural and Archaeological Heritage Assessments, Topographic Survey, Geotechnical/ Slope Stability Study	$16,000		✓		
	Consultation	CVC, Cemetery	$2,250		✓		
	Design/ Construction	Design and construct route based on findings of assessment	$72,500		✓		
4. Restoration Areas (5,000m²)	**Studies**	Assessment of Degraded Sites Adjacent Trails for Habitat Restoration	$5,000	✓	✓	✓	✓
	Consultation	CVC/ permit	$1,750	✓	✓	✓	✓
		Prepare restoration plans and implement based on findings of assessment	$25,000	✓	✓	✓	✓
5A. Entry features (3 items)	**Design**	Prepare detailed entry concepts, pedestrian crossing, signage and lighting plans, prepare tender documentation	$26,000		✓		
	Construction	Construct the entries	$105,000		✓		
5B. Landscape Enhancement Plantings (entries)	**Design**	Prepare detailed planting plans and tender documentation	$28,500		✓		
	Construction	Supply and install the planting	$114,000		✓		
6A. Orientation Signage (3 items)	**Design & Construction**	Develop sign design, graphics and layout	$1,575				✓
		Produce and install signage	$5,250				✓
6B. Interpretive Signage (4 items)	**Consultation**	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750				✓
	Design & Construction	Develop sign design, graphics and layout	$2,100				✓
		Produce and install signage	$8,400				✓
		TOTAL ESTIMATED COST	**$5,736,575.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Reach must consider the implication of design and construction upon access and maintenance easements to utility, sewer and stormwater facilities

Policy Note 2: Incorporate Credit River Heritage Route and Primary Trail into City of Mississauga Trails and Cycling Plans

Policy Note 3: An edge management/ enhancement policy area should be established for all areas of the Reach that interface with residential areas

Policy Note 4: Re-zone 'Development Zone' (D) to 'Greenbelt' (G)

Note 5: Land acquisition/ easements may be required to implement some of the initiatives in this Reach. Costs to be determined.

Source: http://www.citypictures.net

1.5

1.5 "Feature Sites"

Within the Master Plan, each of the seven "Feature Sites" is envisioned as a unique destination bound together by the "Natural Corridor". Each park is intended to provide a different user experience as well as opportunities for recreation, interpretation and immersion in the environment.

Consistent with the City's *Strategic Plan*, three "Feature Sites": Riverwood, the former Pinchin Lands and Erindale Park, are proposed to comprise a "Central Park" within the City. Accordingly, the Concept Plans for these "Feature Sites" complement one another in terms of theme, proposed programming and facilities.

Three Optional Concept Plans were prepared for each of the seven "Feature Sites". The suite of Optional Concept Plans generated for each site all share a consistent theme but each placed a different degree of emphasis on environmental versus programmatic objectives.

The three optional Concept Plans were identified as follows:

- Option A: This option generally represented the most passive scenario in terms of proposed programming, with a strong emphasis placed on achieving ecological objectives including expansion of the extent of natural cover and reduction of habitat fragmentation;
- Option B: This option presented a balanced approach that melded the objective to establish a healthy, connected, continuous natural system with the desire to provide the public with opportunities for recreation, interpretation and an experience of the Credit River; and,
- Option C: This option emphasized a higher degree of active and passive recreational programming and public access to the river valley while still achieving key environmental objectives.

All three Optional Concept Plans were aimed at establishing a connected trail system along the length of the valley corridor and making practical connections to neighbourhoods adjacent the Credit River valley.

Through the public and stakeholder engagement process, specific comments were compiled for each of the optional Concept Plans for each "Feature Site." The comments that were provided were generally consistent with the overall emphasis on natural heritage enhancement and lead to a hybridization of one or more of the Optional Concept Plans to generate the Preferred Concept (herein referred to as the Concept Plan) for each site.

It was also recognized as product of the consultation process that there is a need to address *temporal change* within both the Master Plan and some of the "Feature Site" Concept Plans. Temporal changes that are anticipated to occur include: the urban structure around the valley corridor, the patterns of use within the valley corridor, the condition of existing facilities and amenities within the valley corridor and fundamental geomorphic and ecological evolution over the decades to come. In response, both the Master Plan and the Concept Plan for each "Feature Site" includes recommendations consistent with the vision, principles and objectives to accommodate and adapt to change over time.

The Concept Plan for each of the seven "Feature Sites" was developed as a result of an iterative process that included extensive consultation with the community, stakeholders and staff from the City, Region and Credit Valley Conservation.

The process of generating the Concept Plan for each "Feature Site" included the determination of a theme for each respective site. The themes were derived from the history and unique characteristics or patterns of use of the site. The themes were vetted through the community and stakeholder consultation processes and once confirmed, inspired the suite of components and programs proposed for each park.

The Concept Plans for the "Feature Sites" are intended to afford a diverse variety of recreational opportunities throughout the seasons, both land-based and water-based. During the winter months, activities such as cross-country skiing and where appropriate, tobogganing and skating are proposed to be accommodated with the Credit River Parks System.

The following sections describe the Concept Plan for each of the "Feature Sites". Each site is addressed in order of its respective position within the study area, commencing in the north and proceeding southward. Overlays on the Concept Plans illustrating both the land ownership and ecological analysis mapping for each respective "Feature Site" (Refer to Figures 1.8 to 1.12 and 1.14 to 1.15) are provided in Appendix H.

Like the reaches, the availability of funding for the "Feature Sites" is subject to the City budgetary process and opportunities through external funding sources. The implementation strategy for the CRPS was focused upon the prioritization of initiatives within the "Feature Sites". Although priorities varied in response to the individual site characteristics of the properties, the provision of a continuous trail connection was sought throughout the system.

Implementation phases were established in 5 year intervals, similar to that of the reaches. The implementation strategy for the "Feature Sites" categorizes the priority of specific development recommendations on the same basis as that of the reaches (refer Section 1.4).

1.5.1 Sanford Farm - Lands in Private Ownership

The lands within this "Feature Site" are privately owned and in agricultural production as cropland. The property is designated through Part IV of the Ontario Heritage Act and noted in the City's Cultural Heritage Inventory. It includes two heritage dwellings, outbuildings and a remnant mill race. There is an informal underpass beneath Highway #401 on the east side of the Credit River that affords a connection to the agricultural lands located on the south side of Highway #401 and the former Harris Lands. The Region of Peel's sanitary trunk sewer traverses the site. The Concept Plan for this property is illustrated on Figure 1.8.

Themes

- Native plant propagation;
- Nursery and arboricultural education;
- Connections to Historic Meadowvale Village; and,
- Canoe and kayak experiences.

Existing Features

Both the Credit River and Levi Creek traverse the site. Levi Creek has been identified as recovery habitat for redside dace, a designated endangered species in Ontario.

A large proportion of the site is situated within the floodplain of the Credit River and is therefore subject to regulation by the CVC. The site is designated as a *"Special Management Area"* within the City's *NAS* indicating that it holds good potential for restoration and enhancement. Two significant species *(Jefferson salamander* and *redside dace)* have been recorded near this site. The City of Mississauga Credit River Adaptive Management Study (CRAMS) identified one erosion area (ES1) within the Sanford Farm site. No priority was given for the restoration of this area and no pertinent risks were identified to be associated with the erosion at this location. The reach has been defined as 'stable' (not susceptible to collapse) within the CRAMS report, providing an unobstructed meandering planform adjusting primarily through lateral migration.

The Regional sanitary sewer crosses this "Feature Site". It consists of a sub-trunk (375mm diameter pipe) and a main trunk (750mm diameter pipe) that pass beneath Highway #401 and across the site. The recognition of existing and future maintenance easements associated with the sewer pipes is of paramount importance when detailed design for the site is pursued as associated restrictions will directly impact the location of plantings and features within this site.

The City presently maintains one existing stormwater management *(SWM)* facility (quality and quantity control) immediately beyond the northern extent of Sanford Farm, SWM Facility #4504. There are drainage swales running parallel to both the north and south sides of Old Derry Road from the SWM pond to the Credit River. There is also a ditch on the north side of the road that has been confirmed by Heritage Mississauga to be a remnant mill race from the former Meadowvale Mill (Silverthorn/Gooderham) that once existed nearby. The ruins of the mill are still visible and are proposed to become interpretive elements within the property.

Proposed Initiatives

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council. Key elements proposed within the Concept Plan for this "Feature Site" include the following:

Natural Heritage:

- Plant Propagation Facility and Research Centre;
- Native plant nursery;
- Native plant market
- Woodland and wetland restoration areas;
- Potential Arboretum/Celebration Forest (separate evaluation); and,
- Protection of local deer habitat.


Precedent Photo: Native Plant Nursery Operation

Cultural Heritage:

- Connection to Meadowvale Village Heritage Conservation District;
- Restored Mill Race cultural heritage feature; and,
- Interpretive Signage.

Identity:

- Competition canoe/kayak course (and spectator area);
- Canoe and kayak training facility;
- Overnight Accommodation;
- Hiking trails;
- Informal picnicking opportunities (Individual picnic areas should be provided for smaller groups, in the form of single picnic tables with or without paving underneath. They should be distributed throughout the park. Tables should be secured in place and constructed of non-flammable materials. A number of tables should be fully accessible and located in close proximity to an accessible route from the parking lot);
- Ice jam interpretation;
- River Overlooks; and,
- Washrooms.

Sustainability:

- Provision of L.I.D. compliant parking lots; and,
- SWM facilities.

Concept Plan Description:

In an effort to support long-term restoration efforts both within this site and throughout the Credit River valley, the Sanford Farm Lands are proposed to function as a native plant propagation facility and nursery. Native plants will be grown from locally collected seed stock to ensure that they are genetically appropriate for use in the restoration of the Credit Valley. The existing farmstead is proposed to be retrofitted to function as the administration and operation centre for the nursery. A native plant market is proposed to be established as a component of the overall program. The facilities will be winterized for all-season use. There are a number of alternative models that could be adopted to facilitate the management and operation


Precedent Photo: Native Plant Propagation Facility

of the proposed Native Plant Nursery, which could include leasing the operation to a local nursery, partnering with other agencies including the CVC, partnering with a Non-Government Organization (NGO) or direct management by the City. The conversion of this site to a native plant nursery facility will support the restoration initiatives that are a fundamental component of the Master Plan by enabling a supply of cost effective, locally-sourced and locally grown native plant material. The nursery will also promote extensive reforestation of the lands along the Credit River to create the "Natural Corridor" envisioned in the overall Master Plan.

The Concept Plan envisions a diverse operation that includes an area for wetland plant propagation, a research/training facility and office. The provision of limited overnight accommodations within the facility will broaden the potential for the facility to support research and education by affording out-of-town instructors or students with the opportunity to participate in intensive short courses that could be offered related to arboriculture research.

This property is being evaluated for the purposes of an arboretum/celebration forest through a separate study. The Sanford Farm Lands are well-suited to accommodate this proposal in terms of microclimate, soil and moisture conditions. In the event that this site is selected, the arboretum proposal is consistent with the native plant nursery theme attributed to this park and an arboretum would heighten public awareness of native species that inhabit the northern extent of the Carolinian Zone while serving as an educational resource for the local community.

The former Simpson Sawmill Race, which is presently isolated from the river, is an important cultural heritage artefact. Improvements to the downstream end of the Mill Race were implemented previously by the Region of Peel as a component of the sanitary sewer twinning project. These improvements were aimed at stabilizing the banks of the Mill Race and providing fish habitat benefits.

An underpass is proposed to facilitate wildlife passage under Old Derry Road. The location for the crossing is to be determined through a separate study.

A bridge traversing the Credit River is proposed to provide all-season access to the west side of the site, following the historic route into the Sanford Farm site from Creditview Road. Canoe and kayak access opportunities are proposed to be provided as this segment of the river is ideal for canoe and kayak lessons and competitions as a result of variable flow conditions and water depths. Opportunities for informal


Precedent Photo: Kayakers

picnicking and a nature trail designated as the "Spectator Trail" is proposed to follow the meander of the Credit River and provide an experience of nature while affording opportunities to view kayak and canoe events.

The Credit River Heritage Route proposed along the southern edge of Old Derry Road would make an eastward link to historic Meadowvale Village, the first proposed Heritage Conservation District in the province.

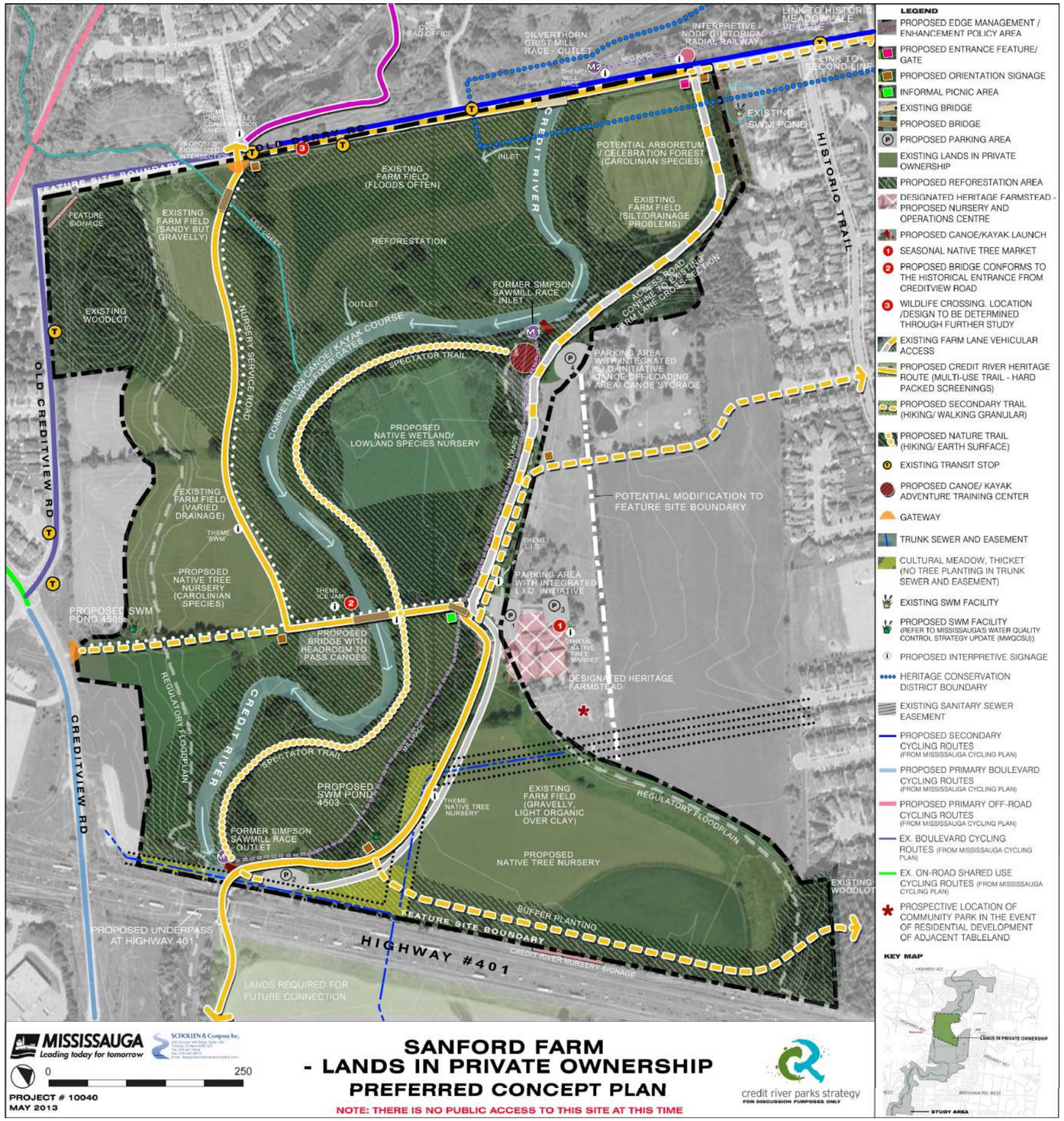


Figure 1.8: Concept Plan – Sanford Farm – Lands in Private Ownership

Relationship to Park System:

The Sanford Farm Lands are proposed to be the source of native vegetation that will facilitate the implementation of ecological restoration and enhancement initiatives throughout the CRPS. The site will also provide education and training opportunities that will benefit individuals and organizations with an interest in managing and restoring vegetation communities within the CRPS. The canoe and kayak training facility will provide the opportunity for residents to become proficient paddlers and experience the river as a recreational amenity. The site will celebrate the Village of Meadowvale and the history of milling which contributed to the economic foundations of the City of Mississauga.

Design Considerations:

The process of developing the specific plan for the nursery should include consultation with the present owners of the lands as they possess extensive knowledge of soil and drainage characteristics gained through a long history of farming the property. A cultural heritage specialist familiar with farmsteads should be retained and City Heritage Planning staff, Heritage Mississauga and CVC should be consulted in the process of developing the restoration plan for the Mill Race.

The Credit River within this site is prone to ice jams. Consequently, structures and trails that are proposed to be constructed in the areas that are influenced by ice movement should be designed to withstand the potential impacts of flowing ice. The presence of ice jams in winter also affords an opportunity for interpretation and education. The effects of ice movement on proposed plantings along the river corridor should be considered in the process of developing restoration planting plans and selecting plant species.

All season access must also be considered in the placement, design and selection of materials for trails and other key components of the Concept Plan.

Within the City's Capital Works forecast, two SWM facilities are proposed to be implemented within this "Feature Site" in the future. These facilities include SWM Facility #4505 which is proposed to be located on the east side of Old Creditview Road in the vicinity of the former farm lane, and SWM Facility #4503 which is proposed to be situated in the southeast quadrant of the site. The approximate locations of these proposed facilities are indicated on the Concept Plan. The forecast for implementation of these proposed facilities is outside of the 10-year horizon. The eventual implementation of these facilities may necessitate alterations to components of the Concept Plan, however, the Concept Plan was designed with the flexibility to accommodate these facilities. It should also be noted that the Capital Works Forecast is reviewed annually and works may be removed and/or new works added. It should be an objective to integrate the works identified in the Capital Works Forecast with the intent of the Concept Plan.

Future Studies Required:

A Business Plan will be required to verify the financial feasibility of the proposed Native Plant Nursery proposed on the Sanford Farms Lands. A completed Operation Plan will also be required to identify the most feasible model in which to operate the nursery and administration building.

Hydrologic studies will be required to facilitate the design of the proposed bridge. Additional studies will be required to confirm the appropriate rates of water flow that

will be directed into the Mill Race as well as to direct the design of the inlet control structure.

A study will be required to confirm the potential to integrate the Arboretum proposal into this "Feature Site". The study should confirm the appropriate size and location for the proposed Arboretum as well as the recommended operation and management structure.

Policy & Regulation:

- Habitat within Levi Creek is regulated by the MNR under the Endangered Species Act (ESA) and consequently, MNR staff must be consulted in the process of developing detailed restoration plans for areas along Levi Creek to ensure that restoration efforts are consistent with redside dace recovery objectives. A permit may be required to be secured from the MNR to facilitate the implementation of pedestrian bridges, trails and alterations proposed within 30m of the meander belt of the watercourse;
- A permit from CVC will be required to facilitate the implementation of bridges, trails and site alterations proposed within the CVC regulated area;
- Proposed bridges and alterations proposed within the river will require the approval of DFO and will need to respect the *In-water Timing Window*. The proposed works may also require review by and approval from City of Mississauga Works Department;
- The corridor along Highway #401 is regulated by MTO and therefore the Corridor Management Department within MTO will need to review and approve initiatives proposed through and, within 400m of, the corridor;
- This site presently has site-specific zoning permissions for a golf course. However, it is recommended that this zoning designation be changed to one that better suits the proposed agenda described herein;
- Proposals for new washroom facilities should be assessed in consideration of a "City of Mississauga Parks Washroom Study" or current equivalent. Conversely, the Washroom Study should be updated as required to reflect the implementation of eligible new park washroom facilities within the CRP System;
- Edge management/enhancement policy areas are to be established for the interfaces of the "Feature Site" with residential areas to control encroachment, illegal access and dumping as well as control the spread of invasive species into the valleylands;
- The recognition of existing and future maintenance easements associated with sewers, SWM facilities and the like must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan. The Region of Peel will require an access agreement from the City to construct a trail and maintain access across/within the easements;
- One isolated parcel of land within the "Feature Site" is zoned Development (D) having specific regard for a Market Garden in the Zoning By-law and is recommended to be rezoned as Greenbelt (G) in order to support the protection of the existing woodlot and to prevent development within these lands;
- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3, April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010; and,

- All proposed initiatives should be consistent with the following City of Mississauga Official Plan Designations:
  - Green System - Schedule 1/1a, September 2010;
  - Natural Areas - Schedule 3, September 2010;
  - Special Management Areas - Schedule 3, September 2010;
  - Public and Private Open Spaces – Schedule 4, September 2010; and,
  - Greenbelt/Natural Hazards – Schedule 10, September 2010.

Partnership Opportunities:
The implementation of many of the initiatives could benefit from Public-Private partnerships, or partnerships with private clubs, not-for profit organizations, nursery industry associations, schools and local community groups including:

- Kayaking/canoeing clubs;
- UTM having specific regard for horticulture and landscape management research opportunities;
- Horticultural Trades Association/Landscape Ontario; and,
- Canadian Nursery Landscape Association (CNLA).

Volunteerism opportunities may include:

- Restoration plantings – in accessible areas and on flat terrain;
- Maintenance in terms of the collection of litter throughout the park and reporting on damaged amenities and vandalism;
- Maintenance of restoration plantings including weeding and watering;
- Waste management and composting programs; and,
- Naturalist organizations to conduct interpretive walks that explain the natural and cultural heritage features of the site having specific regard for the former mill site, designated dwelling, and connection to the historic Meadowvale Village.

Tourism/Education and Community Outreach:
Opportunities include:

- Canoe club races, day trips/rentals;
- Angling derbies;
- Visits by school groups to learn about the nursery operation;
- Native plant market – plant sales, seminars, conferences; and,
- Arboretum:
  - Participation in workshops on birding, gardening and art;
  - Banquets and wedding facilities – portion of former farmstead house and grounds; and,
  - Pre-arranged guided group tours.

Initiatives, Implementation, Phasing & Costs:
The following implementation initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works. The cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer to Appendix L for detailed summary of costs).

Initiative 1A – Completion of Credit River Heritage Route including Wildlife corridor/underpass beneath Old Derry Road West

Implementation:
- Environmental Impact Statement (EIS)
- Flood Risk Assessment
- Hydrological / Hydraulic Assessments
- Fluvial Geomorphology Investigations/Meander Belt Study
- Ice Flow Impact Assessment
- Wildlife study to assess the potential for safe passage of fauna across Old Derry Road and potential for habitat enhancement beneath Highway #401
- DFO approval of bridge related works that constitute harmful alteration, disruption or destruction of fish habitat
- Transport Canada Marine approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act
- CVC approval for Development or Site Alteration within the Regulated Area
- Geotechnical Investigations/Slope Stability Analysis
- Natural Heritage Inventories
- Heritage Impact Statement

Phasing: – 0-5 years

Cost: – $747,605

Initiative 1B
- Construction of a bridge (60m span) following the original farm lane from Creditview Road to provide more direct access from the west portion of the site.
- Bridge over Levi Creek (on Nursery Service Road) (15m span)
- Construction of a bridge (15m span) over the existing mill race in order to complete the Credit River Heritage Route in this area.

Implementation:
- DFO approval for bridge related works that constitute harmful alteration, disruption or destruction of fish habitat
- Transport Canada Marine approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act
- CVC approval for Development or Site Alteration within the Regulated Area
- Hydrological/Hydraulic Assessments
- Fluvial Geomorphology Investigations
- Ice Studies
- Geotechnical Investigations/Slope Stability Analysis
- Natural Heritage Inventories
- Heritage Impact Statement and Heritage Permit required

Phasing: - 0-5 years

Cost: - $855,000

Initiative 2 – A. Construction of a section of the secondary trail leading from Creditview Road following the historical access lane.
– B. Design and construction of a gateway feature

Implementation: – Incorporate trail into City of Mississauga Trails and Cycling

	Plans - Environmental Impact Statement (EIS) - Natural Heritage Assessment (including multi-season assessments) - Conduct Cultural Heritage Assessment of potential historical importance of laneway and surrounding landscape elements - Archaeological Assessment(s) Stage 1 & Stage 2 (if necessary) - CVC for development or site alteration within Regulated Area - Geotechnical Investigations - Natural Heritage Inventories - Heritage Impact Statement and Heritage Permit required	
Phasing:	– Incorporate into City cycling plan	0-5 years
	– Design/Construct trails/entry	5-10 years
Cost:	– Secondary Trail	$72,000
	– Gateway Feature	$52,500

Initiative 3	– A. Design and installation of five (5) orientation signs	
	– B. Design and installation of six (6) interpretive signs	
Implementation:	– Develop signage program - Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.	
Phasing:	– Develop signage program	0-5 years
	– Implement signage	5-10 years
Cost:	– Orientation signs	$10,950
	– Interpretive signs	$16,500

Initiative 4	– Construction of two (2) removable kayak and canoe launch platforms, as this segment of the river is ideal for canoe and kayak lessons and competitions as a result of variable flow conditions and water depths.	
Implementation:	– Environmental Impact Statement (EIS) - Natural Heritage Assessment (including multi-season assessments), - Archaeological Assessment(s) Stage 1 & Stage 2 (if necessary) - CVC for development or site alteration within the Regulated Area - Achieve approval from CVC - Achieve approval from DFO - Achieve approval from Transport Canada - Hydrological/Hydraulic Assessments - Fluvial Geomorphology Investigations - Geotechnical Investigations - Structural Engineering - Natural Heritage Inventories - Heritage Impact Statement and Heritage Permit required - Study potential impacts of ice jams on structures. - Coordinate designs with restoration planting efforts	
Phasing:	– 5-10 years	
Cost:	– $87,544	

Initiative 5 – Construction of the "Spectator Trail" to provide an experience of nature while affording opportunities to view kayak and canoe events.

Implementation: – Environmental Impact Statement (EIS)
- Natural Heritage Assessment (including multi-season assessments),
- Archaeological Assessment(s) Stage 1 & Stage 2 (if necessary)
- CVC approval for development or site alteration within the Regulated Area
- Hydrological/Hydraulic Assessments
- Fluvial Geomorphology Investigations
- Ice Studies
- Geotechnical Investigations
- Natural Heritage Inventories
- Heritage Impact Statement and Heritage Permit required

Phasing: – 5-10 years

Cost: – $34,250

Initiative 6 – A. Implementation of a native wetland nursery
- B. Implementation of a Nursery Operations Facility
- C. Implementation of a native tree nursery to ensure a source of native vegetation that will facilitate ecological restoration and enhancement initiatives throughout the CRPS. The nursery would be supported by a plant propagation facility. The process of developing the specific plan for the nursery should include consultation with the present owners of the lands as they have extensive knowledge of soil and drainage characteristics gained through a long history of farming the property. The initiative includes creation of an Arboretum/ Celebration Forest to heighten public awareness of native species that inhabit the northern extent of the Carolinian Zone while serving as an educational resource for the local community.
- D. The nursery would be supported by a plant propagation facility.

Implementation: – *Operations Plan* and *Business Plan* for the nursery operation as well as the Arboretum/Celebration Forest to determine the most beneficial operations model, confirm financial sustainability and determine the appropriate size and location for the recommended operation/management structures
- The Region of Peel to address the implications of the recommendations of the CRPS on regional infrastructure, both existing and planned
- The City of Mississauga Parks and Forestry Division identify opportunities for forest management activities, such as reforestation, invasive species management and habitat creation, through evaluating and prioritizing appropriate locations for these activities within City owned woodlots and natural areas

- Natural Heritage Investigations
- Heritage Impact Statement and Heritage Permit required
- Bird Surveys
- Habitat/Species Inventories
- Hydrogeological Investigations
- Soil Analysis
- Topographic Surveys

Phasing:	– Native Wetland Nursery	0-5 years
	– Nursery Operations Facility	5-10 years
	– Native Tree Nursery & Arboretum	0-10 years
	– Plant Propagation Facility	5-10 years
Cost:	– $5,389,009	

Initiative 7

– A. Rehabilitation of and improvement of accessibility of the existing vehicular access route. Improve surfacing as well as drainage.
- B. Design and construct an entrance feature off Old Derry Road and Creditview Road.
- C. Implementation of landscape enhancements at entrances and along access route

Implementation:
– Conduct topographic survey
- Identify flood hazards
- Conduct thorough engineering assessment of existing laneway
- Consult CVC to secure permit for site alteration within the Regulated Area
- Geotechnical Investigations
- Conduct Cultural Heritage Assessment of potential historical importance of laneway and surrounding landscape elements
- Consult traffic engineer and City T&W for entry point and potential pedestrian crossing of laneway of Credit River Heritage Route
- Heritage Impact Statement and Heritage Permit required

Phasing:	– Conduct Studies & Consultations	0-5 years
	– Design and implement	5-10 years
Cost:	– A. Access Road	$1,242,750
	– B. Entrance Features (3)	$69,000
	– C. Landscaping	$147,500

Initiative 8

– Implementation of sustainable parking areas #1 associated with the former Sanford Farm buildings. Incorporate L.I.D. techniques including stormwater quantity control and water quality improvement

Implementation:
– Environmental Impact Statement (EIS)
- Archaeological Assessment(s) Stage 1 & Stage 2 (if necessary)
- CVC for development or site alteration within Regulated Area
- Hydrological/Hydraulic Assessments
- Fluvial Geomorphology Investigations to identify flood risk
- Ice flow impact assessment

- Geotechnical Investigations
- Topographic survey
- L.I.D. Feasibility Study
- Consult with City of Mississauga Transportation and Works Department
- Heritage Impact Statement and Heritage Permit required

Phasing:
– Conduct Studies & Consultations 0-5 years
– Design and Construction 5-10 years

Cost:
– $756,200

Initiative 9
– Creation of informal picnic opportunities

Implementation:
– Select and install propriety picnic furnishings

Phasing:
– 0-5 years

Cost:
– $43,000

Initiative 10
– Construction of two sections of the secondary trail 1. flanking the vehicular access road and 2. flanking the north side of Highway #401 to the east edge of the study boundary.

Implementation:
– Incorporate trail into City of Mississauga Trails and Cycling Plans
- Environmental Impact Statement (EIS)
- Natural Heritage Assessment (including multi-season assessments)
- Archaeological Assessment(s) Stage 1 & Stage 2 (if necessary)
- CVC approval for development or site alteration within the Regulated Area
- Geotechnical Investigations
- Natural Heritage Inventories
- Heritage Impact Statement and Heritage Permit required

Phasing:
– Incorporate into City cycling plan 0-5 years
– Design and construct trails 10-15 years

Cost:
– $187,000

Initiative 11
– Implementation of buffer plantings to provide visual screen to Highway #401 from proposed trail and to provide enhanced habitat to strengthen the natural corridor of the Credit River.

Implementation:
– Consult with MTO (as planting may be within 400m of Highway #401)
- Consult with City of Mississauga Parks and Forestry
- Natural Heritage Assessment (including multi-season assessments)
- Archaeological Assessment(s) Stage 1 & 2 (if necessary)
- Natural Heritage Inventories

Phasing:
– 10-15 years

Cost:
– $150,750

Initiative 12 – Implementation of sustainable parking areas #2 and #4 incorporating L.I.D. techniques including stormwater quantity control and water quality improvement

Implementation: – Environmental Impact Statement (EIS) –
- Archaeological Assessment(s) Stage 1 & 2 (if necessary)
- CVC approval for development or site alteration within Regulated Area
- Hydrological/Hydraulic Assessments
- Fluvial Geomorphology Investigations to identify flood risk
- Ice flow impact assessment
- Geotechnical Investigations
- Topographic survey
- L.I.D. Feasibility Study
- Consult with City of Mississauga Transportation and Works Department
- Heritage Impact Statement and Heritage Permit required

Phasing: – 10-15 years
Cost: – $414,100

Initiative 13 – Implementation of woodland and wetland reforestation of the lands along the Credit River to create the core "Natural Corridor"

Implementation: – Natural Heritage Assessment
- Study impacts of flooding and ice jams
- Develop stewardship program
- Develop partnerships with CVC as well as NGO's and community organizations
- Coordinate activities between CVC and City of Mississauga Parks and Forestry
- Heritage Impact Statement and Heritage Permit required

Phasing: - 0 ->15 years
Cost: - $2,482,500

Initiative 14 – Creation of a cultural meadows in locations where tree growth is prohibited (sewer easements)

Implementation: – Conduct natural heritage assessments to determine existing habitat and potential enhancement opportunities
- Conduct Archaeological Assessment(s) Stage 1 & Stage 2 (if required)
- Heritage Impact Statement and Heritage Permit required

Phasing: – Conduct Studies & Consultations 5-10 years
– Design and Construction 10-15 years
Cost: – $64,750

Initiative 15 – Implementation of:
– A. Native plant market, and
– B. Associated parking area #3

Implementation: – Topographic survey,
- Conduct geotechnical and archaeological assessments,
- Undertake L.I.D. Feasibility Study,

- Ice and flood mitigation assessments
- Prepare Business Plan and Operations Plan
- Seek private partners and/or potential vendors
- Prepare licensing agreement
- Collaborate with CVC, City of Mississauga Transportation and Works Department Departments
- Heritage Impact Statement and Heritage Permit required

Phasing:	– Business Plan	10-15 years
	– Native Plant Market	>15 years
	– Parking Area #3	>15 years
Cost:	– Native Plant Market	$921,000
	- Parking Area #3	$236,550

Initiative 16

– Establishment of a canoe and kayak training facility to promote an opportunity for residents to become proficient paddlers and experience the river as a recreational amenity

Implementation:
– Business Plan
- Visitor Experience Study
- Seek Public-Private Partnership
- Transport Canada Marine approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act
- Heritage Impact Statement and Heritage Permit required

Phasing: – >15 years

Cost: – $432,500

Initiative 17

– Restoration of the Simpson Sawmill Race and re-establish the flow of water as a means to provide additional enhancement of aquatic habitat as well as to aid in interpreting this cultural feature.

Implementation:
– Hydrologic studies for inlet control structure
- Consult with Heritage Planning, Heritage Mississauga and CVC in the process of developing the restoration plan
- Retain Cultural Heritage Specialist
- Heritage Impact Statement and Heritage Permit required

Phasing: – >15 years

Cost: – $186,200

Implementation Plan - Sanford Farm – Lands in Private Ownership Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1A. Credit River Heritage Route (2,800m)	**Studies**	Conduct Environmental Impact Statement	$10,000	✓			
		Wildlife Study (under Derry Rd)	$12,500	✓			
		Refine trail route based on risk assessment	$2,500	✓			
		Conduct Washroom Justification Study	$7,500				
	Consultation	DFO, CVC and Transport Canada	$3,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$25,000	✓			
	Design & Construction	Prepare working drawings for trail	$35,000	✓			
		Prepare working drawings for enhancements for wildlife passage	$12,500	✓			
		Establish approval from CVC and MTO/ Region (wildlife underpass at Old Derry Rd)	$7,500	✓			
		Prepare tender documentation	$25,000	✓			
		Construct the trail and the wildlife underpass across Old Derry Road West	$599,105	✓			
		Prepare post construction monitoring and maintenance program for trail	$6,000	✓			
1B. Bridges (3 items - 15m span over Levi Creek and mill race and 60m span over Credit River)	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$68,000	✓			
	Consultation	MNR, CVC, Transport Canada (NWPA)	$15,000	✓			
	Design/ Construction	Prepare preliminary and detailed design	$88,000	✓			
		Construct the bridges	$684,000	✓			
2A. Secondary Trail (360m) (from Creditview Rd)	**Studies/ Field Work**	Complete Natural, Cultural Heritage and Archaeological Assessments, Topographic Survey	$3,750		✓		
	Design/ Construction	Design route based on findings of assessment	$5,630		✓		
		Construct route based on findings of assessment	$37,525				
2B. Gateway (1 item)	**Studies**	Conduct traffic assessment at entry Creditview Rd (pedestrian safety/ crossing)	$2,500		✓		
	Design	Develop design of gateway (includes bike parking -15 bikes) and prepare tender docs	$8,000		✓		
	Construction	Construct entry	$42,000		✓		
3A. Orientation Signage (5 items)	**Design & Construction**	Develop sign design, graphics and layout	$2,200		✓		
		Produce and install signage	$8,750		✓		
3B. Interpretive Signage (6 items)	**Studies**	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750		✓		
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750		✓		
	Design & Construction	Develop sign design, graphics and layout	$2,400				
		Produce and install signage	$12,600		✓		
4. Canoe and Kayak Launch (2 items) (removable)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500		✓		
	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,200		✓		
	Design	Detailed design and tender documentation	$15,000				
	Construction	Construct two canoe/ kayak launches	$68,844		✓		
5. Spectator Trail (1,100m) (nature trail/ earth surface)	**Studies**	Conduct Environmental Impact Statement (hydraulic, ice impacts, natural heritage and geotechnical studies), Archaeological Assessments, topographic survey	$1,500		✓		
	Consultation	CVC (determine clear management widths & heights)	$750		✓		
	Design	Design trail, establish approval from CVC	$4,500		✓		
	Construction	Construct trail	$27,800		✓		

Implementation Plan - Sanford Farm – Lands in Private Ownership Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
6A. Native Wetland Nursery (33,200m²)	**Studies**	Conduct Environmental Impact Statement	$7,500	✓			
		Prepare Business Plan and Operations Plan**	$15,000	✓			
	Consultation	Consult with Region of Peel	$2,500	✓			
		Consult with Previous Owner	$2,500	✓			
		Consult with CVC and apply for permit	$7,500	✓			
		Canadian Nursery Landscape Association (CNLA)	$1,250	✓			
		Horticulural Trades Association/ Landscape Ontario	$1,250	✓			
	Field Work	Complete technical assesssments - Geotechnical/ Soils, Hydrological, Archaeological and Topographic Surveys	$80,000	✓			
	Construction	Construct the wetland nursery grounds	$1,247,919	✓			
6B. Nursery Operations Facility	**Design & Construction**	Conduct feasibility study with cultural heritage specialist to review adaptive potential of existing farm buildings to nursery operation centre	$24,000		✓		
		Engage architect/ engineers to design the operations outbuildings and access roads	$85,000		✓		
		Establish building/ re-development and fire permits	$8,000		✓		
		Establish CNLA and Landscape Ontario Certification	$3,000		✓		
		Re-develop farm building and construct equipment storage buildings and access roads	$1,200,000		✓		
6C. Native Tree Nursery & Arboretum/ Celebration Forest (14,670m²)	**Design & Construction**	Consult botanist to select plant palette (arboretum)	$12,500	✓			
		Establish nursery production systems and schedules	$25,000	✓			
		Develop irrigation and drainage plans	$35,000	✓			
		Establish MOE permit 'to take water'	$15,000	✓			
		Detail design, approvals and tender documentation for nursery and arboretum	$120,000	✓			
		Construct the arboretum and tree nursery grounds	$1,121,090		✓		
6D. Plant Propagation Facility	**Design & Construction**	Engage architect/ engineers to design the propogation facility	$160,000		✓		
		Establish building/ development and fire permits	$15,000		✓		
		Construct the propagation facility	$1,200,000		✓		
7A. Vehicular Access / Service Route (500m x 7m wide)	**Studies**	Conduct topographic survey, flood hazard study, cultural heritage study and engineering assessment of existing laneway	$75,000	✓			
	Consultation	CVC, Traffic engineer, City T&W	$10,000	✓			
	Design	Detailed design and tender documentation	$165,000		✓		
	Construction	Construct improvements	$992,750		✓		
7B. Entrance Features (3 item)	**Studies**	Conduct traffic study (pedestrian safety/ crossing)	$5,000		✓		
	Design/ Construction	Design pedestrian crossing (no signal)	$9,000		✓		
		Construction of entry feature (no signal)	$55,000		✓		
7C. Landscape Enhancement Plantings (access route and entries)	**Design**	Prepare detailed planting plans and tender documentation	$19,000		✓		
	Construction	Supply and install the planting	$128,500		✓		
8. L.I.D. Parking Area #1 (3,600m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$60,000	✓			
	Consultation	CVC, City of Mississauga engineering and T&W	$15,000	✓			
	Design	Detail design and tender documentation	$75,000		✓		
	Contruction	Construct the parking area	$606,200		✓		
9. Informal Picnic Area	**Studies**	Furnishing selection process	$6,500	✓			
	Consultation	City of Mississauga Parks	$1,500	✓			
	Design & Construction	Access to renovated farm building for washrooms (subject to washroom justification study).	$12,500	✓			
		Prepare evacuation plan and signage	$2,500	✓			
		Install signage/ concrete pads/ signage	$20,000	✓			

Implementation Plan - Sanford Farm – Lands in Private Ownership Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
10. Secondary Trail (two sections 1,200m) (1. flanks access road and links to community east of site 2. Flanks north side of Hwy #401)	**Studies**	Complete topographic survey and natural heritage and archaeological assessments	$12,000			✓	
	Consultation	CVC, MTO (flanking Hwy # 401), MMAH	$2,500			✓	
	Design &	Design route based on findings of assessment	$22,500			✓	
	Construction	Construct route based on findings of assessment	$150,000			✓	
11. Buffer Planting (18,750m²) (flanks north side of Highwy #401)	**Studies**	Conduct natural heritage and archaeological assessments	$10,000			✓	
	Consultation	MTO, City of Mississauga Parks and Forestry	$750			✓	
	Design	Develop design plans and details	$20,000			✓	
	Construction	Install under guidance from CVC and City	$120,000			✓	
12. L.I.D. Parking Areas #2 & #4 (1,800m²	**Studies**	Topographic survey, geotechincal and archaeological studies, ice impact assessment	$25,000			✓	
		Sustainability assessment/ L.I.D. feasibility study	$10,000			✓	
	Consultation	CVC, City of Mississauga engineering and T&W	$6,000			✓	
	Design	Detailed design and tender documentation	$45,000			✓	
	Contruction	Construction of parking areas	$328,100			✓	
13. Woodland Reforestation and Wetland Restoration Areas (36,000m²)	**Studies**	Conduct natural heritage assessment, study impacts of ice jams, develop stewardship program	$125,000	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations,	$15,000	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$7,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$175,000	✓	✓	✓	✓
	Construction	Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$2,160,000	✓	✓	✓	✓
14. Cultural Meadow (12,000m²)	**Studies**	Natural heritage and archaeological assessments	$3,500		✓		
	Consultation	CVC, Heritage Mississauga, Municipal operations staff	$750		✓		
	Design	Prepare cultivation, planting/ seeding plans	$10,000		✓		
	Construction	Construct the meadows	$48,000			✓	
		Prepare and implement maintenance program	$2,500			✓	
15A. Native Plant Market	**Studies**	Prepare Business Plan and Operations Plan**	$15,000			✓	
	Consultation	Seek private partners and/ or potential vendors	$3,500				✓
		Obtain licensing agreement	$2,500				✓
	Design	Engage architect/ engineer to design structure	$125,000				✓
	Construct	Construct the market complex	$775,000				✓
15B. L.I.D. Parking Area #3 (900m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study, ice impact assessment	$25,000				✓
	Consultation	CVC, City of Mississauga engineering and T&W	$2,500				✓
	Design	Detail design and tender documentation	$20,000				✓
	Contruction	Construction	$189,050				✓
16. Canoe and Kayak Training Facility	**Studies**	Visitor experience study	$20,000				✓
		Business Plan	$15,000				✓
	Consultation	Private-public partnership, Transport Canada	$7,500				✓
	Design	Engage architect/ engineer to design the facility	$40,000				✓
	Construct	Construct the facility	$350,000				✓

Implementation Plan - Sanford Farm – Lands in Private Ownership Reach							
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
17. Restored Mill Race Cultural Heritage Feature	**Studies**	Hydrological, stormwater, cultural heritage and interpretive assessment	$15,000				✓
	Consultation	CVC & Heritage Mississauga	$1,200				✓
	Design	Prepare design, tender and construct feature	$20,000				✓
	Construction	Restoration works of the former mill race	$150,000				✓
			TOTAL ESTIMATED COST	**$14,574,363**			

** Refer to Table L-1 in Appendix L for itemized cost estimates*

*** Provincial website provides information on business plans www.omafra.gov.on.ca/english/busdev/facts/08-051*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the "Feature Site" that interface with residential areas.

Policy Note 3: Re-zone 'Development Zone' (D) to 'Greenbelt' (G)

Policy Note 4: Re-zone 'Golf Course' designation to Open Space

Policy Note 5: Incorporate Credit River Heritage Route, Secondary Trails and Spectator Trail into City of Mississauga Trails and Cycling Plans

1.5.2 P-505 - Former Harris Lands

Yet unnamed Park #505 (the Former Harris Lands) is viewed as the future centre of urban agriculture in the City of Mississauga. The site is well-suited to serve as the home for organizations that promote sustainable living, environmental responsibility and community involvement through environmental stewardship. The former farmhouse and associated outbuildings are adaptable to accommodate the administrative and practical needs of an agency or agencies that can oversee the operation of the urban farm and deliver educational programs. The site has a long legacy of agricultural production dating back to 1821. Refer to Figure 1.9 for the Concept Plan for the property.

Theme

- The agricultural heritage of Mississauga; and,
- Urban agriculture, permaculture and organic food production integrated with a restored "Natural Corridor".

Existing Features

The site includes a variety of Cultural Heritage features that are important to both local history and the character of the park. These include the following:

- Archaeological evidence of First Nations occupancy;
- The Pearson-Harris Farmhouse (Circa 1847);
- Toronto-Guelph Suburban Radial Railway (Circa 1917);
- The steel truss bridge (1947);
- Agricultural fields (cultural landscape); and,
- Creditview Road (links to agricultural past).

The site contains an Environmentally Significant Area as well as a portion of a regional Life Science Area of Natural or Scientific Interest (ANSI) (Meadowvale Station Woods). The site encompasses habitat for a number of species at risk.

Records indicate that bobolink and eastern meadowlark (both provincially and nationally threatened) were noted as probable breeders at this site in 2001 (North-South Environmental Inc., 2001), as part of Mississauga's Natural Area Survey. This site has, however, been surveyed three times since the 2001 visit and bobolink and eastern meadowlark have not been noted again. Several butternut trees are located within the site. This species is regulated by the MNR under the Endangered Species Act (ESA).

A reach of Fletcher's Creek crosses a portion of the property. Fletcher's Creek provides habitat for redside dace, a designated endangered species in Ontario. Habitat for redside dace is regulated by the MNR under the ESA. Within the study area for the site, no erosion was identified for restoration (reach 12) as part of the CRAMS (2005). The river channel was assessed to be adjusting primarily through lateral migration and has well-vegetated banks. A storm outfall >2m in diameter is located on the west bank at the upstream extent of the property. This outfall is well-suited to retrofitting to achieve water quality objectives. A 750mm Regional sanitary sewer traverses the site in a north/south orientation and crosses the Credit River at the southern edge of the site. Easements for maintenance access to this sewer must not be impeded. The Credit River within this site is prone to ice jams that can be extensive, causing damage to vegetation and structures in the vicinity of the river. The Credit River offers suitable conditions to support canoeing and kayaking, including segments that can pose a challenge to experienced paddlers.

Proposed Initiatives

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council. Key elements proposed as components of the Concept Plan for this "Feature Site" include:

Natural Heritage:

- Retention of existing wetland areas and the reestablishment of former wetland areas;
- Potential Arboretum/Celebration Forest (separate evaluation)
- Protection of ecologically sensitive areas;
- Protections of local deer habitat;
- Woodland edge protection and management; and,
- Sugar bush management and expansion.

Cultural Heritage:

- Agricultural Heritage of Mississauga demonstrated through organic agriculture;
- Long-term potential for a greenhouse;
- Renovation of heritage listed farmhouse;
- Renovation of heritage listed bridge;
- Recognition of Toronto-Guelph Suburban Radial Railway through rail-trail;
- Interpretive Signage;
- Celebration Forest;
- Apiary;
- Agricultural education facilities;
- Compost and organic fertilizer production;
- Temporary farm market;
- Community Garden(s); and,
- Cultural meadow areas.

Identity:

- Urban agriculture demonstration site;
- Integrated use of alternative energy/generation;
- Youth volunteer and training centre;
- Kayak/canoe launch (removable);
- Kayak/canoe slalom (gates suspended from the existing bridge);
- Access for angling;
- Bird watching/nature appreciation;
- River Overlooks;
- Lookout tower (retrofit of existing silo);
- Washrooms; and,
- Informal picnic area.

Sustainability:

- River edge improvements at the confluence of Credit River and Fletcher's Creek;
- Riparian improvements throughout river's edge; and,
- Provision of an L.I.D. compliant parking lot.

Concept Plan Description:

The organic farm is proposed to showcase and enhance the Urban Agriculture Education and Demonstration Programming that has been developed in the City of

Mississauga through a permacultural approach to minimize dependence on outside sources for farm inputs including animal feed, fertilizer, etc.

A temporary farm market is proposed on the upland area of the site in the vicinity of the intersection of Creditview Road and Argentia Drive. This amenity is proposed to be situated north of the intersection to allow for future access to the lands to the north of the property. This facility may be required to be relocated in the future to accommodate this access and/or development of the parcel north of the site.

A community garden is proposed within the agricultural lands of the property to allow those interested in organic gardening the opportunity to put into practice the techniques promoted through the agricultural education component of the program proposed for this "Feature Site." A small utility building is recommended in the vicinity to support the community garden(s).

The agricultural components of the plan are intended to be integrated with proposed reforestation areas that will contribute to the establishment of a broader "Natural Corridor" along the Credit River that is largely distinct from proposed program areas and human activities. Winter activities proposed within the site could include cross-country skiing, sleigh rides and events centred around the restored farmhouse. The proposed "Natural Corridor" is to be centred on the river and is intended to include a linkage to Fletcher's Creek. Both watercourses will be protected within the proposed "Natural Corridor". Specific restoration initiatives proposed in the vicinity of Fletcher's Creek should be designed in consultation with MNR staff to ensure compatibility with the ESA and Redside Dace Recovery Strategy.

As noted within the Sanford Farm site, this property is also being evaluated for the purposes of an arboretum/celebration forest through a separate study. The "Celebration Forest" will be made up of native trees that have been planted by members of the community to commemorate important life events including births, weddings, anniversaries and the lives of loved ones that have passed on. The "Celebration Forest" is not intended to function as a cemetery, an area for the scattering of ashes or the performance of other funeral customs, rather it is envisioned as a landscape that will be both spiritually uplifting and ecologically restorative."

The Toronto-Guelph Suburban Radial Railway is proposed to be interpreted through signage and a trail that will illustrate the historic alignment of the railway loop. The alignment of a proposed trail will follow segments of the historic railway. Inserts could be incorporated into the surface of the trail to evoke the rails and ties of the former railway.

Erosion control works are forecasted to be implemented along a reach of the river that is located adjacent to Steen Drive. These works are not proposed to be implemented within the next decade, however, the Capital Works Forecast is updated on an annual basis and the timeline for funding and implementation may be altered as a result of this annual review process.

Alternative energy generation is to be associated with the offices of the proposed sustainability centre. This feature may include varieties of small-scale wind-driven generators, solar and photovoltaic technologies and provide an educational opportunity to evaluate the performance of the sustainable technologies. The installation will be a landmark along the natural corridor. Similar technologies are also proposed to be applied to the existing buildings within the site to promote sustainability and achieve energy conservation objectives.

Facilities to support informal picnicking are proposed for smaller groups, in the form of single picnic tables with or without paving underneath. They should be distributed throughout the park.

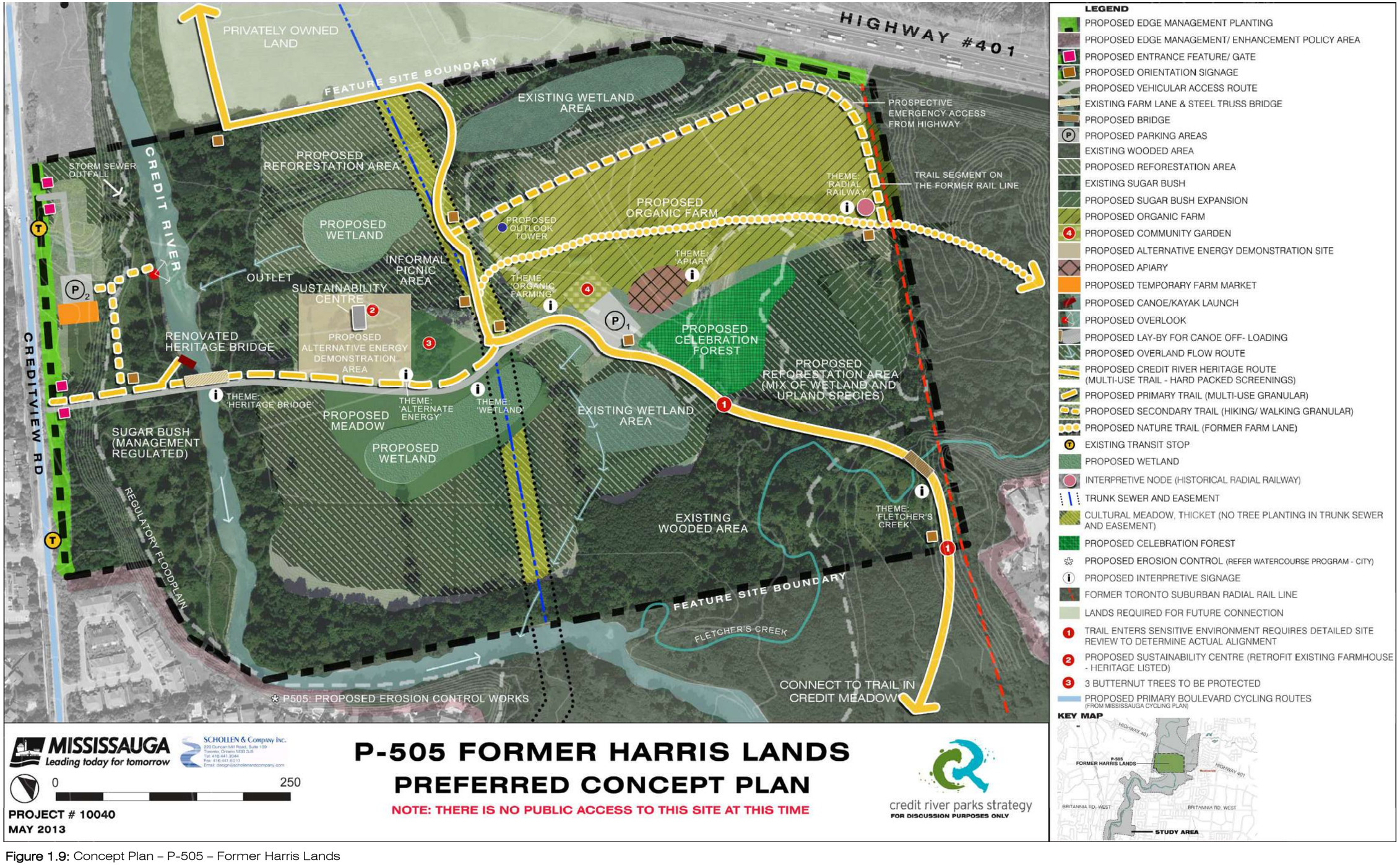


Figure 1.9: Concept Plan – P-505 – Former Harris Lands

Relationship to Park System:
This "Feature Site" is intended to be the centre of organic agricultural within the Park System, promoting opportunities for education on the topics of urban agriculture, permaculture, balcony gardening and fresh food production. Environmental initiatives proposed will strengthen the biodiversity of the valley and assist in attaining the objective of creating the "Natural Corridor" along the Credit River. Trails within the site will provide fundamental connections northward from Credit Meadows, completing an important link in the Park System.

Program Considerations:
This "Feature Site" encompasses 15.6 ha of tableland. Within the CRPS study area, lands that are located beyond the top of bank, outside of the regulatory flood plain and undeveloped are rare and present the potential to support uses that are not permitted within the valleylands. In response, the tableland area of the former Harris Lands "Feature Site" is proposed to include features to support programs and activities that cannot be accommodated within the Credit River valley. However, these uses are intended to be complementary to the natural heritage and educational objectives of the CRPS.

This site has approximately 3.68 acres (1.5 ha) of tableland adjacent Creditview Road containing (for the most part) sugar maple. The existing sugar maple stand is in decline. It is beyond the scope of this study to determine the cause of the decline. However, a combination of stresses may be contributing to the weakening of trees including severe weather, acid rain, insect damage, altered drainage and poor management practices. It is recommended that the health of the existing sugar maple stand be studied further in order to develop a management plan to ensure the sustainability of the stand of trees.

Design Considerations:
The reach of the Credit River within the site is prone to ice damage; consequently structures and trails that are proposed to be constructed in the area should be designed to withstand potential impacts. The effects of ice movement on proposed plantings along the river corridor should be considered in the process of developing restoration planting plans and selecting plant species. Species that can withstand periodic topping, such as shrub willow and dogwood should be utilized where potential damage resulting from ice movement is a concern.

All season access must also be considered in the placement, design and selection of materials for trails and other key components of the Concept Plan. This includes mitigation of ice flow impacts and potential flood risk from the river.

The owners of Sanford Farm who have historically worked these lands should be consulted to confirm the optimal location for agricultural fields with a specific focus on the types of crops that are best suited to be grown in certain areas based on soil types and moisture levels.

In spite of the long-term agricultural use, in the event of food production, it is recommended that soil tests be undertaken due to the proximity of this site to Highway #401.

Future Studies Required:
A meadow-bird survey carried out by a qualified ecologist will need to be conducted to confirm habitat usage and determine the appropriate composition of meadows

and reforestation areas that should be established within the "Natural Corridor" in order to support these grassland species. Field inventories will need to be conducted to confirm the presence of designated endangered species and species at risk.

A *Business Plan* will be required to verify the financial feasibility of the proposed Organic Farm and associated facilities on the Harris Lands. The plan should consider the business opportunities presented by collaborative fundraising models. The Business Plan may wish to draw from the feasibility study presently being pursued by Ecosource with regard to non-profit urban agriculture in Mississauga.

In addition, the Business Plan must determine the preferred scenario for the following:

- Development of a Sustainability Centre in the former farmhouse as an office for NGO(s);
- Operation of the temporary farm market; community garden(s); and,
- Overall site operations.

Prior to initiating agricultural production, an Organic Agricultural Management Plan should be completed to direct farming practices with the objective of minimizing potential impacts on water quality within the river. This plan should address flooding, field preparation, pest management, fertilizer application, soil conservation and overwintering practices. A design consultant, specializing in permaculture, should be retained to develop a detailed plan for the farm that is aimed at optimizing sustainability. An Operation Plan for the proposed alternative energy generation features will also be required in order to identify alternative business and marketing strategies to best run the site.

A planning study should be initiated to determine the optimal or best use of the tableland area of the site.

Policy & Regulation:

- It is recommended that parcels of land within the "Feature Site" that are zoned Agriculture (A) and Residential (RR) in the Zoning By-law be rezoned in order to recognize the requirements for urban agricultural use;
- The recognition of existing and future maintenance easements associated with sewers, SWM facilities and the like must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan;
- Plans for restoration or the construction of bridges, trails and infrastructure within 30m of the meander belt of Fletcher's Creek will require a permit from the MNR. Additionally, detailed site review will be required to determine the preferred alignment of proposed trails in relation to natural heritage features. All development or site alteration within the floodplain should be positioned so as not to have any adverse effects on flooding or floodplain function in accordance with CVC policies and regulations (Ontario Regulation 160/06 under Section 28 of the Conservation Authorities Act);
- Proposed bridges and alterations proposed within the river will require the approval of DFO and will need to respect the *In-water Timing Window*. The proposed works may also require review by and approval from City of Mississauga Works Department;

- Once designated, approval from the Heritage Advisory Committee (HAC) will be required to facilitate the installation of the proposed alternative energy generation features in the vicinity of the farmhouse;
- The City is the sole owner of the site, however, the floodplain areas of the site are regulated by the CVC. A permit from CVC will be required to facilitate alternations within the Regulated Area;
- Edge management/enhancement policy areas are to be established for the interfaces of the "Feature Site" with residential areas to control encroachment, illegal access and dumping as well as control the spread of invasive species into the valleylands;
- The site includes butternut trees, a species at risk which requires protection as sanctioned by the provincial government;
- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3, April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010;
- The property is presently listed on the Mississauga Heritage Register. When it is fully designated through the Ontario Heritage Act, all initiatives will be subject to a Heritage Impact Statement and a Heritage Permit through Heritage Planning, Culture Division and the Heritage Advisory Committee; and,
- All proposed initiatives should have regard for the following City of Mississauga Official Plan Designations:
    - Green System - Schedule 1/1a, September 2010;
    - Natural Areas - Schedule 3, September 2010;
    - Public and Private Open Spaces – Schedule 4, September 2010; and,
    - Greenbelt/Natural Hazards – Schedule 10, September 2010.

Partnership Opportunities:

The implementation of the following initiatives could benefit from partnerships with charitable organizations, horticultural and agricultural industry associations or Public-Private Partnerships with private companies. The "Feature Site" provides an ideal environment to showcase and enhance the Urban Agriculture Education and Demonstration Programming that has been developed in Mississauga. These collaborative opportunities not only enhance the breadth of education available at this "Feature Site" but may allow for the development of collaborative fundraising approaches to match municipal investment.

Partnership and charitable organizations may include:

- Operation of the proposed Sustainability Centre including the urban organic farm office and education centre;
- Operation of the temporary farm market and community garden(s);
- Operation of the Alternative Energy Generation Features – wind energy, solar energy, biofuel companies etc.; and,
- Continued support of Ecosource, a Mississauga based charitable community organization as well as organizations such as the Horticultural Trades Association/ Landscape Ontario, Evergreen; and/or, the Canadian Nursery Landscape Association (CNLA).

Private Partnership & Associations may include:

- Celebration Forest;
- Beekeeping Demonstration Area (apiary);
- Urban Organic;

- Farm Market;
- Community Garden(s); and,
- Alternative Energy Generation Feature.

Volunteerism opportunities may include:

- Restoration plantings – in accessible areas and on flat terrain;
- Maintenance in terms of the collection of litter throughout the park and reporting on damaged amenities and vandalism;
- Maintenance of restoration plantings including weeding and watering;
- Invasive species monitoring and removal;
- Waste management and composting programs;
- Creation and maintenance of community garden(s) and urban agriculture plots; and,
- Naturalist organizations to conduct interpretive walks that explain the natural and cultural heritage features of the site having specific regard for the listed farmhouse and cultural landscape.

Tourism/ Education and Community Outreach:

The following initiatives could attract visitors to the site potentially attracting revenue and contributing to cross-promotion and economic benefits for other programs, activities and businesses in the area:

- Urban agriculture, historical farmhouse and demonstrations sites could be part of a historical and environmental tour operating in the area;
- Headquarters for local hiking association meetings and events;
- Kayaking/canoeing derbies;
- Research opportunities in permaculture, soil science and urban agriculture with UTM and University of Guelph;
- Volunteer/naturalist organizations to conduct interpretive walks that explain the natural and cultural heritage features of the site having specific regard for the former Radial Railway, agricultural heritage and significance of the Credit River environmentally and to First Nations mobility and encampments;
- Visits by school groups to learn about the alternative energy demonstration facility;
- Apiary - seminars i.e. bee keeping, honey making;
- Ecosource Canada – educational programs and volunteerism;
- Farm market; and,
- Urban-agricultural facility – educational courses and conferences.

Initiatives, Implementation, Phasing & Costs:

The following Implementation initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works the cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer Appendix L for detailed summary of costs).

Initiative 1
– A. Renovation of the heritage bridge.
– B. Rehabilitation and improvement of accessibility of the existing vehicular access route. Improvements to surfacing as well as drainage.

Implementation:
– Geotechnical assessment
- Structural assessment
- Geomorphological assessment
- Archaeological assessment
- Topographic survey
- Consult MNR to secure permit for site alteration within the Regulated Area
- Consult CVC to secure permit for site alteration within the Regulated Area
- Consult Transport Canada Marine for the approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act (NWPA)
- Conduct Cultural Heritage Assessment of potential historical importance of laneway and surrounding landscape elements
- Conduct transportation engineering assessment (entry to laneway)
- Conduct engineering assessment of existing laneway
- Consult traffic engineer and City T&W
- Heritage Impact Statement required until designated. Once designated a Heritage Impact Statement and a Heritage Permit is required)
- Consult Heritage

Phasing:
– A. 0-5 years
– B. Studies & Consultation 0-5 years
– B. Design & Construct 5-10 years

Cost:
– A. $231,000
– B. $310,000

Initiative 2
– A. Construction of a section of the primary trail from Creditview Road.
– B. Design and installation of two (2) orientation signs.

Implementation:
– Conduct topographic survey
- Identify flood hazards
- Consult CVC to secure permit for site alteration within the Regulated Area
- Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)
- Phasing:
- A. Primary trail 5-10 years
- B. Orientation signage 5-10 years

Cost:
– $94,250

Initiative 3A – Construction of the Credit River Heritage Route

Implementation: – Environmental Impact Statement (EIS)
- Refine trail route based on risk assessment
- Consult CVC to secure permit for site alteration within the Regulated Area
- Stake confirmed trail alignment in field
- Geomorphological assessment
- Geotechnical assessment
- Hydrological assessment
- Natural heritage assessment
- Archaeological assessment
- Topographic survey
- Post construction monitoring and maintenance program for trail
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 0-5 years

Cost: – $231,000

Initiative 3B – Construction of a bridge (20m span)

Implementation: – Geotechnical Investigations/Slope Stability Analysis
- Fluvial Geomorphology Investigations
- Structural assessment
- Archaeological assessment
- Consult MNR to secure permit for site alteration within the Regulated Area
- Consult CVC to secure permit for site alteration within the Regulated Area
- Consult Transport Canada Marine for the approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act (NWPA)
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 0-10 years

Cost: – $101,500

Initiative 3C – Construction of one removable kayak and canoe launch
- Construct kayak/canoe slalom gates

Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment
- Structural engineering
- Study potential impacts of ice jams on structures
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from DFO
- Secure approval from Transport Canada
- Investigate potential to suspend gates from existing renovated bridge

- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – Removable kayak/canoe launch and slalom gate 5-10 years
Cost: – Kayak/canoe and slalom gates $56,344

Initiative 3D – Design and installation of five (5) orientation signs
Implementation: – Develop signage program
- Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan
– Heritage Impact Statement required until designated. Once designated a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 5-10 years
Cost: – $10,950

Initiative 4 – Construction of informal picnic opportunities.
Implementation: – Provide access to building for washrooms
Phasing: – 0-5 years
Cost: – $56,250

Initiative 5 – Construction of one overlook
Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment
- Structural engineering
- Study potential impacts of ice jams on structures
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from DFO
- Secure approval from Transport Canada
- Investigate potential to suspend gates from existing renovated bridge
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 5-10 years
Cost: – $62,250

Initiative 6 – Construction of a wetlands and drainage system
Implementation: – Environmental Impact Statement
- Stormwater Management Plan
- Consult CVC to secure permit for site alteration within the Regulated Area
- Geomorphology
- Stormwater Engineering
- Natural heritage assessment
- Cultural heritage assessment
- Archaeological assessment

- Potential impacts from ice jams
- Geomorphological assessment
- Geotechnical assessment
- Hydrological assessment
- Natural heritage assessment
- Topographic Survey
- Working drawings for wetland and drainage system enhancements
- CVC for development or site alteration within the Regulated Area
- Construct wetlands and drainage system
- Post construction monitoring and maintenance program for drainage works
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 0-15 years
Cost: – $864,650

Initiative 7 – Completion of an edge and sugar bush management/expansion.

Implementation: – Engage Natural Heritage Specialist and Arborist to prepare Edge Management and Forest Management Plans (review and apply Provincial Management Guidelines)
- CVC approval for development or site alteration within the Regulated Area
- Consult with City of Mississauga Forestry
- Implement Plan Recommendations
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 0-15 years
Cost: – $724,500

Initiative 8 – Construction of sustainable parking area #1. Incorporate L.I.D. techniques including stormwater quantity control and water quality improvement

Implementation: – Topographic survey
- Geotechnical study
- Archaeological study
- L.I.D. Feasibility Study
- CVC approval for development or site alteration within the Regulated Area
- Consult with City of Mississauga engineering and T&W
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – Studies & consultation 0-5 years
- Design & construct 5-10 years

Cost: – $537,250

Initiative 9 – Renovation of farm building and outbuildings to create sustainability office and organic farm service and storage building.

Implementation:
- Conduct feasibility study with cultural heritage specialist to review adaptive potential of existing farmhouse and out buildings; complete operations plan
- Consult with NGOs to identify an organization to operate the organic farm complex and office
- Engage architect/engineers to design the modifications and access roads
- Engage accessibility specialist
- Establish building/re-development and fire permits
- Re-develop farm building and construct equipment storage buildings and access roads
- Consult with potential NGO's for site such as Ecosource
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing:
- Studies, Consultation & design 5-10 years
- Construct 10-15 years

Cost:
- $874,000

Initiative 10
- A. Implementation of urban-organic farm including the following:
- B. Pedestrian Pathway through demonstration sites connecting to 2nd Line West
- C. Bridge (20m span) across Fletcher's Creek east of "Feature Site"
- D. Urban and organic agriculture demonstration sites
- E. Sustainability office (in farmhouse)
  - i Urban agriculture office
  - ii Compost/organic fertilizer production office
  - iii Youth/volunteer training office
- F. Greenhouse

Implementation:
- Toxicology and contamination testing
- Environmental Impact Statement
- Economic Impact Study
- Business Plan and Operations Plan
- Organic Agricultural Management Plan
- Soil science/geotechnical, archaeological and cultural heritage assessments
- Consult with Region of Peel
- Consult with potential NGO's for site, such as Ecosource
- Consult CVC to secure permit for site alteration within the Regulated Area
- Consult with Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
- Topographic survey
- Geotechnical assessment
- Geomorphological assessment
- Structural assessment
- Archaeological assessment

- Consult MNR to secure permit for site alteration within the Regulated Area
- Consult urban agrarian/permaculture specialists to design demonstration plots
- Establish agriculture production systems/schedules
- Develop irrigation plan (L.I.D. rainwater harvesting)
- Establish MOE permit 'to take water' (if no rainwater harvesting)
- Consult Urban-Agricultural Specialists, University of Toronto Mississauga (UTM), local schools and colleges
- Engage architect/engineer to design the research facility
- Establish building/development and fire permits
- Consult compost and fertilizer production companies
- Engage architect/engineer to design the research facility
- Consult greenhouse operators
- Consult Ontario Greenhouse Alliance (TOGA)
- Consult Health Canada
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing:

- A. Urban-organic farm 5-15 years
- B. Pedestrian pathway 10-15 years
- C. Bridge 10-15 years
- D. Agriculture demonstration sites 0-5 years
- E. Sustainability Office (in farmhouse)
  - i Urban agriculture office 5-10 years
  - ii Compost/organic fertilizer production office 5-15 years
  - iii Youth/volunteer training office 10-15 years
- F. Greenhouse >15 years

Cost:

- A. Urban-organic farm $952,500
- B. Pedestrian pathway $43,600
- C. Bridge $101,000
- D. Agriculture demonstration sites $753,500
- E. Sustainability office (in farmhouse) $1,557,500
  - i Urban agriculture office
  - ii Compost/organic fertilizer production office
  - iii Youth/volunteer training office
- F. Greenhouse $857,500

Initiative 11

– Construction of a sustainable parking area #2 includes access road from Creditview Road. Incorporate L.I.D. techniques including stormwater quantity control and water quality improvements

Implementation:

- Topographic survey
- Geotechnical study
- Archaeological study
- L.I.D. Feasibility Study
- CVC approval for development or site alteration within the Regulated Area
- Consult with City of Mississauga engineering and T&W
- Consult with potential NGO's for site such as Ecosource

	- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)	
Phasing:	– Studies & consultation	5-10 years
	- Design & construct	10-15 years
Cost:	– $342,750	

Initiative 12	– A. Design and construction of two (2) entrance features	
	- B. Implementation of landscape enhancements at entrance and access route	
Implementation:	– Conduct traffic study (pedestrian safety/crossing)	
	- Consult City T&W and Transportation Consultant for entry point and potential pedestrian crossing of laneway	
	- Design pedestrian crossings (no signal)	
	- Signal Warrant Study and permits (for main entry)	
	- Consult with on-site NGO's/tenants	
	- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)	
Phasing:	– Studies & consultation	5-10 years
	- Design & construct	10-15 years
Cost:	– A. Entrance features	$674,400
	– B. Enhancement plantings	$111,000

Initiative 13	– Construction of a community garden(s) and utility building	
Implementation:	– Consult with NGO's, Volunteer/Stewardship Organizations	
	- CVC for development or site alteration within the Regulated Area	
	- Establish building/development and fire permits	
	- Consult with on-site NGO's/tenants	
	- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)	
Phasing:	– Studies & consultation	0-15 years
	- Design & construct	10-15 years
Cost:	– $187,000	

Initiative 14	– Construction of a farm market	
Implementation:	– Business Plan to study most efficient use of tableland	
	- Business Plan and Operations Plan	
	- Economic Impact Study	
	- Seek private partners and/or potential vendors	
	- Consult with Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)	
	- Obtain licensing agreement	
	- Engage architect/engineer to design structure	
	- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)	
Phasing:	– Studies & Consultation	5-10 years

	- License, Design & Construct	10-15 years
Cost:	– $313,000	

Initiative 15	– A. Construction of a section of the secondary trail flanking demonstration sites and following the radial railway	
	- B. Design and installation of two (2) orientation signs	
Implementation:	– Topographic survey	
	- Geotechnical assessment	
	- Cultural heritage assessment	
	- Archaeological assessment	
	- CVC approval for development or site alteration within the Regulated Area	
	- Install with guidance from CVC	
	- Install with guidance from City	
	- Install with guidance from Heritage Mississauga (portion that follows radial railway)	
	- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)	
Phasing:	– A. Secondary trail	5-10 years
	- B. Orientation signage (secondary trail)	5-10 years
Cost:	– A. Secondary trail	$122,500
	- B. Orientation signage (secondary trail)	$4,750

Initiative 16	– Construction of an alternative energy demonstration area	
Implementation:	– Alternate Energy Generation Feasibility Study	
	- Contamination testing	
	- Prepare Operations Plan	
	- Viewshed Analysis	
	- CVC for development or site alteration within the Regulated Area	
	- Consult with Region of Peel	
	- Consult with MTO	
	- Consult with public	
	- Consult with NGO's	
	- Consult with alternative energy source companies	
	- Consult with Hydro One	
	- Consult with on-site NGO's/tenants	
	- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)	
Phasing:	– Studies	5-10 years
	- Consultation, design & construct	10-15 years
Cost:	– $1,681,500	

Initiative 17	– Construction of an apiary	
Implementation:	– Conduct Business and Operations Plans	
	- Prepare Public Safety Plan	
	- Contact Beekeeping Clubs/Organizations	
	- Consult with Ontario Ministry of Agriculture, Food and Rural	

Affairs (OMAFRA)
- Heritage Impact Statement required until designated. Once designated a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – >15 years
Cost: – $96,000

Initiative 18 – Implementation of celebration forest

Implementation: – Develop Commemorative Planting Strategy
- Apply for relevant grant/funding programs
- Consult with Heritage Mississauga
- Consult with City Heritage staff
- CVC approval for development or site alteration within the Regulated Area (contribution of trees to native canopy)
- Consult with local interest groups
- Consult with volunteer organizations and cemeteries
- Consult with other municipalities with similar programs
- Consult with on-site NGO's/tenants
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 10->15years
Cost: – $136,500

Initiative 19 – Implementation of woodland reforestation

Implementation: – Conduct natural heritage assessment
- Conduct study impacts of flooding and ice jams
- Develop stewardship program
- Apply for relevant grant/funding programs
- CVC for development or site alteration within the Regulated Area
- Consult with UTM and colleges
- Consult with community organizations
- Consult with City of Mississauga Parks and Forestry
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 0->15years
Cost: – $1,029,000

Initiative 20 – Creation of meadow landscapes

Implementation: – Natural heritage assessments to determine existing habitat and potential enhancement opportunities
- Conduct Archaeological Assessment(s) Stage 1 & 2 (if required)
- CVC approval for development or site alteration within the Regulated Area
- Consult with Heritage Mississauga
- Consult with Municipal operations staff
- Prepare cultivation, planting/seeding plans

- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – Studies & Consultation 5-10 years
- Construct 10->15 years

Cost: – $190,700

Initiative 21 – Design and installation of seven (7) interpretive signs

Implementation: – Develop Interpretive Signage Plan
- Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – 5->15 years

Cost: – $36,250

Initiative 22 – Construction of a lookout tower (retrofit existing silo)

Implementation: – Geotechnical Assessment
- Structural Assessment
- Design of retrofit scenario
- Heritage Impact Statement required until designated. Once designated, a Heritage Impact Statement and a Heritage Permit is required)

Phasing: – >15 years

Cost: – $227,500

Implementation Plan - P-505 Former Harris Farm Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources				0-5	5-10	10-15	>15
1A. Renovate Heritage Bridge (1 item)	**Studies/ Field Work**	Conduct geotechnical, structural, geomorphological and archaeological assessments, Topographic Survey	$18,000	✓			
	Consultation	MNR, CVC, Transport Canada (NWPA), Heritage Mississauga	$3,000	✓			
	Design/ Construction	Prepare detailed design submission for approval	$25,000	✓			
		Complete bridge renovations	$185,000	✓			
1B. Vehicular Access / Service Route (725m)	**Studies**	Conduct topographic survey, flood hazard study, cultural heritage study, transportation engineering assessment (entry to laneway) and engineering assessment of existing laneway	$30,000	✓			
	Consultation	CVC, Traffic engineer, City T&W	$10,000	✓			
	Design	Detailed design and tender documentation	$60,000		✓		
	Construction	Construct improvements	$210,000		✓		
2A. Primary Trail (500m) (from Creditview Rd)	**Studies/ Field Work**	Cultural Heritage Assessment, Topographic Survey	$5,000		✓		
	Design	Design route based on findings of assessment	$12,500		✓		
	Construction	Construct route based on findings of assessment	$72,500		✓		
2B. Orientation Signage (2 items)	**Design &**	Develop sign design, graphics and layout (for Primary Trail)	$750		✓		
	Construction	Produce and install signage (for Primary Trail)	$3,500		✓		
3A. Credit River Heritage Route (1,120m)	**Studies**	Conduct Environmental Impact Statement	$6,000	✓			
		Refine trail route based on risk assessment	$1,500	✓			
		Conduct Washroom Justification Study	$5,000		✓		
	Consultation	CVC permit	$4,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Hydrological and Natural Heritage (valley portions only), Geotechnical, Archaeological and Topographic Surveys	$25,000		✓		
	Design &	Prepare working drawings for trail and habitat enhancements	$15,000		✓		
	Construction	Establish approval from CVC	$3,500		✓		
		Prepare tender documentation	$22,000		✓		
		Construct the trail	$207,200		✓		
		Prepare post construction monitoring and maintenance program for trail	$3,500		✓		
3B. Bridge (1 item, 20m span)	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$7,000	✓			
	Consultation	MNR, CVC, Transport Canada (NWPA)	$1,500	✓			
	Design/ Construction	Preliminary and detailed design	$13,000	✓			
		Construct the bridge	$80,000		✓		
3C. Canoe/ Kayak Launch (1 item) and Removable Gates	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500		✓		
	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,250		✓		
	Design	Detailed design and tender documentation	$7,500		✓		
	Construction	Construct the canoe/ kayak launch and removable gates	$45,094		✓		
3D. Orientation Signage (5 items)	**Design &**	Develop sign design, graphics and layout (for Heritage Route only)	$2,200		✓		
	Construction	Produce and install signage (for Heritage Route)	$8,750		✓		
4. Informal Picnic Area (1,000m²)	**Design &**	Develop grading plan and provide running water. Access to building for washrooms (subject to washroom justification study).	$3,250	✓			
	Construction	Prepare tender documentation	$8,000	✓			
		Construct manicured lawn area with 4-6 fixed picnic benches	$45,000	✓			
5. Overlook (1 item)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500		✓		
	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,250		✓		
	Design	Detailed design and tender documentation	$8,500		✓		
	Construction	Construct the overlook	$50,000		✓		

Implementation Plan - P-505 Former Harris Farm Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources				0-5	5-10	10-15	>15
6. Wetlands and Drainage System (18,650m²)	**Studies**	Conduct Environmental Impact Statement	$1,600	✓			
		Stormwater Management Plan	$20,000	✓			
	Consultation	Consult with CVC and apply for permit	$6,000		✓		
	Field Work	Geomorphologist, Stormwater Engineering, Natural Heritage, Cultural Heritage and Archaeological Assessments. Potential Impacts from Ice Jams	$40,000	✓			
	Design &	Prepare working drawings for wetland and drainage system enhancements	$25,000		✓		
	Construction	Establish approval from CVC	$5,000		✓		
		Prepare tender documentation	$72,000		✓		
		Construct the wetlands and drainage system	$690,050		✓		
		Prepare post construction monitoring and maintenance program for drainage works	$5,000			✓	
7. Edge and Sugar Bush Management/ Expansion (7,750m²)	**Studies**	Engage Natural Heritage Specialist and Arborist to prepare Edge Management and Forest Management Plans (review and apply Provincial Management Guidelines)	$25,000	✓	✓	✓	
	Consultation	CVC, City of Mississauga Forestry	$6,500	✓			
		Implement Plan Recommendations	$75,000		✓		
		Implement Sugar Bush Expansion	$618,000		✓	✓	
8. L.I.D. Parking Area #1 (2,500m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$35,000	✓			
	Consultation	CVC, City of Mississauga engineering and T&W	$8,000	✓			
	Design	Detail design and tender documentation	$58,000		✓		
	Contruction	Construct the parking area	$436,250		✓		
9. Renovate Farm Building + Outbuildings to Sustainability Office + Organic Farm Service and Storage Blg	**Studies**	Conduct feasibility study with cultural heritage specialist to review adaptive potential of existing farm house and out buildings; complete operations plan	$24,000		✓		
	Consultation	Consult with NGOs to identify an organization to operate the organic farm complex and office	$2,500		✓		
	Design &	Engage architect/ engineers to design the modifications and access roads	$85,000		✓		
	Construction	Engage accessibility specialist	$4,500		✓		
		Establish building/ re-development and fire permits	$8,000		✓		
		Re-develop farm building and construct equipment storage buildings and access roads	$750,000			✓	
10A. Urban-Organic Farm (51,000m²)	**Studies/ Field Work**	Toxicology and contamination testing	$35,000		✓		
		Environmental Impact Statement	$12,500		✓		
		Economic Impact Study	$12,500		✓		
		Prepare Business Plan and Operations Plan**	$15,000		✓		
		Organic Agricultural Management Plan	$25,000		✓		
		Soil science/ geotechnical, archaeological and cultural heritage assessments	$58,000		✓		
	Consultation	Consult with Region of Peel	$4,000		✓		
		Public NGO's, Ecosource	$12,500		✓		
		Consult with CVC	$6,500		✓		
		Ontario Ministry of Agriculture and Food (OMAF)	$6,500		✓		
	Design/ Construction	Design and Implement the Farm	$765,000			✓	
10B. Pedestrian Pathway (Nature Trail) (620m) (through demonstration sites connecting to 2nd Line West)	**Studies/ Field Work**	Topographic Survey, Geotechnincal Assessment	$2,500			✓	
	Design	Design trail, establish approval from CVC	$7,000			✓	
	Construction	Construct trail	$34,100			✓	
10C. Bridge (crosses Fletchers Creek east of Feature Site) 20m span	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$7,000			✓	
	Consultation	MNR, CVC	$1,500			✓	
	Design/ Construction	Prepare detailed design submission for approval	$12,500			✓	
		Detailed design and construction of bridges	$80,000			✓	

Implementation Plan - P-505 Former Harris Farm Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources				0-5	5-10	10-15	>15
10D. Urban and Organic agriculture demonstration sites (26,000m²)	**Consultation**	Consult urban agrarian/ permaculture specialists to design demonstration plots	$7,500	✓			
		Apply for CVC permit	$4,500	✓			
	Design	Establish agriculture production systems/ schedules	$6,000	✓			
		Develop irrigation plan (L.I.D. rainwater harvesting)	$12,000	✓			
		Establish MOE permit 'to take water' (if no rainwater harvesting)	$8,500	✓			
		Design the agriculture demonstration sites	$65,000	✓			
	Construction	Construct the demonstration sites	$650,000	✓			
10E. Sustainability Office (in farmhouse)	**Consultation**	Urban-Agri Specialists, University of Toronto Mississauga (UTM), Local Schools and Colleges	$80,000		✓		
i. Urban Agricultural Office	**Design &**	Engage architect/ engineer to design the research facility/ offices	$150,000		✓		
ii. Compost and Organic Fertilizer Production Office	**Construction**	Establish building/ development and fire permits	$12,500		✓		
	Consultation	Compost and Fertilizer Production Companies	$15,000		✓		
iii. Youth Volunteer Training Centre		Construct all the facilities/ office spaces	$1,300,000			✓	
10F. Greenhouse	**Consultation**	Greenhouse Operators, Ontario Greenhouse Alliance (TOGA), Health Canada	$15,000				✓
	Design &	Engage architect/ engineer to design the research facility	$87,000				✓
		Establish building/ development and fire permits	$5,500				✓
	Construction	Construct the greenhouse	$750,000				
11. L.I.D. Parking Area #2 (1,500m²) (includes access road from Creditview Rd)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$25,000		✓		
	Consultation	CVC, City of Mississauga engineering and T&W	$8,000		✓		
	Design	Detail design and tender documentation	$28,000			✓	
	Contruction	Construct the parking area	$281,750			✓	
12A. Entrance Feature (2 items)	**Studies**	Conduct traffic study (pedestrian safety/ crossing)	$15,000		✓		
	Consultation	City T&W, Transportation Consultant	$4,400		✓		
	Design/ Construction	Design pedestrian crossings (at signal)	$30,000			✓	
		Signal Warrant Study and permits (for main entry)	$25,000			✓	
		Develop design for signage, bike parking (15 bikes) lighting and signals, prepare tender documentation	$65,000			✓	
		Construction of entry features and signalized crossing	$535,000			✓	
12B. Landscape Enhancement Plantings (two entries and access road)	**Design/Construction**	Prepare detailed planting plans, tender documentation and construct	$111,000			✓	
13. Community Garden + Utility Building (2,050m²)	**Study**	Business Plan to study most efficient use of tableland	$8,500	✓			
	Consultation	NGOs, Volunteer/ Stewardship Organizations, CVC	$3,500	✓			
	Design &	Develop design for gardens and storage facility	$12,500		✓		
	Construction	Prepare permit for structures	$7,500		✓		
		Establish building/ development and fire permits	$5,500		✓		
		Construct the community garden and utility building	$149,500		✓		
14. Farm Market (1,000m²)	**Studies**	Prepare Business Plan and Operations Plan**	$15,000		✓		
		Economic Impact Study	$12,500		✓		
	Consultation	Seek private partners and/ or potential vendors	$3,500		✓		
		Ontario Ministry of Agriculture and Food (OMAF)	$3,500		✓		
		Obtain licensing agreement	$3,500			✓	
	Design	Engage architect/ engineer to design structure	$25,000			✓	
	Construct	Construct the market complex	$250,000			✓	

Implementation Plan - P-505 Former Harris Farm Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources				0-5	5-10	10-15	>15
15A. Secondary Trail (780m) (flanks demonstration sites and follows radial railway)	**Studies**	Complete topographic survey, geotechnical, cultural heritage and archaeological assessments	$15,000		✓		
	Design	Design route based on findings of assessment	$10,000		✓		
	Construction	Install under guidance from CVC, City and Heritage Mississauga (portion that follows radial railway)	$97,500		✓		
15B. Orientation Signage (2 items)	**Design & Construction**	Develop sign design, graphics and layout (for Secondary Trail)	$1,250		✓		
		Produce and install signage (for Secondary Trail)	$3,500		✓		
16. Alternative Energy Demonstration Area (19,000m²)	**Studies/ Field Work**	Alternate Energy Demonstration Site Feasibility Study	$25,000		✓		
		Contamination testing	$65,000		✓		
		Prepare Operations Plan**	$20,000		✓		
		Viewshed Analysis	$20,000		✓		
	Consultation	Consult with Region of Peel, CVC and MTO	$4,500			✓	
		Public, NGO's, Alternative energy source companies	$7,500			✓	
		Hydro One	$4,500			✓	
	Design & Construct	Develop phasing and servicing plans	$35,000			✓	
		Implement Components of the plans	$1,500,000			✓	
17. Apiary (3,000m²)	**Studies**	Conduct Business and Operations Plans**	$7,500				✓
		Prepare Public Safety Plan	$7,500				✓
	Consultation	Contact Beekeeping Clubs/ Organizations	$3,500				✓
		Ontario Ministry of Agriculture and Food (OMAF)	$2,500				✓
	Design & Construction	Purchase bee-keeping equipment and colonies, hire a full time or part time beekeeper	$75,000				✓
18. Celebration Forest (1,100m²)	**Studies**	Develop Commemorative Planting Strategy	$15,000			✓	
		Apply for relevant grant/ funding programs	N/A			✓	
	Consultation	Heritage Mississauga, City Heritage staff	$2,500			✓	
		CVC (contribution of trees to native canopy)	$4,500			✓	✓
		Local Interest Groups, Volunteer Organizations and Cemeteries, Other Municipalities with Similar Programs	$4,500			✓	✓
		Prepare plans and implement	$110,000			✓	✓
19. Woodland Reforestation (144,00m²)	**Studies**	Conduct natural heritage assessment, study impacts of ice jams, develop stewardship program	$55,000	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations	$9,500	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$5,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$90,000	✓	✓	✓	✓
		Develop coordination/ protocol with nursery operation for supply and timing of plant material	$5,000	✓	✓	✓	✓
	Construction	Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$864,000	✓	✓	✓	✓
20. Meadow and Cultural Meadow (39,000m²)	**Studies**	Natural heritage and archaeological assessments	$6,000		✓		
	Consultation	CVC, Heritage Mississauga, Municipal operations staff	$1,200		✓		
	Design	Prepare cultivation, planting/ seeding plans	$24,000		✓	✓	
	Construction	Construct the meadows	$156,000		✓	✓	
		Prepare and implement maintenance program	$3,500		✓	✓	✓
21. Interpretive Signage (7 items)	**Studies**	Interpretive Strategy	$2,500		✓		
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$1,250		✓		
	Design & Construction	Develop sign design, graphics and layout	$2,800		✓	✓	✓
		Develop design for radial railway interpretive node	$5,000		✓	✓	✓
		Produce and install signage and node	$24,700		✓	✓	✓

Implementation Plan - P-505 Former Harris Farm Reach							
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources				0-5	5-10	10-15	>15
22. Lookout Tower (retrofit existing silo)	Studies	Feasibility Study	$10,000				✓
		Geotechnical Assessment	$7,500				✓
	Design & Construction	Structural and Architectural Designs	$20,000				✓
		Prepare tender documentation	$15,000				✓
		Construct the feature	$175,000				✓
		TOTAL ESTIMATED COST	$13,636,094.00				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

*** Provincial website provides information on business plans for agriculture-related www.omafra.gov.on.ca/english/busdev/facts/08-051*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the "Feature Site" that interface with residential areas

Policy Note 3: Re-zone 'Agriculture Zone' (A) parcels and Residential (RR) parcels to recognize the requirements for urban agricultural use.

Policy Note 4: Incorporate Credit River Heritage Route, Primary Trail and Secondary Trail into City of Mississauga Trails and Cycling Plans

Policy Note 5: Proposed wetland and drainage system alterations must consider municipal and watershed planning policies

Policy Note 6: A rezoning application is required for the Urban-Organic Farm

1.5.3 P-122 - Credit Meadows

Credit Meadows is strategically located downstream of the confluence of the Credit River and Fletcher's Creek. The site includes an Environmentally Significant Area and is situated predominantly within the floodplain. The site presently includes a modest picnic area, small parking area and a network of formal and informal trails (refer to Figure 1.10).

Theme

- Meadow habitat enhancement;
- Biodiversity;
- Passive recreation; and,
- Neighbourhood linkages.

Existing Features

The existing landscape includes culturally modified vegetation communities that are traversed by a network of informal trails. Several species at risk have been identified within this site including barn swallow, eastern meadowlark, bobolink and snapping turtle. Butternuts have also been identified within this "Feature Site" as well as a variety of herbaceous plants that have been identified as species at risk. There is a tableland woodlot located on the south side of the Credit River adjacent to Bancroft Drive has been identified in the Credit Valley Conservation *Landscape Scale Assessment* (LSA) as providing core *ecofunction*.


Bobolink


Eastern Meadowlark

Within Credit Meadows Park, minor erosion was identified within the CRAMS (2005) where the valley wall comes into contact with the channel at the base of Mulberry Crescent. Although this site was not identified as a priority site for restoration, monitoring of the risk was recommended to ensure private residences atop the tablelands are not susceptible to slope destabilization. Within the park, a SWM pond (Facility #4501) exists. The Region's sanitary trunk sewer crosses the channel twice within the site. Any proposed plantings should not interfere with the easement or access to the infrastructure for maintenance purposes.


Butternut

Proposed Initiatives

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council. Key initiatives proposed for this "Feature Site" include:

Natural Heritage:

- Closure of ad-hoc trails;
- Provision of a maintained meadow to support grassland birds; and,
- Woodland and riparian restoration areas.

Cultural Heritage:

- Interpretive signage


Nesting Totem Feature

Identity:

- Canoe/kayak launch (removable);
- Angling opportunities;
- River overlooks; and,
- Nature trails.

Sustainability:

- Improved connections to adjacent neighbourhoods (south and east);
- Addition of nesting boxes/totems (of a variety of sizes to attract varying bird species);
- Provision of nesting platforms for raptors;
- Planting of insect-attracting species to provide additional nectar opportunities for pollinators;
- Placement of woody debris to create cover for small mammals, reptiles;
- Excavation of depressions to provide potential for butterfly "puddling" areas;
- Retrofit to the existing parking lot to include L.I.D. technologies;
- Improvements to existing stormwater management pond; and,
- Proposed water quality polishing pond.

Concept Plan Description:

The primary north/south trail (Credit River Heritage Route) is proposed to traverse the site, establishing a linkage westward to a proposed signalized pedestrian crossing at Creditview Road. This trail is intended to provide access for emergency and maintenance vehicles. Therefore, the surface width and clear width of this section of the trail will need to be designed accordingly. The bridge within the Harris Lands will afford access to vehicles via the laneway entering the site from Derry Road. The trail within Credit Meadows is proposed to connect eastward to Swinbourne Drive on the east side of the valley corridor.

Given its ecological setting, this site is proposed for enhancement to benefit the "Natural Corridor" with the objective of converting some of the existing successional landscapes to forest communities while maintaining a substantial meadow ecotone to support a diversity of habitats and species.

In order to achieve this meadow landscape over the long-term, on-going management will be required including periodic mowing of the area to suppress the growth of woody species that may become established through natural succession processes. The frequency of mowing will depend on the rate of woody species germination and establishment as determined by proximity to seed sources. Initially, the requirement for mowing may be more frequent (e.g. every two years). Subsequently, it is recommended that meadow communities be assessed every 3-5 years in order to determine the rate and density of colonization by woody species.

A looped trail proposed within the meadow lands is intended to follow the general alignment of an existing nature trail. During the design development phase for this trail, the alignment of the trail will be confirmed on site with the objective of mitigating impacts to natural heritage features and habitats. In response, it is proposed that much of the length of this trail be kept to the zone of disturbance of the current trail in order to reduce impact on vegetation and habitat. The remaining informal trails within the meadow area are anticipated to be closed and restored to consolidate the trail system and further reduce potential impacts on species and habitats. The segments of trail that are proposed to be closed are indicated on the Concept Plan (Figure 1.10). Nodes for angling and river viewing are proposed to be provided along the river's edge.

Precedent Photo: Elevated boardwalks enable access to a sensitive ecological environment

The Concept Plan promotes the formalization of one trail and the closure of all other ad-hoc trails. The alignment of this trail as depicted on the Concept Plan is approximate. An Environmental Impact Statement that has regard for the sensitivities of the forested area and bird habitat will be required to determine the optimal alignment for this proposed trail.

A canoe launch is proposed to be created on the bank of the river upstream of Creditview Road. Modifications are proposed to be made to the existing parking lot to accommodate this canoe access ramp as well as to implement Low Impact Development (L.I.D.) initiatives. These initiatives will be aimed at managing stormwater runoff from the parking lot surface and addressing the naturalization of areas surrounding the parking lot. Within the existing meadow, whimsical nesting totems are proposed to be erected. These elements will be both sculptural and functional, contributing to the identity of the place and affording nesting and perching opportunities for a variety of bird species in response to the function of the meadow as prime bird habitat.

Along the north perimeter of the site there is no separation between adjacent private lands and public land. Therefore, the limit of the public land is proposed to be defined by plantings or fencing in order to mitigate the potential for encroachment.

The proposed stormwater management polishing pond is intended to further enhance the quality of water discharged from the existing stormwater management pond consistent with the natural heritage and sustainability objectives that underpin the CRPS. The proposed polishing facility is envisioned to include a linear wetland that will improve water quality through filtration and pollutant uptake. The proposed polishing facility will also assist moderating the temperature of water released from the existing stormwater management pond, benefiting aquatic habitat in the Credit River.

Similarly the existing parking area is proposed to be retrofitted with L.I.D./sustainable SWM techniques.

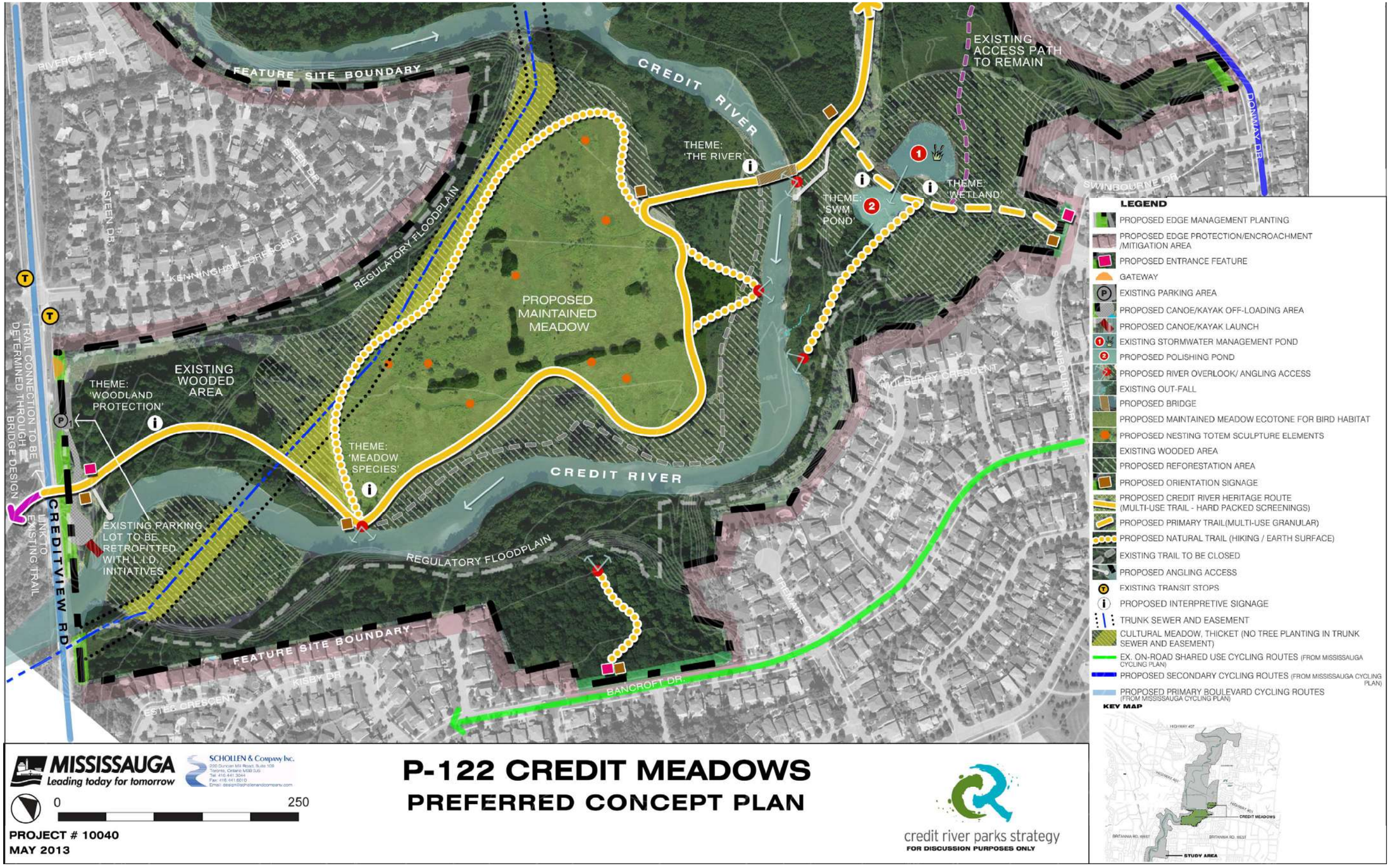


Figure 1.10: Concept Plan –P-122 – Credit Meadows

Relationship to Park System:
Credit Meadows is proposed to be positioned as the centre of habitat for ground-nesting and grassland birds, offering opportunities for birding, education and passive recreation.

Program Considerations:
An Urban Forestry and Parks Operations Management Plan should be developed to guide the protocol for the long-term maintenance of the meadow habitat in relationship to the entire site.

Design Considerations:
All season access must also be considered in the placement, design and selection of materials for trails and other key components of the Concept Plan. This includes mitigation of ice flow impacts and potential flood risk from the river.

Future Studies Required:
Notwithstanding the fact that the Natural Areas Study is updated annually for parts of the study, investigations will be required to verify existing NAS information and confirm required protection and compensation protocols. The survey of existing habitat and natural features should be completed to inform the design of trails and amenities as well as to confirm requirements for permits and approvals from the MNR and CVC. Hydrologic studies will be necessary to facilitate the design of the proposed bridge.

Policy & Regulation:

- It is recommended that parcels of land within the "Feature Site" that are zoned Residential (RR) in the Zoning By-law be rezoned as Open Space (OS);
- The recognition of existing and future maintenance easements associated with sewers, SWM facilities and the like must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan. The Region of Peel will require an access agreement from the City to construct a trail and maintain access across/within the easements;
- A permit from the MNR will be required to facilitate the implementation of proposed site alterations in the vicinity of habitat for endangered species;
- A permit from CVC will be required to facilitate the implementation of bridges; trails and site alterations proposed within the CVC regulated area. Furthermore as the CVC owns a significant portion of the site there must be cooperation between the municipality and the agency for all aspects of site design and program development;
- Proposed bridges and alterations proposed within the river will require the approval of DFO and will need to respect the *In-water Timing Window*. The proposed works may also require review by and approval from City of Mississauga Works Department;
- Edge management/enhancement policy areas are to be established for the interfaces of the "Feature Site" with residential areas to control encroachment, illegal access and dumping as well as control the spread of invasive species into the valleylands;
- Consideration for widened setback along Creditview Road edge as the road is considered a Scenic Route as identified in the Mississauga Road Scenic Route Study;
- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3,

April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010; and,

- All proposed initiatives should have regard for the following City of Mississauga Official Plan Designations:
  - Green System - Schedule 1/1a, September 2010;
  - Natural Areas - Schedule 3, September 2010;
  - Public and Private Open Spaces – Schedule 4, September 2010; and,
  - Greenbelt/Natural Hazards – Schedule 10, September 2010.

Partnership Opportunities:

The implementation of the following initiatives could benefit from partnerships with private clubs, artists, not-for profit organizations, schools and local community groups:

- Stewardship initiatives by volunteer, community, and/or environmental organizations regarding the construction and installation of bird boxes and nesting platforms;
- Naturalist groups, hiking association events;
- Local art community in the design of nesting totems and interpretive features;
- Bird watching associations; and,
- UTM research and education programs for local high schools - cultural meadow habitat management.

Volunteerism opportunities may include:

- Restoration plantings – in accessible areas and on flat terrain;
- Initiatives aimed at enhancing habitat including the construction and installation of birdhouses, denning structures, bat boxes, brush piles and the like;
- Maintenance in terms of the collection of litter throughout park and reporting on damaged amenities and vandalism;
- Maintenance of restoration plantings including weeding and watering;
- Waste management and composting programs; and,
- Naturalist organizations to conduct interpretive walks that explain the natural heritage features of the site

Initiatives, Implementation, Phasing & Costs:

The following Implementation initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works the cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer Appendix L for detailed summary of costs).

Initiative 1A – Completion of Credit River Heritage Route

Implementation: – Environmental Impact Statement (EIS)
- Refine trail route based on risk assessment
- Consult CVC to secure permit for site alteration within the Regulated Area
- Stake confirmed trail alignment in field
- Geomorphological assessment for confirmed trail
- Geotechnical assessment for confirmed trail
- Hydrological assessment for confirmed trail
- Natural heritage assessment for confirmed trail

- Archaeological assessment for confirmed trail
- Topographic survey

Phasing: – Studies & consultation 0-5 years
- Field work & design & consultation 5-10 years

Cost: – $323,500

Initiative 1B – Design and installation of one (1) orientation sign

Implementation: – Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.

Phasing: – 5-10 years

Cost: – $2,250

Initiative 2 – Construction of a bridge (70m span)

Implementation: – Geotechnical Investigations/Slope Stability Analysis
- Geomorphological assessment
- Structural assessment
- Archaeological assessment
- Topographic survey
- Consult with MNR to secure permit for site alteration within the Regulated Area
- Consult with CVC to secure permit for site alteration within the Regulated Area
- Consult with Transport Canada Marine for the approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act (NWPA)

Phasing: – 5-10 years

Cost: – $802,000

Initiative 3 – Construction of one (1) removable kayak and canoe launch platform

Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment
- Structural engineering
- Study potential impacts of ice jams on structures
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from CVC
- Secure approval from DFO
- Secure approval from Transport Canada

Phasing: – 5-10 years

Cost: – $44,294

Initiative 4 – Design and installation of an at-grade signalized crossing across Creditview Road. (In the event of a crossing beneath Creditview Road Bridge cannot be accommodated through bridge redevelopment.)

Implementation: – Conduct traffic study (pedestrian safety/crossing)
- Conduct Signal Warrant Analysis

- Consult with City T&W, Accessibility Department
- Consult with Transportation Consultant

Phasing: – 10-15 years
Cost: – $625,000

Initiative 5 – A. Construction of a section of the primary trail from Swinbourne Drive
– B. Design and installation of two (2) orientation signs.

Implementation: – Cultural heritage assessment
- Topographic survey
- Consult City signage department to develop sign graphics and layout

Phasing: – 5-10 years
Cost: – A. Primary Trail $51,600
– B. Signage $4,250

Initiative 6 – Implementation of woodland reforestation.

Implementation: – Conduct natural heritage assessment
- Conduct study impacts of flooding and ice jams
- Develop stewardship program
- Apply for relevant grant/funding programs
- CVC approval for development or site alteration within the Regulated Area
- Consult with UTM and colleges
- Consult with community organizations
- Consult with City of Mississauga Parks and Forestry
- Develop reforestation plans, signage and details

Phasing: – 0->15 years
Cost: – $895,000

Initiative 7 – Implementation of cultural meadow reforestation

Implementation: – Conduct natural heritage assessment
- Conduct archaeological assessment
- CVC approval for development or site alteration within the Regulated Area
- Consult with municipal operations staff
- Prepare cultivation, planting/seeding plans

Phasing: – Studies, consultation & design 5-10 years
- Construction 10-15 years

Cost: – $11,250

Initiative 8 – Construction of a sustainable parking area #1. Incorporate L.I.D. techniques including stormwater quantity control and water quality improvements

Implementation: – Topographic survey
- Geotechnical assessment
- Archaeological assessment
- L.I.D. Feasibility Study
- CVC approval for development or site alteration within the

Regulated Area
- Consult with City of Mississauga engineering and T&W

Phasing: – Studies & consultation 0-5 years
- Design & construction 5-10 years

Cost: – $95,500

Initiative 9

– Construction of the following:
– A. Design and installation of three (3) entrance features
– B. Landscape enhancement plantings (entries)

Implementation: – Traffic study (pedestrian safety/crossing)
- Consult with City
- Consult with T&W
- Consult with Transportation Consultant

Phasing: – 5-10 years

Cost: – A. Entry $67,250
–B. Plantings $95,000

Initiative 10

– Implementation of edge management planting

Implementation: – Engage Natural Heritage Specialist, Landscape Architect and Arborist to prepare Edge Management Plan
- Consult with City of Mississauga Parks and Forestry
- Consult with homeowners
- Consult with area ratepayers
- Consult with Councillor

Phasing: – 10-15 years

Cost: – $120,000

Initiative 11

– A. Construction of a section of Natural Trail.
– B. Design and installation of three (3) orientation signs.

Implementation: – Conduct Environmental Impact Statement (hydraulic, ice impacts, natural heritage and geotechnical studies)
- Archaeological assessment
- Topographic survey
- CVC approval for development or site alteration within the Regulated Area
- Establish approval from CVC
- Develop sign design, graphics and layout (for primary trail only)

Phasing: – A. Studies, consultation & design 5-10 years
- A. Installation 5->15 years
- B. Design & construction 5-10 years

Cost: – A. Trail $127,875
– B. Signage $6,150

Initiative 12

– Construction of five (5) angling access/overlooks & one (1) overlook.

Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment

- Structural engineering
- Study potential impacts of ice jams on structures
- CVC for development or site alteration within the Regulated Area
- Establish approval from CVC
- Establish approval from DFO
- Establish approval from Transport Canada

Phasing: – 10-15 years
Cost: – $129,850

Initiative 13 – Creation of a maintained meadow

Implementation: – Natural heritage assessments to determine existing habitat and potential enhancement opportunities
- CVC for development or site alteration within the Regulated Area
- Consult with Heritage Mississauga
- Consult with Municipal operations staff
- Consult with MNR
- Prepare cultivation, planting/seeding plans

Phasing: – Studies, consultation & design 0-5 years
- Construction 5-15 years

Cost: – $465,000

Initiative 14 – Design and installation of five (5) interpretive signs

Implementation: – Develop Interpretive Signage Plan
- Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.

Phasing: – Studies & consultation 10-15 years
- Design & construction 10->15 years

Cost: – $14,750

Initiative 15 – Construction of a polishing pond

Implementation: – Geomorphological assessment
- Stormwater engineering assessment
- Natural heritage assessment
- Archaeological assessment
- Topographic survey
- Consult with Region of Peel for approval
- Consult with City of Mississauga T&W
- Consult with MNR for approval

Phasing: – 10-15 years
Cost: – $112,600

Initiative 16 – Construction of eight (8) nesting totems

Implementation: – Develop Terms of Reference for Artist Competition
- Invite Artists to Develop Totem Features
- Consult with Public and Select Preferred Artist(s)

Phasing: – >15 years
Cost: – $48,500

Initiative 17 – Construction of a north limit fencing/plantings
Implementation: – Develop alternatives to plant or fence edge
- Consult with local residents
Phasing: – >15 years
Cost: – $157,500

Implementation Plan - P-122 Credit Meadows Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1A. Credit River Heritage Route (1,400m)	**Studies**	Conduct Environmental Impact Statement	$4,500	✓			
		Refine trail route based on risk assessment	$1,500	✓			
	Consultation	CVC permit	$3,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$20,000		✓		
	Design & Construction	Prepare working drawings for trail and habitat enhancements	$15,000		✓		
		Establish approval from CVC	$2,500		✓		
		Prepare tender documentation	$12,500		✓		
		Construct the trail	$259,000		✓		
		Prepare post construction monitoring and maintenance program for trail	$3,500		✓		
1B. Orientation Signage (1 item) (for Heritage Route trails)	**Design & Construction**	Develop sign design, graphics and layout (for Heritage Route only)	$500		✓		
		Produce and install signage (for Heritage Route)	$1,750		✓		
2. Bridge (1 item) (70m span)	**Studies/ Field Work**	Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$60,000		✓		
	Consultation	MNR, CVC, Transport Canada (NWPA)	$20,000		✓		
	Design/ Construction	Prepare detailed design submission for approval	$78,000		✓		
		Construct the bridges	$644,000		✓		
3. Canoe and Kayak Launch (1 item) (removable)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500		✓		
	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,200		✓		
	Design	Detailed design and tender documentation	$5,500		✓		
	Construction	Construct canoe/ kayak launch	$35,094		✓		
4. At Grade Signalized Crossing (across Creditview Rd)	**Studies**	Conduct traffic study (pedestrian safety/ crossing)	$15,000			✓	
		Conduct Signal Warrant Analysis	$12,000			✓	
	Consultation	City T&W, Transportation Consultant	$1,200			✓	
		City Accessibility Department	$1,200			✓	
	Design/ Construction	Preliminary design pedestrian crossing (signalilzed)	$17,600			✓	
		Prepare detailed design and construction of signalized crossing	$78,000			✓	
		Construct Signalized Crossing	$500,000			✓	
5A. Primary Trail (280m) (from Swinbourne Drive)	**Studies/ Field Work**	Cultural Heritage Assessment, Topographic Survey	$3,500		✓		
	Design/ Construction	Design route based on findings of assessment	$7,500		✓		
		Construct route based on findings of assessment	$40,600		✓		
5B. Orientation Signage (2 items) (for primary trail)	**Design & Construction**	Develop sign design, graphics and layout (for primary trail only)	$750		✓		
		Produce and install signage (for primary trail only)	$3,500		✓		
6. Woodland Reforestation (120,000m²)	**Studies**	Conduct natural heritage assessment, study impacts of ice jams, develop stewardship program	$50,000	✓	✓	✓	✓
		Close ad-hoc trails and prepare restoration planting and signage plan for areas	$25,000	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations	$9,500	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$5,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$85,000	✓	✓	✓	✓
	Construction	Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$720,000	✓	✓	✓	✓
7. Cultural Meadow Restoration (2,000m²)	**Studies**	Natural heritage and archaeological assessments	$750		✓		
	Consultation	CVC, Municipal operations staff	$500		✓		
	Design	Prepare cultivation, planting/ seeding plans	$1,500		✓		
	Construction	Construct the meadows	$8,000			✓	
		Prepare and implement maintenance program	$500			✓	

Implementation Plan - P-122 Credit Meadows Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
8. L.I.D. Parking Area #1 (875m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$7,500	✓			
	Consultation	CVC, City of Mississauga engineering and T&W	$1,500	✓			
	Design	Detail design and tender documentation	$12,000		✓		
	Contruction	Construct the parking area	$74,500		✓		
9A. Entrance Feature (3 items)	**Studies**	Conduct traffic study (pedestrian safety/ crossing)	$2,500		✓		
	Consultation	City T&W, Transportation Consultant	$750		✓		
	Design/ Construction	Design pedestrian crossings (no signal)	$1,500		✓		
		Prepare preliminary and detailed entry concepts incl. bike parking (15 bikes), pedestrian crossing, signage and lighting,prepare tender documentat	$7,500		✓		
	Construction	Construct the entries	$55,000		✓		
9B. Landscape Enhancement Plantings	**Design**	Prepare detailed planting plans and tender documentation	$19,000		✓		
(entries)	**Construction**	Supply and install the planting	$76,000		✓		
10. Edge Management Planting (600m)	**Studies**	Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan	$6,500			✓	
(assumed 20 m wide)	**Consultation**	City of Mississauga Parks and Forestry	$2,000			✓	
		Homeowners, Area Ratepayers and Councillor	$1,500			✓	
	Design	Prepare planting plans, tender documentation	$14,000			✓	
	Construction	Construct the edge management plantings	$96,000			✓	
11A. Natural Trail (1,175m) (earth surface trail)	**Studies**	Conduct Environmental Impact Statement (hydraulic, ice impacts, natural heritage and geotechnical studies), Archaeological Assessments, topographic survey	$7,500		✓		
	Consultation	CVC (determine clear management widths & heights)	$2,500		✓		
	Design	Design trail, establish approval from CVC	$18,000		✓		
	Installation	Develop trails and monitoring program	$99,875		✓	✓	✓
11B. Orientation Signage (3 items) (for nature trails)	**Design & Construction**	Develop sign design, graphics and layout (for nature trails only)	$900		✓		
		Produce and install signage (for primary trail only)	$5,250		✓		
12. Angling Access/ Overlook (5 items)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$5,000			✓	
	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,500			✓	
	Design	Detailed design and tender documentation	$20,000			✓	
	Construction	Construct the angling access and overlook structure	$103,350			✓	
13. Maintained Meadow (73,800m²)	**Studies**	Natural heritage assessment	$6,000	✓			
	Consultation	CVC, Heritage Mississauga, Municipal operations staff, MNR	$1,200	✓			
	Design	Prepare cultivation and overseeding plans	$12,500	✓			
	Construction	Implement the seeding regime	$442,800		✓	✓	
		Prepare and implement maintenance program	$2,500		✓	✓	
14. Interpretive Signage (5 items)	**Studies**	Interpretive Strategy	$1,500			✓	
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750			✓	
	Design & Construction	Develop sign design, graphics and layout	$2,000			✓	✓
		Produce and install signage	$10,500			✓	✓
15. Polishing Pond (800m²)	**Field Work**	Geomorphological, Stormwater Engineering, Natural Heritage and Archaeological Assessments. Topographic Survey	$5,000			✓	
	Consultation	Peel Region, City of Mississauga T&W, MNR	$1,500			✓	
	Design & Construction	Preliminary design for polishing pond and drainage system enhancements	$5,000			✓	
		Establish approval from Peel Region, MNR	$4,000			✓	
		Prepare tender documentation	$10,000			✓	
		Construct pond and drainage system enhancements	$85,600			✓	
		Prepare post construction monitoring and maintenance program for pond and drainage works	$1,500			✓	

Implementation Plan - P-122 Credit Meadows Reach							
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
16. Nesting Totems (8 items)	**Studies**	Develop Terms of Reference for Artist Competition	$2,500				✓
	Consultation	Invite Artists to Develop Totem Features	$1,500				✓
		Consult with Public and Select Preferred Artist(s)	$2,500				✓
	Design & Construction	Develop Art Installation Concepts	$3,200				✓
		Construct and Install Art Pieces	$38,800				✓
17. North Limit Fencing/ Plantings (500m)	**Studies**	Develop alternatives to plant or fence edge	$7,500				✓
	Consultation	Local residents	$3,500				✓
	Design & Construction	Develop details and plans and tender documentation	$21,500				✓
		Install the plantings and/ or fencing	$125,000				✓
		TOTAL ESTIMATED COST	**$4,199,119.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the "Feature Site" that interface with residential areas

Policy Note 3: Re-zone RR designation to Open Space (OS)

Policy Note 4: Incorporate Credit River Heritage Route, Primary Trail and Nature Trails into City of Mississauga Trails and Cycling Plans

Policy Note 5: Improvements to the existing stormwater management facility and proposed polishing pond must be reflected in municipal facilities plans

1.5.4 P-114 - Streetsville Memorial Park

Streetsville Memorial Park is located predominantly within the floodplain of the Credit River. In its present condition it encompasses a range of facilities including a baseball field, soccer pitches, parking for approximately 90 cars, picnic facilities for approximately 100 people, a recently constructed washroom/concession building and a City of Mississauga Parks Department operations facility. Figure 1.11 illustrates the Concept Plan for this "Feature Site".

Theme

- Cultural heritage, festivals and events;
- Linkages to historic Streetsville; and,
- Improved linkages to surrounding neighbourhoods.

Existing Features

This site is located adjacent to Vic Johnson Arena, Pool and Community Centre and is home to a number of festivals and events including the annual Bread and Honey Festival. Facilities within the site include a picnic area with capacity for approximately 100 people, a playground, concession stand, washrooms, baseball diamond, batting cage and soccer pitches. A City of Mississauga parks operations compound is located near the south end of the site. This facility includes parking for maintenance vehicles and trailers and outdoor storage for garbage containers, picnic tables and maintenance-related materials including sand and salt. The facility is fenced and is situated immediately adjacent to the west bank of the river.

The ruin of Hyde Mill is located at the foot of Ontario Street on the banks of the Credit River. This feature is considered significant as it represents remnants of John Hyde's Ontario Mills and the first municipally-owned hydroelectric power plant. The Hyde Mill ruins reflect the significant role that the milling industry had in the development of Streetsville and its contribution to hydroelectric power. Built circa 1840, by John Hyde, it was one of the later mills to be established in Streetsville. When established, the mills were at the height of technology and included a sawmill, grist mill and workers' barracks. Timothy Street House and the mill ruins near the park are important cultural features that are noteworthy and warrant protection and interpretation.

The site includes an island within the river that is accessed by a bridge from the west side of the river. The site is a popular destination for anglers.

Within the study area, a valley wall erosion site was identified as part of the CRAMS adjacent to Streetsville Cemetery (Reach 9). This area was not identified as a priority site for restoration, however, monitoring of the area was recommended to ensure loss of the fence line atop the valley wall and/or slope failure does not occur. A Regional trunk sewer crosses the channel at the downstream limit of the site and runs adjacent to the west bank and a section of the proposed primary trail. The existing armourstone protects the sanitary sewer from erosion. Proposed channel or bank restoration works must ensure the sanitary infrastructure is protected from potential erosion and ice damage.

Proposed Initiatives

Given its strategic location along the Credit River corridor and the fact that the site is located primarily in the floodplain, Streetsville Memorial Park is proposed to be positioned as both an environmental asset and key component of the "Natural

Corridor" as well as a focal point for recreation and socialization within the Streetsville Community.

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council. Key initiatives proposed to achieve this include:

Natural Heritage:

- Restoration and naturalization of the riparian zone; and,
- Long-term introduction of a maintained meadow on the island capable of accommodating festivals (such as the Bread and Honey Festival while providing seasonal bird habitat).

Cultural Heritage:

- Interpretive Signage (linking the Credit River valley to the founding of historic Streetsville); and,
- Provision of a direct connection to the Hyde Mill ruins.

Identity:

- Improved connection to adjacent neighbourhoods (north, east and south);
- Removable Canoe/kayak launch (after the dam has been decommissioned/retrofitted to afford passage);
- Angling access; and,
- River Overlooks.

Precedent Photo: Canoe/ Kayak Launch

Sustainability:

- Reduction in the extent of the existing parking lot in the long-term for potential restoration of the area as habitat complementary to corridor function;
- Demolition and removal of former Streetsville waste treatment plant for short term festival parking and long-term restoration of the area as habitat complementary to corridor function;
- Relocation of the existing operations facility and restoration of the area as habitat complementary to corridor function;
- Re-use of existing parking area to serve the existing soccer field – retrofitted with L.I.D. initiatives;
- Improvements to the connection to the island through the addition of a second footbridge;
- Improvements to the connection to the surrounding neighbourhoods through an additional footbridge and trail extensions (north, east and south);
- Establishment of a connection to multi-modal transportation and transit along Queen Street and Bristol Road;
- Decommissioning/retrofit of dam;
- Completion of a long-term review of sports fields at time of replacement; and,
- Completion of a long-term review and replacement of armourstone with biotechnical alternatives to slope stabilization.

Concept Plan Description:
A number of initiatives are proposed to be implemented as components of the Concept Plan. These include enhancement of the river corridor, the installation of trails and the relocation of existing facilities that are located within the valley.

With respect to the proposal to relocate the existing operations facility, it is recognized that this facility is a key component of the City's operation and maintenance infrastructure; however its present location, as well as that of the decommissioned sewage treatment facility, is inappropriate in consideration of natural heritage objectives, floodplain function, riverine processes and potential implications on water quality. Consequently, the sewage plant should be removed and a study should be initiated that is aimed at securing an alternate location for the operations facility that is located strategically to ensure operational efficiency. Should an alternate site be secured and a facility constructed, the recommendation to remove the existing works yard within Streetsville Memorial Park can then be implemented.

At the present time, the island is a popular area to accommodate community events and festivals. It is well used for this purpose throughout the summer season. However it is anticipated in the long-term that the festivals will continue to grow in popularity and will eventually outgrow this site. Recognizing the importance of the island for this purpose in the short term, and in an effort to improve access for public safety and connection to the surrounding neighbourhood an additional footbridge is proposed to be installed to traverse the narrow side channel that transverses the northeast portion of the island, thus affording a more direct trail connection northward along the east side of the river. The proposed footbridge will need to be designed with consideration for flow patterns and erosion as well as ice movement within the river. The island to which this new bridge connects will remain accessible via the existing bridge.

However, the island is also a strategic element of the vision to achieve a continuous "Natural Corridor" along the length of the valley. In response, it is recommended that ultimately, the island be transformed into a meadow landscape and that these events be staged at an alternative site. A study will be required to determine the longevity of the existing site for festival use and explore options for alternative sites. In the interim, the meadow is proposed to be mown to accommodate the annual Bread and Honey Festival which takes place in early June. This timing corresponds with the breeding bird season, and although mowing of the area could be minimized, use of the area as breeding habitat by birds will be limited due to the timing of the festival and the requirement for mowing. Notwithstanding, this meadow area will provide additional foraging habitat for birds and habitat for pollinators.

The Reid/Kraft Mill Dam located directly south of the Streetsville "Feature Site" presently acts as a barrier for Lamprey, and is further used to segregate desirable and undesirable species from migrating upstream through the fishway. For example, Atlantic salmon are encouraged upstream of the dam, however, all chinook and coho Pacific salmon are not able to migrate beyond the dam. This is part of an initiative defined within the Credit Fisheries Management Plan to revive the Atlantic salmon population, a native species to the watershed and the Credit River. Notwithstanding, removal of this barrier to fish passage is considered desirable as long as the barrier to Sea Lamprey is maintained. Ultimately, the Master Plan proposes the removal or retrofitting of the existing dam as a means to enhance fish passage and restore the natural function of the river. This initiative should also be

designed to facilitate navigation. It is proposed that a canoe launch be located south of the footbridge when/if the Reid/ Kraft Mill Dam is removed.

In the short to medium-term, the existing baseball diamond, batting cage and soccer field will remain as is. However, the long-term plan for Streetsville Memorial Park envisions these facilities, and a portion of the existing parking lot near the river to be removed from the floodplain once alternate facilities are available elsewhere to accommodate user demand.

The armourstone revetments along the river will be retained; however, in time, when they require repair or replacement, the CRPS recommends that these structures be replaced with biotechnical stabilization techniques that will improve stability while enhancing floodplain function.

Parking and washroom facilities are intended to be shared with the arena. The existing washroom and concession building is proposed to be retained in its present location. The primary north/south link (David J. Culham Trail) is proposed to extend through this site but will terminate in the interim at Vic Johnston Arena.

The long-term vision is to have this trail extend through the Kraft Mill site to create a continuous north/south connection. Streetsville Memorial Park is also envisioned to serve as a resource to support environmental education for school groups. Local schools are well-suited to serve as orientation and natural/cultural heritage interpretive facilities, given their close proximity to the Credit River valley. Representatives of the DPCDSB indicated during the stakeholder consultation stage of the study process that there may be interested in integrating local examples of natural and cultural heritage within the education curriculum and utilizing the neighbouring Credit River valley for specific examples.

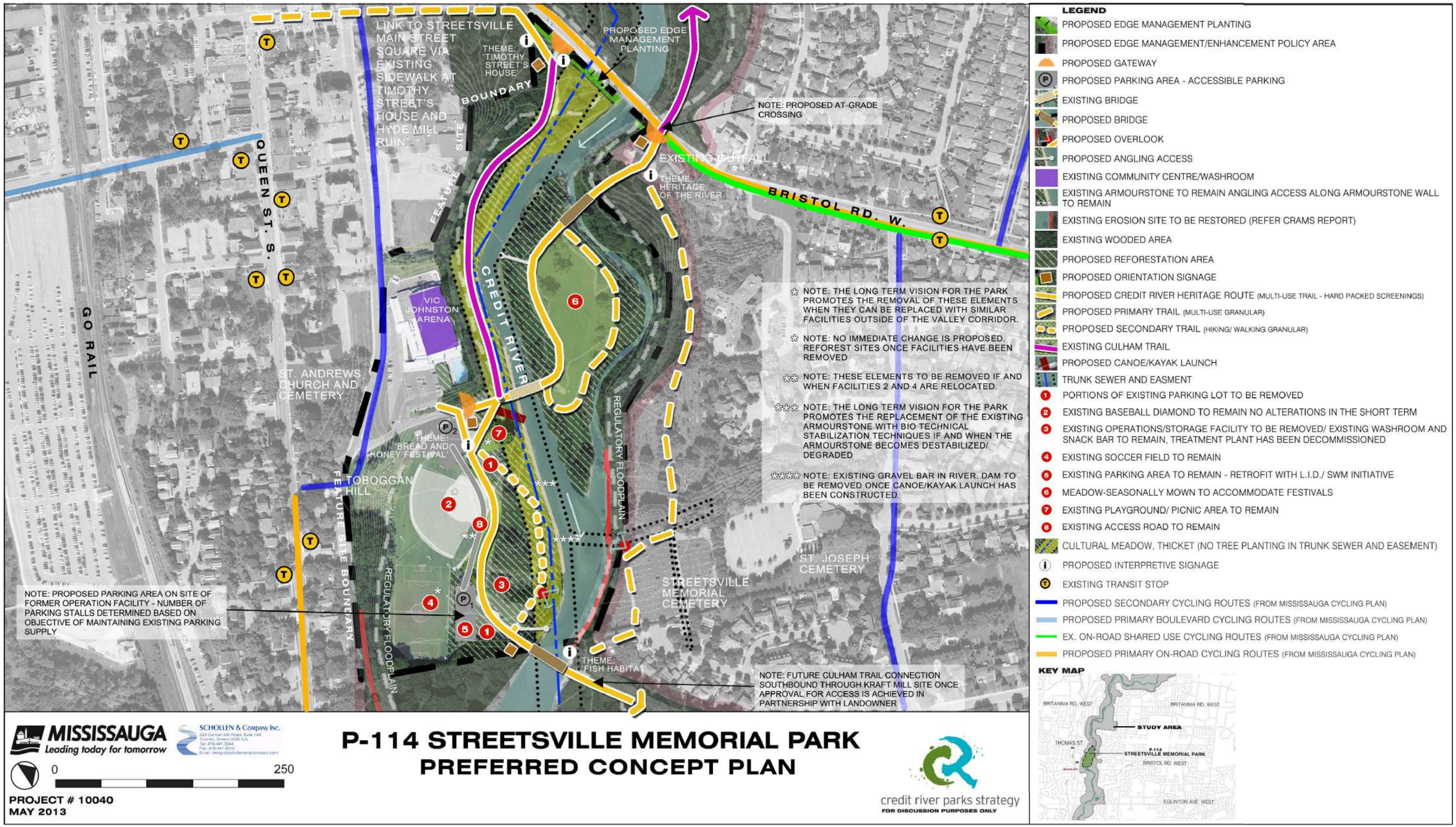


Figure 1.11: Concept Plan –P-114 – Streetsville Memorial Park

Relationship to Park System:

Within the overall CRP System, Streetsville Memorial Park is positioned to celebrate the cultural heritage of the Credit River and the Village of Streetsville. The site includes a number of important cultural heritage features and is intended to serve as the threshold between the Village and the river corridor. The site will serve as a key access point to the river and the proposed Credit River Heritage Route is envisioned as a continuous interpretive route that extends from the north limit of the city to the lakefront affording opportunities for interpretation of its cultural heritage. The Concept Plan for the Streetsville "Feature Site" promotes the expansion and extension of the trail system, which includes the David J. Culham Trail, completing the north-south route. The Credit River itself is proposed to form part of the "Heritage Route", existing as a waterway trail to promote canoeing and kayaking.

Program Considerations:

The Preferred Concept Plan for this site promotes a transitional approach that will eventually yield a reduction in active recreation and event programming within the site once alternative venues are identified and facilities implemented elsewhere within the Streetsville area. New programs proposed to be implemented will be primarily focused on cultural heritage interpretation and environmental education. Existing passive and active recreational activities are recommended to persist.

Design Considerations:

Hydrologic and ice movement studies will be required to facilitate the design of the proposed footbridge on the east side of the island. A number of studies will be required to support the development of a design to remove or retrofit the existing Kraft (Reid) Dam including an aquatic habitat assessment, a management plan for Lamprey and studies to determine the optimal configuration of the retrofitted dam for fish movement, a structural investigation and a fluvial geomorphical evaluation. It will be essential to involve DFO, Transport Canada, MNR and CVC staff in the process of developing the design for the proposed dam retrofit.

All season access must also be considered in the placement, design and selection of materials for trails and other key components of the Concept Plan. This includes mitigation of ice flow impacts and potential flood risk from the river.

Although tobogganing is not presently allowed at this location, the toboggan hill within the park continues to be used by the surrounding neighbourhoods. It is therefore recommended that rather than prohibiting its use, it is made safe through the removal of debris and obstructions at the bottom of hill.

Future Studies Required:

In addition to the technical studies required to support the proposed modifications to the Kraft (Reid) Dam as described above and the technical studies listed in Section 1.3.2, the following studies will be required to facilitate the implementation of the Concept Plan:

- A study that is aimed at identifying and securing an alternate site for the Operations Facility outside of the valley corridor;
- In the long-term, a study to investigate the potential to as well as determine suitable locations for the relocation of some events and festivals presently held at the Streetsville "Feature Site"; and,
- The removal and rehabilitation of the former Streetsville sewage plant will require a Phase One Environmental Site Assessment (ESA) to be completed in order to identify potential issues of concern with respect to hazardous

materials and impacted soils that will need to be addressed during the demolition process. The ESA may reveal site conditions that require a Phase Two ESA to be completed and subsequently, contingent on the findings, the development of a soil management plan if issues of concern with respect to soil quality are discovered. A demolition permit will required from the City and a permit will be required from CVC to facilitate site alteration within the floodplain. A restoration plan will need to be developed and an erosion and sediment control plan will need to be prepared as part of the package.

Policy & Regulation:

- Edge management/enhancement policy areas are to be established for the interfaces of the "Feature Site" with residential areas to control encroachment, illegal access and dumping as well as control the spread of invasive species into the valleylands;
- The recognition of existing and future maintenance easements associated with sewers, SWM facilities and the like must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan. The Region of Peel will require an access agreement from the City to construct a trail and maintain access across/within the easements;
- Approval from DFO, Transport Canada, MNR and CVC will be required to facilitate the removal/retrofitting of the Kraft (Reid) Dam. A permit from CVC will be required related to the proposed footbridge, biotechnical stabilization work and other proposed attractions within the area that is regulated by CVC;
- Proposed bridges and alterations within the river will require the approval of DFO and will need to respect the *In-water Timing Window*. The proposed works may also require review by and approval from City of Mississauga Works Department;
- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3, April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010;
- All proposed initiatives should be consistent with the following City of Mississauga Official Plan Designations:
    - Green System - Schedule 1/1a, September 2010;
    - Natural Areas - Schedule 3, September 2010;
    - Public and Private Open Spaces – Schedule 4, September 2010;
    - Greenbelt/Natural Hazards – Schedule 10, September 2010; and,
    - Public Open Space - Schedule 10, September 2010.
- All proposed initiatives should have regard for the following City of Mississauga Official Plan Designations:
    - Part 9, OS-2 Zone (Open Space) June 30, 2010; and,
    - Part 10, G1, G1-14 Zone (Greenbelt-Natural Hazards) December 31, 2011.

Partnership Opportunities:

The implementation of many of the initiatives could benefit from partnerships with private companies and clubs, historical associations, non-profit organizations, schools and local community groups:

- Interest by the DPCDSB in integrating local examples of natural and cultural heritage within the teaching curriculum and utilizing the neighbouring Credit River valley for specific examples;
- Dog walking groups;

- Streetsville Historical Society – guided tours, historical re-enactments and community-based events;
- Sponsorship and promotion of local businesses i.e. mobile kiosk for local ice cream shop, BBQ run by local restaurants in exchange for funding;
- Angling derbies; and,
- Co-operatively run programs with the Vic Johnston Community Centre, naturalist groups, hiking association events.

Volunteerism opportunities may include:

- Restoration plantings – in accessible areas and on flat terrain;
- Initiatives aimed at enhancing habitat including the construction and installation of birdhouses, denning structures, bat boxes, brush piles and the like;
- Maintenance in terms of the collection of litter throughout park and reporting on damaged amenities and vandalism;
- Maintenance of restoration plantings including weeding and watering;
- Waste management and composting programs; and,
- Naturalist organizations to conduct interpretive walks that explain the natural and cultural heritage features in the area.

Initiatives, Implementation, Phasing & Costs:

The following Implementation initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works the cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer Appendix L for detailed summary of costs).

Initiative 1A – Completion of Credit River Heritage Route

Implementation: – Environmental Impact Statement (EIS)
- Refine trail route based on risk assessment
- Consult CVC to secure permit/approval for site alteration within the Regulated Area
- Stake confirmed trail alignment in field
- Geomorphological assessment
- Geotechnical assessment
- Hydrological assessment
- Natural heritage assessment
- Archaeological assessment
- Topographic survey

Phasing: – Studies, consultation & field work 0-5 years
- Design & construction 5-10 years

Cost: – $206,950

Initiative 1B – Construction of two (2) footbridges (north bridge 60m span and south bridge 65m span)

Implementation: – Hydrologic and ice movement studies
- Geomorphological assessment
- Geotechnical assessment
- Structural assessment
- Archaeological assessment

- Topographic survey
- Consult with MNR to secure permit for site alteration within the Regulated Area
- Consult with CVC to secure permit for site alteration within the Regulated Area
- Consult with Transport Canada Marine for the approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act (NWPA)

Phasing: – Studies, consultation & field work 0-5 years
- Design & construction 5-10 years

Cost: – $1,264,000

Initiative 1C – Design and installation of an at-grade signalized crossing across Bristol Road West

Implementation: – Conduct traffic study (pedestrian safety/crossing)
- Conduct Signal Warrant Analysis
- Consult with City T&W, Accessibility Department
- Consult with Transportation Consultant

Phasing: – Studies & consultation 0-5 years
– Design & construction 5-10 years

Cost: – $627,300

Initiative 1D – Design and installation of four (4) orientation signs

Implementation: – Develop signage program for entire feature site
- Consult Heritage Mississauga, Parks Operations, Park Planning and Parks Development to determine sign graphics and layout

Phasing: – 5-10 years

Cost: – $8,500

Initiative 2 – Construction of one (1) removable kayak and canoe launch platform

Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment
- Structural engineering
- Study potential impacts of ice jams on structures
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from CVC
- Secure approval from DFO
- Secure approval from Transport Canada

Phasing: – 10-15 years

Cost: – $45,694

Initiative 3 – A. Design and construction of three (3) entrance features
- B. Implementation of landscape enhancements of entrance and access route

Implementation: – Conduct traffic study (pedestrian safety/crossing)

- Consult with City T&W and Transportation Consultant for entry point and potential pedestrian crossing of laneway
- Design pedestrian crossings (no signal)
- Signal Warrant Study and permits (for main entry)

Phasing: – 5-10 years
Cost: – $203,750

Initiative 4 – Assess existing washroom/snack bar for accessibility
Implementation: – Consult with City Accessibility Committee
Phasing: – 0-5 years
Cost: – $37,500

Initiative 5 – A. Construction of a section of the primary trail
– B. Design and installation of five (5) interpretive signs.
Implementation: – Incorporate trail into City of Mississauga Trails and Cycling Plans
- Natural heritage assessment
- Cultural heritage assessment
- Archaeological heritage assessment
- Topographic survey
- Geotechnical/Slope Stability Study
- Consult approval CVC to secure permit for site alteration within the Regulated Area
- Consult with cemetery
- Sign Layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.

Phasing: – A. Primary trail 5-10 years
- B. Signage 10-15 years

Cost: – A. Primary trail $181,500
– A. Signage $13,850

Initiative 6 – A. Removal of operations/storage facility and parking area
- B. Removal of former sewage treatment plant

Implementation: – Operation facility relocation feasibility study
- Phase One ESA (possibly Phase 2 ESA and soil management plan)
- City of Mississauga demolition permit
- CVC approval for development or site alteration within the Regulated Area and floodplain
- Consult with City of Mississauga T&W and Engineering

Phasing: – A. Studies & consultation 5-10 years
- A. Removal of storage facility 10-15 years
- B. Removal of sewage treatment 10-15 years

Cost: – A. Removal of storage facility $172,500
– B. Removal of sewage treatment $142,500

Initiative 7	– Construction of a sustainable parking area #1. Incorporate L.I.D. techniques including stormwater quantity control and water quality improvements	
Implementation:	– Topographic survey	
	- Geotechnical assessment	
	- Archaeological assessment	
	- L.I.D. Feasibility Study	
	- Ice impact assessment	
	- CVC approval for development or site alteration within the Regulated Area	
	- Consult with City of Mississauga engineering and T&W	
Phasing:	– Studies, consultation & design	10-15 years
	- Construction	>15 years
Cost:	– $757,750	

Initiative 8	– Implementation of woodland reforestation	
Implementation:	– Conduct natural heritage assessment	
	- Conduct study impacts of flooding and ice jams	
	- Develop stewardship program	
	- Close ad-hoc trails and prepare restoration planting and signage plan for areas	
	- Apply for relevant grant/ funding programs	
	- CVC approval for development or site alteration within the Regulated Area	
	- Consult with UTM, colleges	
	- Consult with community organizations	
	- Consult with City of Mississauga Parks and Forestry	
	- Develop reforestation plans, signage and details	
Phasing:	– 5->15 years	
Cost:	– $268,000	

Initiative 9	– Implementation of cultural meadow reforestation	
Implementation:	– Event and festival relocation feasibility study	
	- Natural heritage assessment	
	- Archaeological Heritage Assessment	
	- Consult with CVC to secure permit for Development or Site Alteration within the Regulated Area	
	- Consult with Municipal operations staff	
Phasing:	– Studies, consultation & design	5-10 years
	- Construction	10->15 years
Cost:	– $88,500	

Initiative 10	– Implementation of edge management planting	
Implementation:	– Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan	
	- Consult with City of Mississauga Parks and Forestry	
	- Consult with homeowners	
	- Consult with area ratepayers	
	- Consult with Councillor	
Phasing:	– Studies	10-15 years

	- Consultation, design & construction	10->15 years
Cost:	– $36,300	

Initiative 11	– Removal of gravel dam in river	
Implementation:	– Study potential up and downstream impacts of removing the dam	
	- Fluvial geomorphical evaluation	
	- Aquatic habitat assessment	
	- Conduct an engineering assessment (feasibility of dam removal)	
	- Management plan for Lamprey	
	- CVC approval for development or site alteration within the Regulated Area	
	- Establish approval from CVC	
	- Establish approval from DFO	
	- Establish approval from Transport Canada	
	- Establish approval from MNR	
	- Determine optimal configuration for fish movement	
Phasing:	– Studies	5-10 years
	- Consultation, design & construction	10-15 years
Cost:	– $157,000	

Initiative 12	– Construction of a section of natural trail (earth surface trail)	
Implementation:	– Conduct Environmental Impact Statement (hydraulic, ice impacts, natural heritage and geotechnical studies)	
	- Archaeological assessment	
	- Topographic survey	
	- CVC approval for development or site alteration within the Regulated Area	
Phasing:	– 10-15 years	
Cost:	– $127,750	

Initiative 13	– Construction of three (3) angling access / overlooks + two (2) overlooks	
Implementation:	– Hydrological assessment	
	- Geotechnical assessment	
	- Archaeological assessment	
	- Structural engineering	
	- Study potential impacts of ice jams on structures	
	- CVC approval for development or site alteration within the Regulated Area	
	- Secure approval from CVC	
	- Secure approval from DFO	
	- Establish approval from Transport Canada	
Phasing:	– Studies	10-15 years
	- Consultation, design & construction	10->15 years
Cost:	– $131,554	

Initiative 14 – Removal of playground, soccer pitch, service road and ball diamond

Implementation: – Long-term review of sports fields
- Relocation strategy
- Meet with various Ward Councillors
- Consult with public, sports and user groups
- Development of removal, relocation and restoration plans

Phasing: – >15 years

Cost: – $202,000

Initiative 15 – Removal of armourstone wall

Implementation: – Geotechnical assessment
- Hydrogeological assessment
- Structural engineering assessment
- Aquatic habitat specialist
- Consult with City engineering
- Consult with CVC
- CVC approval for development or site alteration within the Regulated Area
- Consult with DFO

Phasing: – >15 years

Cost: – $332,500

Implementation Plan - P-114 Streetsville Memorial Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1A. Credit River Heritage Route (870m)	**Studies**	Conduct Environmental Impact Statement	$5,000	✓			
		Refine trail route based on risk assessment	$1,500	✓			
	Consultation	CVC permit	$2,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assessments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$15,000	✓			
	Design & Construction	Prepare working drawings for trail	$1,000		✓		
		Establish approval from CVC	$2,500		✓		
		Prepare tender documentation	$15,000		✓		
		Construct the trail	$160,950		✓		
		Prepare post construction monitoring and maintenance program for trail	$2,000		✓		
1B. Bridges (2 items - north bridge 60m span and south bridge 65m span)	**Studies/ Field Work**	Conduct hydrologic and ice movement studies geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$75,000	✓			
	Consultation	MNR, CVC, Transport Canada (NWPA)	$20,000	✓			
	Design/ Construction	Prepare preliminary and detailed design	$144,000	✓			
		Construct the bridges	$1,025,000		✓		
1C. At Grade Signalized Crossing (across Bristol Rd West)	**Studies**	Conduct traffic study (pedestrian safety/ crossing)	$15,000	✓			
		Conduct Signal Warrant Analysis (if required)	$12,000	✓			
	Consultation	City T&W, Transportation Consultant	$1,200	✓			
		City Accessibility Department	$3,500		✓		
	Design/ Construction	Preliminary design pedestrian crossing (signalilzed if required)	$17,600		✓		
		Prepare detailed design and construction of crossing	$78,000		✓		
		Construct Signalized Crossing	$500,000		✓		
1D. Orientation Signage (4 items)	**Design & Construction**	Develop sign design, graphics and layout (for Heritage Route only)	$1,500		✓		
		Produce and install signage (for Heritage Route)	$7,000		✓		
2. Canoe and Kayak Launch (1 item)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500			✓	
	Consultation	Establish approval from CVC, DFO and Transport Canada	$600			✓	
	Design	Detailed design and tender documentation	$7,500			✓	
	Construction	Construct two canoe/ kayak launches	$35,094			✓	
3A. Gateway Features (3 items)	**Consultation**	City T&W	$750		✓		
	Design/ Construction	Develop design for signage, bike parking (15 bikes), lighting and signals, prepare tender documentation	$10,500		✓		
		Construction of entry features	$45,000		✓		
3B. Landscape Enhancement Plantings (gateways)	**Design**	Prepare detailed planting plans, tender documentation	$28,000		✓		
	Construction	Construct the plantings	$119,500		✓		
4. Existing Washroom/ Snack Bar	**Studies**	Assess Existing Washroom/ Snack bar for Accessibility	$5,000	✓			
	Consultation	City Accessibility Committee	$2,500	✓			
	Design & Construction	Implement retrofits as per findings of assessment	$30,000	✓			
5A. Primary Trails (1000m)	**Studies/ Field Work**	Natural, Cultural and Archaeological Heritage Assessments, Topographic Survey, Geotechnical/ Slope Stability Study	$12,500		✓		
	Consultation	CVC, Cemetary	$1,500		✓		
	Design	Design route based on findings of assessment	$22,500		✓		
	Construction	Construct route based on findings of assessment	$145,000			✓	
5B. Interpretive Signage (5 items)	**Consultation**	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$750			✓	
	Design & Construction	Develop sign design, graphics and layout	$2,600			✓	
		Produce and install signage	$10,500			✓	

Implementation Plan - P-114 Streetsville Memorial Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
6A. Remove operations/ storage facility and parking area (1,000m²)	**Studies**	Operation facility relocation feasibility study	$6,000		✓		
		Phase One ESA (possibly Phase 2 ESA and soil management plan)	$10,000		✓		
		City of Mississauga demolition permit	$2,500		✓		
		CVC permit for alteration within floodplain	$2,500		✓		
	Consultation	City of Mississauga T&W and Engineering	$3,500		✓		
	Design	Prepare demolition, erosion & sediment control and restoration plans	$10,000		✓		
		Conduct removal and restoration works	$138,000			✓	
6B. Remove former treatment plant (500m²)	**Studies**	Phase One ESA (possibly Phase 2 ESA and soil management plan)	$10,000			✓	
		City of Mississauga demolition permit	$2,500			✓	
		CVC permit for alteration within floodplain	$2,500			✓	
	Consultation	City of Mississauga T&W and Engineering	$3,500			✓	
	Design	Prepare demolition, erosion & sediment control and restoration plans	$10,000			✓	
		Conduct removal and restoration works	$114,000			✓	
7. Parking Area L.I.D. Retrofit (3,750m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study, ice impact assessment	$50,000			✓	
	Consultation	CVC, City of Mississauga engineering and T&W	$1,500			✓	
	Design	Detail design and tender documentation	$75,000			✓	
	Contruction	Construction	$631,250				✓
8. Woodland Reforestation (37,000m²)	**Studies**	Conduct natural heritage assessment, study impacts of ice jams, develop stewardship program	$15,000		✓	✓	✓
		Close ad-hoc trails and prepare restoration planting and signage plan for areas	$12,000		✓	✓	✓
		Apply for relevant grant/ funding programs	N/A		✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations	$2,500		✓	✓	✓
		City of Mississauga Parks and Forestry	$1,500		✓	✓	✓
	Design	Develop reforestation plans, signage and details	$15,000		✓	✓	✓
		Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$222,000		✓	✓	✓
9. Cultural Meadow Restoration (18,000m²)	**Studies**	Event and festival relocation feasibility study	$3,500		✓		
		Natural heritage and archaeological assessments	$3,500		✓		
	Consultation	CVC, Municipal operations staff	$500		✓		
	Design	Prepare cultivation, planting/ seeding plans	$7,500			✓	✓
	Construction	Construct the meadows	$72,000			✓	
		Prepare and implement maintenance program	$1,500			✓	✓
10. Edge Management Planting (180m) (assumed 20 m wide)	**Studies**	Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan	$2,500			✓	
	Consultation	City of Mississauga Parks and Forestry	$750			✓	
		Homeowners, Area Ratepayers and Councillor	$750			✓	✓
	Design	Prepare planting plans, tender documentation	$3,500			✓	
	Construction	Construct the edge management plantings	$28,800			✓	✓
11. Removal of Gravel Dam in River	**Studies**	Study potential up and downstream impacts of removing the dam	$2,500		✓		
		Fluvial geomorphical evaluation	$7,500		✓		
		Aquatic habitat assessment	$5,500		✓		
		Conduct an engineering assessment (feasibility of dam removal)	$5,500		✓		
		Management plan for Lamprey	$4,500		✓	✓	
	Consultation	Establish approval from MNR, CVC, DFO and Transport Canada	$1,500			✓	
	Design	Determine optimal configuration for fish movement; prepare engineering tender	$5,000			✓	
	Construction	Remove the dam and restore banks as required	$125,000			✓	

Implementation Plan - P-114 Streetsville Memorial Reach							
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
12. Natural Trail (1,200m) (earth surface trail)	**Studies**	Conduct Environmental Impact Statement (hydraulic, ice impacts, natural heritage and geotechnical studies), Archaeological Assessments, topographic survey	$10,000			✓	
	Consultation	CVC (determine clear management widths & heights)	$750			✓	
	Design	Design trail, establish approval from CVC	$15,000			✓	
	Construction	Construct trail	$102,000			✓	
13. Angling Access (3 items) + Overlooks (2 item)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500			✓	
	Consultation	Establish approval from CVC, DFO and Transport Canada	$850			✓	✓
	Design	Detailed design and tender documentation	$11,500			✓	✓
	Construction	Construct the angling access and overlook structure	$116,704			✓	✓
14. Removal of playground, soccer pitch service road and ball diamond	**Studies**	Long-term review of sports fields; relocation strategy	$7,500				✓
	Consultation	Consult with Public, Sports and User Groups	$4,500				✓
	Design &	Develop Removal, Relocation and Restoration Plans	$25,000				✓
	Construction	Remove and Restore the Site to Woodlands	$165,000				✓
15. Removal/ Reconstruction of armourstone wall (300m)	**Studies**	Geotechnical, hydrogeologicial and structural engineering assesments, aquatic habitat specialist	$25,000				✓
	Consultation	City engineering, CVC, DFO	$6,500				✓
	Design &	Develop Biotechnical Alternatives to Slope Stabilization	$10,000				✓
	Construction	Prepare Tender Based on Preferred Option	$25,000				✓
		Remove and Reconstruct the Edge with Habitat Enhancements	$266,000				✓
			TOTAL ESTIMATED COST	**$5,005,398.00**			

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the "Feature Site" that interface with residential areas.

Policy Note 3: Incorporate Credit River Heritage Route, Primary Trails and Nature Trails into City of Mississauga Trails and Cycling Plans

Policy Note 4: Re-zone Open Space (OS) to Greenbelt (G) once playground, soccer pitch, service road and ball diamond are removed in future

1.5.5 P-462 - the Former Pinchin Lands

The remnant apple orchards, formally owned by the Pinchin family within this yet unnamed park provide the inspiration for the Concept Plan for this site. In conjunction with a NGO, this site can serve as a demonstration facility and market for organic fruit production (refer to Figure 1.12).

Theme

- Existing Orchard - Organic fruit production/heirloom fruit species;
- Cultural Heritage Interpretation - Early settlement of the Credit Valley;
- Salmon Migration; and,
- Parkland in Transition.

Existing Features

The site encompasses 16.7ha on the west side of the Credit River north of Highway #403. Until November 30, 2004 the site was managed as the Riviere Fruit Farm, a "pick-your-own" orchard.

James Pinchin purchased the farm in 1931 to meet the growing demands for produce in the Township and converted the farm to apple orchards. Planted in 1933, the orchards were brought to the site from the Clarkson area and consisted of 22 varieties. The trees are expected to have a lifespan of 71-84 years (and are 80 years old as of 2013). The "Riviere" name become associated with the farm in the late 1930's a French word inspired by the connection of the site with the river. The site includes remnants of a former barn foundation. Historical documents provided by the City of Mississauga and Heritage Mississauga *(A Cultural & Heritage Resource Inventory: The Pinchin Property/Riviere Fruit Farm, May 2005)* reference a former saw mill near the site although no visible remnants exist today.

The Leslie Log House was moved to the property in 1992 and was renovated in 2011 to accommodate the Streetsville Historical Archives and the Museums of Mississauga. The grounds surrounding the Leslie Log House are maintained by the Streetsville Horticultural Society.

Beyond the park boundary, on the east side of the floodplain the City has identified a site for a future water quality control facility (3101).

The Credit River Adaptive Management Study, (CRAMS) identified Erosion Sites (#15 & 16) within reach 37 on the outside bends of the channel within the site. Where the channel contacts the base of the valley adjacent to Covington Terrace (ES #15), armourstone toe protection has been applied to protect the slope and existing David J. Culham Trail. Monitoring to gauge the success of the armourstone installation was recommended in the CRAMS. A similar type armourstone treatment was placed along the valley toe at ES#16, with its primary purpose being to reduce the risk of slope destabilization in relation to the David J. Culham Trail. Private properties that are located above this slope are not at risk. Neither of these sites were identified as priorities for restoration. The sanitary sewer alignment on the west bank corresponds with the 100-year flood line, and likely will not interfere with the proposed works within the orchards/meadowlands. Two large stormwater outfalls release unimpeded flows into the channel from the north-easterly development. The upstream outfall coincides with the ES#15 location. The second and larger outfall discharge to a 100m storm channel, prior to confluence with the Credit River. The site includes butternut trees, a species at risk, as well as interior forest habitat.

Proposed Initiatives

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council. Key initiatives proposed for this "Feature Site" include:

Natural Heritage:

- "Heritage Orchard" – emphasis on managing the decline of the orchard lands through the organic production of heirloom varieties

Cultural Heritage:

- Barn foundation to be used as an interpretive site/outdoor classroom with cider press;
- Recognition of early Euro-Canadian settlement (archaeological site resources); and,
- Interpretive Signage.

Identity:

- Farm Market (seasonally operating out of proposed parking lot);
- Heritage Orchard Demonstration Sites;
- Community/cooperative-run fruit gardens;
- Sculptural/Architectural bridge over the Credit River;
- Experiential Playground;
- Trail connection to David J. Culham Trail;
- Areas for informal picnicking and community events; and,
- Washrooms.

Sustainability:

- Extension of David J. Culham Trail;
- Improved connections to adjacent neighbourhoods (east through Hewick Meadows);
- Connection of multi-modal transportation and transit along Mississauga Road; and,
- Sustainable L.I.D. improvements to parking lots.

Precedent Photo: "Experiential Playground"

Concept Plan Description:

The existing Leslie Log House is to be retained as an integral component of the Concept Plan.

There are three types of orchards that are proposed to comprise the "all-organic" fruit production on the site:

- Demonstration Orchard – To showcase prototypical organic gardening techniques on orchard specimens;
- Existing Orchard – The orchard specimens in this area of the orchard are older and an assessment will determine which trees will require rehabilitation or removal. A replanting strategy will be required to replace those specimens that are removed as a result of disease or poor health; and,
- Heritage Orchard – The organic Heritage Orchard provides the thematic inspiration for the site and will afford opportunities for programming related to organic fruit production. It is intended to be run as a "co-operative" where the

trees will be tended by volunteers using organic practices. In exchange for their efforts they will retain some of the fruit while the remaining percentage is sold through the co-op to cover costs of materials, etc.

With respect to the operation of the proposed heritage orchard, there are a number of options that should be explored and are further described in the "Future Studies Required" section below.

With respect to the operation of the orchard, the City of Mississauga does not support the application of fertilizers and pesticides due to the proximity of residential properties. Therefore an "all organic" approach to fruit production on this site must be undertaken. No pesticides will be utilized and, given that the site was a production orchard for many decades, tests of the fruit must be completed to ensure that residual pesticides in the soil do not pose a risk to human health. Research and monitoring undertaken in the European Union has determined that the risk of contamination from the accumulation of residual pesticides in apples is very low. This study found that only 0.31% of approximately 9700 samples of apples, tomatoes, lettuce, strawberries and grapes exceeded the Minimum Risk Level when assessed for seven individual pesticides and two groups of pesticides. (Md. Wasim Aktar, Dwaipayan Sengupta, and Ashim Chowdhury, 2009).


Precedent Photo: Fruit Farming


Precedent Photo: Picnic Shelter

Opportunities abound for education and research related to heirloom fruit propagation and production, education and youth training and permaculture. *EcoSource* has expressed an interest in collaborating with the City to revitalize the site and participate in the implementation of programs. Facilities to support the orchard operation will be subject to a business plan.

Within this property, the floodplain area will comprise the "Natural Corridor". This site is envisioned as a key point of access to the CRP System given its location on Mississauga Road and direct access to transit.

This park may be appropriate for an interpretation facility given its location and the prevalence of cultural heritage resources in the vicinity. The site also provides excellent views northward up the river valley and there are opportunities to provide access to the river for canoeing and angling.

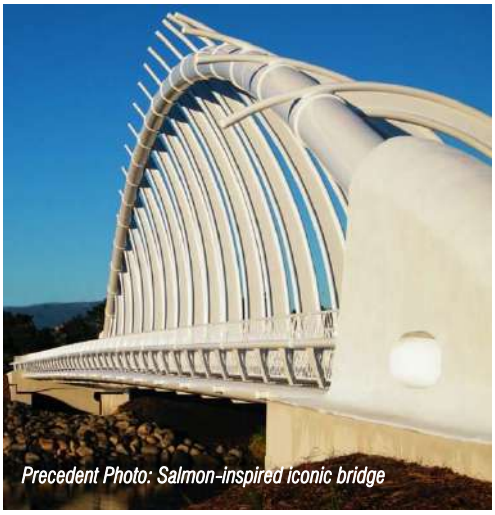
The remnant foundation of the barn can be adapted to serve as an outdoor classroom and interpretive amenity. A cider press may be associated with this

feature as a practical demonstration component of the history of the site. Additionally, there is the potential to integrate an experiential playground within the site in conjunction with the outdoor classroom/education component of the park.

To enhance the resilience of the existing valleyland forest, reforestation is proposed along the edge of the tableland to provide a buffer adjacent to the steep slopes and floodplain. This initiative will enhance woodland cover and corridor width.


Precedent Photo: Barn Ruins – Interpretive Feature

A new bridge is proposed to span the river to connect the former Pinchin Lands with Hewick Meadows to the east, providing a key trail connection and also providing an opportunity to view the salmon runs. The ultimate alignment of this trail connection must acknowledge the slope conditions in this area. Further detailed site review and design will be required to identify the most appropriate alignment of the trail. Appropriate consideration must also be given to the placement and span of the proposed bridge. Placement of the crossing may be viewed as a "harmful alteration, disruption, or destruction" (HADD) of fish habitat by DFO and compensation works may need to be incorporated into the design. This trail is proposed to extend southward from the former Pinchin Lands to the existing hydro transmission corridor. It will then deviate eastward, paralleling the north side of Highway #403, crossing the Credit River to connect with the existing David J. Culham Trail. An agreement with Hydro One will be required to allow the trail to be located within the hydro transmission corridor; however, this trail can also serve as a maintenance access route to the benefit of Hydro One.


Precedent Photo: Salmon-inspired iconic bridge

This new bridge should be designed as a public art piece that reflects the seasonal salmon migration and will serve as a location to view salmon migration. The David J. Culham Trail is proposed to be extended from the proposed bridge to the Highway #403 underpass to resolve a long-standing missing link in the trail.

A second new bridge is proposed to span the channel that leads from the outfall to the river on the east bank. The existing large heritage black walnut tree that resides in the central portion of the former Pinchin Lands site is a prominent visual element within the landscape as well as a landmark within the site and proposed to be interpreted as a heritage feature. Interpretive storylines related to this tree could address the history of the tree within the landscape.

Figure 1.12: Concept Plan –P-462 – Former Pinchin Lands

Relationship to Park System:

The Concept Plan for the former Pinchin Lands is intended to position the site as a multi-use destination that will accommodate a spectrum of activities ranging from informal picnicking to community festivals and events. The Heritage Orchard provides the thematic inspiration for the site and will afford opportunities for programming related to organic fruit production. The site will afford opportunities for unique experiences of the Credit River including an iconic bridge over the river.

An outdoor classroom will support educational programming related to the cultural heritage of the site and the natural heritage of the river. An experiential playground is proposed to be associated with this feature.

Program Considerations:

As there are very limited viable tablelands left in public ownership throughout Mississauga, the 9 ha (23 acres) of tableland within this "Feature Site" should be treated as a limited resource within the park system.

The Leslie Log House is operated by the City of Mississauga with a Museum on the first floor; the archives of the Streetsville Historical Society located on the second floor; and, the Streetsville Horticultural Society maintains the immediate grounds. The facility is intended to offer visitors and school groups a wealth of information about the historical orchards of the Riviere Fruit Farm, the natural and cultural significance of the local environment and that of the Credit River valley.

There are a number of other potential partners that have expressed an interest participating in programs offered at the site including UTM, EcoSource and the Evergreen Foundation.

Design Considerations:

Recognizing that the majority of the orchard is approaching or has exceeded its conventional lifespan; and, the limited availability of tableland within the park system, this property is unique amongst the "Feature Sites" in its potential to accommodate uses that cannot typically be located within the valley corridor due to their conflict with natural heritage protection requirements.

The specific location of trails and proposed bridges will be determined through the completion of site-specific studies that consider riverine processes, ice movement, slope stability and natural heritage sensitivity. Designs will need to be developed for the outdoor classroom, and experiential playground.

The remnant foundation of a former barn is recommended to be retained and repointed to be utilized as an interpretive amenity and outdoor classroom.

The proposed bridges should be designed as a public art piece that reflects the seasonal salmon migration. Further detailed site review and design will be required to identify the most appropriate alignment of the trail and location of bridges through the steep sections of the valley.

Future Studies Required:

The inevitable decline of the orchard is to be managed for production and public safety until they are no longer viable (as determined through a business plan). Although further study must be undertaken to determine the ultimate use of the lands, the ultimate use of the lands should be devoted to supporting programs and

activities that cannot be accommodated within the river valley due to natural heritage conflicts.

The site is well-suited to accommodate community events given the fact that it encompasses approximately 9 ha (23 acres) of tableland area. Should it be deemed desirable to host large festivals and civic events at the site, parking and traffic studies should be completed to determine potential implications on the neighbourhood and to recommend traffic and parking management strategies to alleviate potential impacts. The process of determining the potential suitability of the site to accommodate such events should include consultation with the community.

Within this latter model, groups of trees within the orchard would be allotted to city residents who would care for the trees and be entitled to a portion of the fruit that these trees produce. A certain portion of the fruit produced would be retained by the co-op and marketed, with the proceeds contributing to offsetting general operational costs.

A study should be completed to confirm the potential for residual pesticides in fruit yielded by the orchard. An Integrated Pest Management (IPM) Plan should be prepared by a qualified agricultural consultant to prescribe the methods to be employed to manage insects and diseases in accordance with up-to-date best management practices in order to optimize the environmental sustainability of the orchard operation.

As the remnant foundations of the former barn could serve as an interpretive amenity and outdoor classroom the condition of the foundations should be investigated in order to determine that they are fit for this purpose. A design competition could be held to determine optional designs for the interpretive amenity. A similar exercise could be held for the design development of an iconic "salmon migration themed" bridge.

Policy & Regulation:

- Access to maintenance easements pertaining to the trunk sewer and two large stormwater outfalls are required to be kept free from obstructions. The Region of Peel will require an access agreement from the City to construct a trail and maintain access across/within the easements;
- Consideration for widened setback along Mississauga Road edge as the road is considered a Scenic Route, as identified in the Mississauga Road Scenic Route Study;
- The site includes butternut trees, a species at risk that requires protection as sanctioned by the provincial government;
- Considerations for setbacks near Hydro One regulated area in relation to the design and implementation of initiatives;
- As the whole of the "Feature Site" falls within the Parkway Belt West Plan all proposed initiatives will require approval of the Ministry of Municipal Affairs and Housing (MMAH);
- Proposed bridges and alterations proposed within the river will require the approval of DFO and will need to respect the *In-water Timing Window*. The proposed works may also require review by and approval from City of Mississauga Works Department. Permits will also be required from CVC to facilitate the implementation of bridges, trails and amenities that are proposed within the Regulated Area;

- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3, April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010;
- As the property is designated through the Ontario Heritage Act, all initiatives are subject to a Heritage Impact Statement and a Heritage Permit through Heritage Planning, Culture Division and the Heritage Advisory Committee;
- All proposed initiatives should have regard for the following City of Mississauga Official Plan Designations; and,
    - Green System - Schedule 1/1a, September 2010;
    - Natural Areas - Schedule 3, September 2010;
    - Linkages - Schedule 3, September 2010;
    - Public and Private Open Spaces – Schedule 4, September 2010;
    - Parkway Belt West – Schedule 4, September 2010;
    - Parkway Belt West – Schedule 10, September 2010;
    - Greenbelt/Natural Hazards – Schedule 10, September 2010; and,
    - Public Open Space - Schedule 10, September 2010.
- All proposed initiatives should have regard for City of Mississauga Official Plan Designation: Part 11, PB1 Zone (Parkway Belt) December 31, 2011.

Partnership Opportunities:

The implementation of the following initiatives could benefit from partnerships with charitable foundations, horticultural industry associations or Public-Private Partnerships with private companies:

- Operation of the historic orchard with a local grower;
- Operation of the demonstration orchards;
- Operation of the farm market;
- Operation of tour groups and interpretive events;
- Artists Group to run a competition to design and construct an iconic bridge over the Credit River with locations to view salmon;
- Horticultural Trades Association/Landscape Ontario, EcoSource, the Evergreen foundation, UTM;
- Local farming associations;
- Angling associations; and,
- Local growers.

Volunteerism opportunities may include:

- Care for orchard trees, demonstration site trees;
- Maintenance in terms of litter collection throughout park and reporting on damaged amenities and vandalism;
- Maintenance of restoration plantings including weeding and watering;
- Waste management and composting programs; and,
- Coordinate with Mississauga Museums and Heritage Mississauga to provide guided interpretive walks that explain the cultural heritage of the area.

Tourism/Education and Community Outreach:

The following initiatives could attract visitors to the site potentially attracting revenue and contributing to cross-promotion and economic benefits for other programs, activities and businesses in the area:

- Urban orchards and demonstrations sites could be part of a historical and environmental tour operating in the area;
- Community conference or meeting space in the Leslie Log House;

- Interpretive events offered on the site grounds;
- Research opportunities with UTM and local schools in operating an organic orchard and integrated pest management;
- Volunteer/naturalist organizations to conduct interpretive walks that explain the natural and cultural heritage features of the site;
- Streetsville Archives and Museum; and,
- Salmon run and fishing derby.

Initiatives, Implementation, Phasing & Costs:
The following Implementation initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works the cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer Appendix L for detailed summary of costs).

Initiative 1A – Completion of Credit River Heritage Route

Implementation: – Environmental Impact Statement (EIS)
- Refine trail route based on risk assessment
- Conduct washroom study
- Consult with CVC to secure permit/approval for site alteration within the Regulated Area (components of trail within floodplain)
- Consult with Heritage Mississauga and City Heritage staff (components of trail outside of floodplain)
- Stake confirmed trail alignment in field
- Geomorphological assessment
- Geotechnical assessment
- Natural heritage assessment
- Archaeological assessment Topographic survey
- Heritage Impact Statement and Heritage Permit required

Phasing: – Studies, consultation & field work 5-10 years
- Design & construction 5->15 years

Cost: – $463,500

Initiative 1B – Construction of two (2) bridges (65m span over river, 15m span over outfall)

Implementation: – Assess implications existing storm channel on bridge design
- Assess easement/access requirements with Peel Region
- Development of a RFP for design competition for 'salmon inspired' river crossing, select bridge designer
- Geotechnical assessment
- Geomorphological assessment
- Structural assessment
- Archaeological assessment
- Topographic survey
- Consult with MNR to secure permit for Development or Site Alteration within the Regulated Area
- Consult with CVC to secure permit for Development or Site Alteration within the Regulated Area
- Consult with Transport Canada Marine for the approval of

works that may alter the ability to navigate the river under the Navigable Waters Protection Act (NWPA)
- Consult Peel Region to secure permit for Development or Site Alteration within the Regulated Area
- Public review of options for artistic bridge design
- Heritage Impact Statement and Heritage Permit required

Phasing: – Studies, consultation & field work 0-5 years
- Design & construction 5-10 years

Cost: – $900,000

Initiative 2 – Construction of one (1) overlook

Implementation: – Geotechnical assessment
- Archaeological assessment
- Structural engineering
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from CVC
- Secure approval from DFO
- Secure approval from Transport Canada
- Heritage Impact Statement and Heritage Permit required

Phasing: – 5-10 years

Cost: – $57,150

Initiative 3 – Design and installation of two (2) orientation signs.

Implementation: – Sign layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.
– Heritage Impact Statement and Heritage Permit (Approval from HAC) (can be combined with like initiatives)

Phasing: – 5-10 years

Cost: – $4,375

Initiative 4 – Construction of organic heritage orchard

Implementation: – Heritage Orchard Feasibility Study
- Business Plan and Operations Plan (determine orchard operation model)
- Integrated Pest Management Plan
- Consult with urban agrarian/permaculture specialists
- Consult with Heritage Mississauga and City Heritage staff
- Consult with Ontario Ministry of Agriculture and Food and Rural Affairs (OMAFRA)
- Topographic survey
- Cultural heritage study
- Transportation engineering assessment
- Economic Impact Study
- Seek private partners and/or potential vendors
- Heritage Impact Statement and Heritage Permit required

Phasing: – A. Studies & consultation 0-10 years
- B. Design & installation 10-15 years

Cost: – $1,578,800

Initiative 5 – Construction of informal picnic opportunities
- Implementation: - Access to existing building for washrooms
  – Heritage Impact Statement and Heritage Permit required
- Phasing: – 5-10 years
- Cost: – $201,500

Initiative 6 – A. Construction of a section of the primary trail from Creditview Road
– B. Design and installation of three (3) orientation signs.
- Implementation: – Cultural heritage assessment
  - Topographic survey
  - Sign layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan
  - Heritage Impact Statement and Heritage Permit required
- Phasing: – 10-15 years
- Cost: – $160,400

Initiative 7 – Construction of a hiking/interpretive trail (nature trail) through orchards
- Implementation: – Topographic survey
  - Geotechnical assessment
  - Heritage Impact Statement and Heritage Permit required
- Phasing: – >15 years
- Cost: – $78,900

Initiative 8 – Construction of an asphalt service access road and parking areas #1 and #2.
- Implementation: – Topographic survey
  - Geotechnical assessment
  - Archaeological assessment
  - L.I.D. Feasibility Study
  - Transportation engineering assessment and civil engineering
  - Consult with City of Mississauga engineering and T&W
  - Heritage Impact Statement and Heritage Permit required
- Phasing: – 5-10 years
- Cost: – $1,012,450

Initiative 9 – Construction of a drainage swale
- Implementation: – Stormwater Management Plan
  - CVC approval for development or site alteration within the Regulated Area
  - Stormwater engineering assessment
  - Archaeological assessment
  - Topographic surveys
  - Heritage Impact Statement and Heritage Permit required
- Phasing: – 5-10 years
- Cost: – $125,250

Initiative 10 – Construction of heritage orchard demonstration sites
Implementation: – Consult with urban agrarian/permaculture specialists to design demonstration plots
– Heritage Impact Statement and Heritage Permit required
Phasing: – 10-15 years
Cost: – $175,500

Initiative 11 – A. Design and construction of one (1) entrance feature
- B. Implementation of landscape enhancements plating (gateway)
Implementation: – Conduct traffic study (pedestrian safety/crossing)
- Consult with City T&W and Transportation Consultant for entry point and potential pedestrian crossing of laneway
- Design pedestrian crossings (no signal)
- Signal Warrant Study and permits (for main entry)
- Heritage Impact Statement and Heritage Permit required
Phasing: – 10-15 years
Cost: – $167,000

Initiative 12 – Restoration of barn foundation as outdoor classroom
Implementation: – Heritage Impact Statement/Identify Feasibility for Restoration
- Restoration Conduct Engineering Assessment to Identify Requirements for Restoration
- Consult with Public for feedback on Design of Interpretive Amenity
- Heritage Impact Statement and Heritage Permit required
Phasing: – >15 years
Cost: – $72,700

Initiative 13 – Implementation of edge management protection & planting
Implementation: – Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan
- Consult with City of Mississauga Parks and Forestry
- CVC approval for Development or Site Alteration within the Regulated Area
- Heritage Impact Statement and Heritage Permit required
Phasing: – Studies & consultation 10-15 years
- Design & construction 10->15 years
Cost: – $131,500

Initiative 14 – Implementation of woodland reforestation
Implementation: – Conduct natural heritage assessment
- Conduct study impacts ice jamming
- Develop stewardship program
- Apply for relevant grant/funding programs
- CVC approval for Development or Site Alteration within the Regulated Area
- Consult with UTM, colleges
- Consult with community organizations

- Consult with City of Mississauga Parks and Forestry

Phasing: – 0->15 years
Cost: – $148,000

Initiative 15 – Design and installation of seven (7) interpretive signs
Implementation: – Develop Interpretive Signage Plan
- Sign layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.

– Heritage Impact Statement and Heritage Permit required
Phasing: – Studies & consultation 10-15 years
- Design & construction 10->15 years

Cost: – $57,350

Implementation Plan - P462 Former Pinchin Lands Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1A. Credit River Heritage Route (2,000m)	**Studies**	Conduct Environmental Impact Statement	$7,500		✓		
		Refine trail route based on risk assessment	$1,500		✓		
		Conduct Washroom Justification Study	$5,000		✓		
	Consultation	CVC (components of trail within floodplain)	$3,500		✓		
		Heritage Mississauga and City Heritage staff (components of trail outside floodplain)	$1,500		✓		
	Field Work	Stake confirmed trail alignment in field	$1,500		✓		
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Natural Heritage, Archaeological and Topographic Survey	$30,000		✓		
	Design & Construction	Prepare working drawings for trail	$12,500		✓		
		Establish approval from CVC	$5,000		✓		
		Prepare tender documentation	$22,000			✓	
		Construct the trail	$370,000			✓	
		Prepare post construction monitoring and maintenance program for trail	$3,500			✓	✓
1B. Bridges (2 items - 65m span over river and 15m span over outfall)	**Studies/ Field Work**	Assess implications existing storm channel on bridge design; assess easement/access requirements with Peel Region	$60,000	✓			
		Develop RFP for Design Competition for 'salmon inspired' river crossing; Select Bridge Designer	$15,000	✓			
		Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$60,000	✓			
	Consultation	MNR,CVC,Transport Canada (NWPA), Peel Region, Public Review of Options for Artistic Bridge Design	$6,000	✓			
	Design/ Construction	Develop Selected Bridge Design	$6,000		✓		
		Prepare preliminary and detailed design	$83,000		✓		
		Construct the bridges	$670,000		✓		
2. Overlook (1 item)	**Studies**	Geotechnical, archaeological and structural engineering.	$2,500		✓		
	Consultation	Establish approval from CVC, DFO and Transport Canada	$850		✓		
	Design	Detailed design and tender documentation	$3,800		✓		
	Construction	Construct the access paths and overlooks	$50,000		✓		
3. Orientation Signage (2 items) (within Feature Site boundary only)	**Design & Construction**	Develop sign design, graphics and layout (for Heritage Route only)	$875		✓		
		Produce and install signage (for Heritage Route)	$3,500		✓		
4. Organic Heritage Orchard (43,000m²)	**Studies**	Heritage Orchard Feasibility Study	$60,000	✓			
		Prepare Business Plan and Operations Plan** (determine orchard operation model)	$45,000	✓			
		Integrated Pest Management Plan	$15,000	✓			
	Consultation	Consult urban agrarian/ permaculture specialists	$12,000	✓			
		Heritage Mississauga and City Heritage staff	$5,900	✓			
		Ontario Ministry of Agriculture and Food (OMAF)	$5,900	✓			
		Engage prospective vendors/ lease agreement (depending on operation model chosen)	$15,000	✓	✓		
	Design	Establish agriculture production systems/ schedules	$20,000		✓		
		Develop irrigation plan (L.I.D. rainwater harvesting)	$35,000		✓		
		Establish MOE permit 'to take water' (if no rainwater harvesting)	$15,000		✓		
	Installation	Installation of the components of the orchard plan	$1,350,000		✓	✓	
5. Informal Picnic Area (2,000m)	**Design & Construction**	Develop grading plan and provide running water. Access to building for washrooms (subject to washroom justification study).	$12,500		✓		
		Prepare tender documentation	$25,000		✓		
		Construct manicured lawn area with 4-6 fixed picnic benches	$164,000		✓		
6A. Primary Trail (850m) (from Creditview Rd)	**Studies/ Field Work**	Cultural Heritage Assessment, Topographic Survey	$10,000			✓	
	Design	Design route based on findings of assessment	$20,600			✓	
	Construction	Construct route based on findings of assessment	$123,250			✓	
6B. Orientation Signage (5 items) (*signage outside feature site included in Highway # 403 Reach)	**Design & Construction**	Develop sign design, graphics and layout (for Primary Trail)	$1,300			✓	
		Produce and install signage (for Primary Trail)	$5,250			✓	

Implementation Plan - P462 Former Pinchin Lands Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
7. Hiking/ Interpretive Trail (Nature Trail) (740m) (through orchards)	**Studies/ Field Work**	Topographic Survey, Geotechnincal Assessment	$4,500				✓
	Design	Design route based on findings of assessment	$11,500				✓
	Construction	Construct route based on findings of assessment	$62,900				✓
8. Asphalt Service Access Road (1050m²) and Parking Areas #1 and # 2 (2,000m²) (not L.I.D. as in tablelands)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$30,000		✓		
		Transportation engineering assessment and civil engineering	$55,000		✓		
	Consultation	City of Mississauga engineering and T&W	$12,500		✓		
	Design	Detail design and tender documentation	$72,000		✓		
	Contruction	Construct access road and parking areas	$842,950		✓		
9. Drainage Swale (150m)	**Studies**	Stormwater Management Plan	$4,500		✓		
	Consultation	Consult with CVC and apply for permit	$750		✓		
	Field Work	Stormwater Engineering and Archaeological Assessments. Conduct Topographic Surveys	$2,500		✓		
	Design & Construction	Prepare working drawings for drainage swale	$10,000		✓		
		Establish approval from CVC (drains to floodplain)	$2,500		✓		
		Prepare tender documentation	$15,000		✓		
		Construct the drainage swale	$90,000		✓		
10. Heritage Orchard Demonstration Sites (5.000m²)	**Consultation**	Consult urban agrarian/ permaculture specialists to design demonstration plots	$5,500			✓	
	Design & Construction	Preliminary concept design of sites	$12,500			✓	
		Detailed design of demonstration sites	$17,500			✓	
		Construct the demonstration sites	$140,000			✓	
11A. Gateway Feature (1 item)	**Consultation**	City T&W	$750			✓	
	Design/ Construction	Prepare preliminary and detailed design for entry including bike parking (15 bikes). Prepare tender documentation	$10,500			✓	
		Construct the entry feature	$15,000			✓	
11B. Landscape Enhancement Plantings (main entry and gateway)	**Design/Construction**	Prepare detailed planting plans, tender documentation	$28,000			✓	
		Construct the landscape plantings	$112,750			✓	
12. Cider Mill Interpretive Feature	**Studies**	Heritage Impact Statement/ Identify Feasibility for Restoration	$5,000				✓
		If Suitable for Restoration Conduct Engineering Assessment to Identify Requirements for Restoration	$2,500				✓
	Consultation	City Heritage staff, Heritage Mississauga	$1,500				✓
		Consult with Public for feedback on Design of Interpretive Amenity	$2,500				✓
	Design & Construction	Develop Interpretive Concept	$3,200				✓
		Install under guidance from City and Heritage Mississauga staff	$58,000				✓
13. Edge Management Protection & Planting (650m) (assumed 10 m wide)	**Studies**	Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan	$7,500			✓	
	Consultation	City of Mississauga Parks and Forestry	$2,500			✓	
		CVC	$2,500			✓	
	Design	Prepare planting plans, tender documentation	$15,000			✓	✓
	Construction	Construct the edge management plantings	$104,000			✓	✓
14. Woodland Restoration (20,000m²) (valleyland areas and top edge of bluff)	**Studies**	Conduct natural heritage assessment,impacts of ice jamming, develop stewardship program	$12,500	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations	$2,500	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$1,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$10,000	✓	✓	✓	✓
		Develop coordination/ protocol with nursery operation for supply and timing of plant material	$1,500	✓	✓	✓	✓
	Construction	Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$120,000	✓	✓	✓	✓

Implementation Plan - P462 Former Pinchin Lands Reach							
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
15. Interpretive Signage (6 items) (*signage outside feature site included in Highway # 403 Reach)	**Studies**	Interpretive Strategy	$4,500			✓	
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$1,250			✓	
	Design & Construction	Develop sign design, graphics and layout	$14,000			✓	
		Develop design for cider barn foundation node	$5,000			✓	
		Produce and install signage and node	$32,600			✓	✓
		TOTAL ESTIMATED COST	**$5,334,375**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

*** Provincial website provides information on business plans www.omafra.gov.on.ca/english/busdev/facts/08-051*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the "Feature Site" that interface with residential areas.

Policy Note 3: Re-zone RR designation to Open Space (OS)

Policy Note 4: Incorporate Credit River Heritage Route, Primary Trails and Hiking Trails into City of Mississauga Trails and Cycling Plans

1.5.6 P-331 - Riverwood

Located in central Mississauga, Riverwood's combination of natural, cultural heritage and art is to be reinforced within the CRPS. Building on the site's central location within the valley, accessibility to transit and proximity to Mississauga's core (refer to Figure 1.14). Riverwood is envisioned as the focal point for orientation and visitor experience and the hub of the CRP System.

Consistent with the City's Strategic Plan, three "Feature Sites": Riverwood, the former Pinchin Lands and Erindale Park, are proposed to comprise a "Central Park" within the City. Accordingly, the Concept Plans for these "Feature Sites" complement one another in terms of theme, proposed programming and facilities.

Given Riverwood's position as the key component of the City's Central Park, the proposed Visitors' Centre is envisioned as a centrepiece within the overall CRP System, orienting visitors and providing information related to the attributes of the other six "Feature Sites" and the events and programs available throughout the Credit River valley within Mississauga.

Figure 1.13: Location Map

Theme

- A Centre for Environmental Education and the Arts; and,
- Riverwood in combination with Erindale and the former Pinchin Lands is identified as the "Central Park" of Mississauga.

Existing Features

Riverwood is a 60ha site that is located within 6km of the City's downtown area. Riverwood is home to The Riverwood Conservancy (TRC) and Visual Arts Mississauga (VAM). Both of these organizations offer programs in the buildings within the "Feature Site".

The VAM facility is located south of the Chappell House. VAM promotes an appreciation of the arts through 'active involvement and creative experiences' and offers a variety of programs aimed at bringing an appreciation for the arts of the Mississauga community. The organization is the largest of its kind in Mississauga boasting over 1,000 members. The Visual Arts Mississauga operates in a purpose built 634 m2 art centre that is the creativity hub in the City. Visual Arts Mississauga offers over 95 adult art classes and workshops, 85 children's and 17 teen courses, a week of March Break and 10-weeks of summer art camps. In addition, the organization offers roughly 300 art class and after school programs for schools in the region. VAM also offers much needed exhibition space for local artists by hosting weekend art exhibitions on site.

The site also encompasses a number of important cultural heritage features including the following:

- MacEwan House (mid 1800s);
- MacEwan Barn;
- Parker/Chappell House and associated Stone-Built Features (1919);
- Parker/Chappell House grounds;
- Former lawn tennis court and adjacent paths and steps;
- Fences and fence fragments;
- Orchard remnants and windbreak of Norway Spruces;
- Existing pathways/trails;
- Vehicular stone bridge crossing MacEwan Creek;
- Boardwalks in floodplain crossing Mac Ewan and Chappell Creeks;
- The Visual Arts Mississauga building; and,
- The MacEwan Terrace Garden.

The MacEwan Terrace Garden is a major cultural attraction supported by its prominence in Mississauga. The development of the MacEwan Terrace Garden is consistent with the 2002 Master Plan and amendments and builds upon the efforts of the Riverwood Fundraising Campaign. This public facility is complemented by The Riverwood Conservancy Enabling Garden (a special needs garden) and the Chappell House gardens including a Carolinian and Woodland Teaching Garden.

The site includes the MacEwan Pond that serves as a teaching tool for TRC with regard to aquatic plantings. It should be noted that the feature is not fed by ground water but rather is reliant upon stormwater retention from the adjacent property and parking lot.

The greater site encompasses a number of significant natural features including several species at risk, area sensitive ground nesting birds and interior forest habitat.

In 2002, a Master Plan was prepared for Riverwood which was known then as "Mississauga Garden Park". A series of amendments have occurred to this plan. The following initiatives have been identified as priorities in the 2008/2009 Garden Development Plan and further retained in the CRPS.

- Chappell House exterior, front courtyard & rear terrace;
- MacEwan Terrace Garden that accommodates a new Visitor Centre footprint;
- Proposed addition to existing barn;
- Retention of the existing pond and wetland species at the edge;
- Retention of the proposed MacEwan Creek Pedestrian Bridge;
- Retention of the Chappell and Bird Terrace Garden Program;
- Proposed main entry gardens & peripheral areas (around the pond);
- No proposed Environmental Centre building on Zaichuk terrace; and,
- VAM Common Green will remain without modification.

The document was reviewed in the process of generating the CRPS and where appropriate components of the Master Plan and subsequent amendments have been integrated into Preferred Concept Plan for the park. Appendix N provides a summary of amendments and proposed alterations to Riverwood since the 2008/09 Garden Development Plan.

The Credit River Adaptive Management Study, (CRAMS) identified erosion site (#17) within reach 7 downstream of the Highway #403 crossing, and at the upstream extent of the Riverwood. This site was ranked among the priority sites for restoration where the implementation plan was recommended within the 15 – 20 year timeframe. This would translate to restoration occurring around the year 2020, depending on existing conditions and potential levels of risk. Risks to private property were identified along Bridewell Court which extends to the edge of the valley slope.

A Visitors' Centre is proposed as a key component of the Concept Plan. The Visitors' Centre will assist in achieving the objective of positioning Riverwood as a hub by offering visitors information related to programs and activities available throughout the CRP area and is intended to function as a "welcome" facility for visitors providing both orientation and interpretive information.

Within the valleyland area, the trail system (including parts of the Culham Trail) will be redefined where necessary to mitigate impacts on the environment. The existing lower parking lot is proposed to be retrofitted to incorporate state-of-the-art stormwater management (SWM) techniques that could include vegetated swales or bioretention cells to improve the quality of stormwater emanating from the site and to moderate discharge rates.

Proposed Initiatives

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council. Key initiatives proposed within the Concept Plan for Riverwood include the following:

Natural Heritage:

- Forest management including invasive species management in tableland and valleyland areas;
- Closure of ad-hoc trails and creation of a network of looped nature trails (based on the existing location of the trails and addition of two new segments);
- Vegetation restoration and enhancement; and,

- Improvements to existing SWM Pond (MacEwan Pond).

Cultural Heritage:

- Environmental/art gardens to replicate the variety of landscapes found within the valley marking both sides of the entrance and the roundabout;
- Restoration of the Chappell House stairway leading to the valley (including interpretive signage); and,
- Development of an interpretive signage program for all cultural heritage features on the site.

Identity:

- Visitors' Centre with large multi-purpose space, gift shop, food services and welcome centre;
- Seasonal use of existing barn;
- Washrooms;
- Potential use of the Chappell House as an "Environmental Education Centre";
- Suspension bridge over MacEwan Creek as an architectural/sculptural feature;
- Charter bus shelter/ information kiosk;
- Angling Opportunities;
- River Overlooks; and,
- Garden Program (through TRC).

Sustainability:

- Link to Erindale GO Station via the sidewalk on the north side of Burnhamthorpe Road West; and,
- Improvements to the lower parking area including L.I.D. stormwater management technologies.


Precedent Photo: Permeable Pavement (L.I.D. Initiative)

Concept Plan Description:

As a centre for Environmental Education and Art the Riverwood "Feature Site" proposes the integration of Environmental Art Gardens to explore ecological issues and themes that relate to the natural, formal, historical, or even social contexts. In a broader sense environmental art also encompasses the scope of the urban landscape. Environmental art as public art stimulates artists to engage the urban landscape as another medium. The art works that may be proposed for the environmental art garden at Riverwood may be comprised of landforms, free-standing sculpture, be juxtaposed to or seamlessly integrated with the landscape. Depending upon the theme of the artwork artists may seek to change perception in the viewer, to evoke a unique 'sense of space' and/or to educate the public about natural processes and functions through art.

Various gardens proposed within the Mississauga Garden Park Master Plan are integrated within the Concept Plan; however, consistent with the environmental enhancement emphasis for this "Feature Site," these gardens are proposed to be created utilizing native species. The integration of environment and art is encouraged throughout the park.

At the entrance to Riverwood, a large Environmental Art Garden is proposed to accentuate the prominence of Riverwood at Burnhamthorpe Road. This garden is envisioned to form a gateway feature and become a landmark within the City. This garden is intended to combine environment, art and showcasing horticultural

gardens and is envisioned as displaying art installations that will change on a seasonal basis. This garden is intended to be a focal point at the entrance to Riverwood flanking both sides of the roadway leading into the site. A prominent garden/art piece is also proposed in the main roundabout to form a major feature within the landscape.


Precedent Photo: Environmental Art Garden

Consistent with the predominant emphasis on natural heritage, future garden development may be focussed on establishing a mosaic of gardens that replicate the variety of landscape types presently and formerly found within the Credit River valley, including meadows, thickets, wetlands, successional landscapes and woodlands. The objective will be to showcase the variety of native plant species that thrive within these vegetation communities but still recognize existing garden trends for non-native trees, flowering shrubs and perennials. These nature gardens will serve as a source of knowledge for visitors, promoting the use of native plant species and the creation of natural habitats as the new paradigm in urban gardening. The gardens will integrate art installations to create a series of 'Environmental Art Gardens'.

Visual Arts Mississauga (VAM) desires expanded studio space in order to support existing programs and to facilitate growth. However, limitations imposed by spatial and physical conditions necessitate that any growth be accommodated within the footprint of the existing building or through shared space within a proposed future Visitors' Centre. Improvements to the parking and vehicular and pedestrian circulation systems (more efficient parking design, safer well-connected pedestrian circulation system etc.) are required to better serve the needs of VAM and improve connections within the site. The existing public washroom within the VAM building currently serves day-to-day needs. An additional washroom is proposed on-site but its location is subject to further discussion and coordination with other initiatives. A suspension bridge linking the VAM and MacEwan buildings to Chappell House and the gardens associated with the Riverwood Conservancy is proposed to cross the MacEwan Creek valley feature.

The lawn adjacent to the VAM facility is proposed to remain in its present condition as this area is well-used by VAM to support its day camp program.

The existing stairs leading down the slope from the southwest corner of the Chappell House site are proposed to be restored to provide access to the adjacent trail within

the valley. The existing "100 Steps" are not proposed to be restored and will remain as a cultural heritage artefact.

The MacEwan Terrace Garden is a prominent landscape feature within Riverwood that represents one of a number of gardens that are proposed to be implemented throughout the site as envisioned by the Mississauga Garden Park Master Plan 2002 and the 2003 Mississauga Garden Park: Basic Park Development reports and the 2008/2009 Garden Development Plan.


MacEwan Garden Terrace (Source: www.riverwoodconservancy.org)

The Riverwood Conservancy provides environmental education programs and it is envisioned that the role of TRC will be strengthened as a result of the implementation of the Concept Plan. The proposed Visitors' Centre is intended to serve as an educational facility as well as an amenity to heighten the visitors' experiences of the place. Educational programs are proposed to address both the natural and cultural heritage of the site. Riverwood has been designated under the Ontario Heritage Act and has a history of First Nations occupation and movement. Educational programs are proposed to interpret the rich heritage of the site as well as that of the Credit River valley.


Precedent Photo: Accessible Pathways and Facilities

In terms of contribution to heightened visitor experience, the Visitors' Centre is proposed to serve as a source of information and the rental of equipment to facilitate exploration of the landscape. For example, pre-packaged "bird watching" kits comprising a guidebook, checklist, binoculars, maps and photographs of birds found in Riverwood could be offered to provide visitors with a self-guided introduction to bird watching. Guided tours could be offered that focus on a variety of storylines and topic areas relating to both natural and cultural heritage. Segways®, could be offered to tour Riverwood while affording a different experience for visitors. Rental of fishing gear, bicycles, orienteering kits and geocaching guides, as well as snowshoes and cross-country ski equipment could also be staged out of the Visitor's Centre.

In addition, the Visitor's Centre should include food services and a gift shop that offers books, artwork and other items for sale that relate to the natural and cultural heritage and history of Riverwood. Products produced at the other "Feature Sites", including heirloom apples from the orchards on the former Pinchin Lands, vegetables and honey from the Urban Farm on the Harris Lands and native plants grown at the native plant nursery could also be sold.

The Visitors' Centre should also be positioned as the principal source of information on programs and activities ongoing throughout the Credit River parks and most importantly the three parks: Erindale, the former Pinchin Lands and Riverwood that will comprise the "Central Park" within the City.

The Visitors' Centre is proposed to provide orientation and environmental education. It will be accessible to all members of the public and to be constructed using L.I.D. initiatives such as rain gardens and rainwater cisterns. These initiatives should be designed to be readily evident to visitors with the objective of showcasing sustainable technologies and encouraging the application of L.I.D./sustainable landscaping techniques on private residential properties throughout the City.

The Visitors' Centre will be subject to further review through City budgeting and external funding sources. The scale and configuration will need to be determined through a separate planning process that includes preparation of a business plan (see "Future Studies Required" section below) consultation with TRC, VAM, CVC, staff from various departments and the public. However, it should include a large multi-purpose meeting space that is flexible in layout and divisible into smaller meeting rooms and program areas as both TRC and VAM require additional space to accommodate larger groups.


Precedent Photo: Visitors' Centre

In order to reinforce the position of Riverwood as the "Central Park" within the City, it is essential that the Burnhamthorpe Road streetscape accentuate the connection between Riverwood and the City Centre. To this end, the existing overlooks on the Burnhamthorpe Road bridge over the Credit River are proposed to be fitted with interpretive signage. The streetscape along Burnhamthorpe Road is proposed to be improved as a component of the City's vision for the revitalization of the street as set out in the "Downtown 21 Master Plan". The implementation of these streetscape improvements will assist in binding the CRP System and Riverwood to the downtown core.

In the interim, several initiatives are proposed to address existing needs. These initiatives include:

- Adding a public washroom;
- Four Season use of the existing barn. Presently, the barn is well-used by both TRC and VAM during the warmer seasons. There is a demand to support programs during the winter season;
- Option to establish the Chappell House as an "Environmental Education Centre" (in the event City offices are relocated); and,
- Providing a charter bus shelter that will serve as an information and orientation kiosk.

MacEwan House is not proposed to be altered and existing programs that are run out of this building are anticipated to remain. However, a portion of the adjacent

tableland is proposed as flexible space to accommodate arts-related festivals and events such as Art-in-the-Park. This flexible space can accommodate a tent to support event programming such as summer camps administered by site partners.


Precedent Photo: Experiential Play Area

In conjunction with the proposed visitor centre, consideration for a potential installation of an experiential playground and signature shelter should be considered. The location has not been identified on the plan and would be subject to further discussion with site partners and future stakeholders. An experiential play area would be comprised of natural and sculptured elements that would encourage creative play and promote an experience of nature. Components of the play area should be made fully accessible. Structures for climbing and exploring could be combined with kinetic art pieces to entertain, fascinate and delight.

Improvements to public access into the site including a charter bus shelter would enhance accessibility to a larger population and better support the needs of existing users. Minor modifications to the existing main parking area may be required to accommodate a shuttle to the VAM site from the parking lot. An assessment of the existing parking and vehicular circulation system will need to be conducted by a transportation engineer to assess what modifications may be required.

Restoration and enhancement initiatives are proposed within the valleylands and tableland woodlands including invasive species management, understorey restoration and reforestation. For example, reforestation of the Zaichuk Terrace is proposed to increase the amount of forest cover and improve the shape of the natural area, thereby creating forest interior habitat and buffering adjacent habitats from highway traffic noise. Ad-hoc trails are to be closed and the landscape restored in these areas to reduce existing impacts and improve local site conditions.

Further site assessment will be required to determine where nature trail use and mountain bike riding is contributing to impacts to the environment. Existing nature trails exhibiting little impact are proposed to remain. Additional nature trail links are proposed to make key connections and form completed loops through the ESA providing educational and experiential opportunities. Access through the nature-based trail system through the ESA on the eastside of Riverwood is proposed to be by guide only.

It is important to note that due to existing steep grades and erosion a bridge crossing the Chappell Creek ravine is not recommended. Instead, from an ecological and human safety standpoint it is recommended that a loop trail that follows the existing alignment of a trail along the edge of the Chappell Terrace and then the north edge of the site created by Highway #403 is preferred to cross the Chappell Creek ravine and access the upper edge of the Zaichuk Terrace.

Lookout points over the Credit River, at the upstream and downstream extents of the site, are proposed. These elements should not interfere with the natural tendencies of the channel to migrate or adjust. The proposed lookout structure should be set back beyond the 100-year flood line.

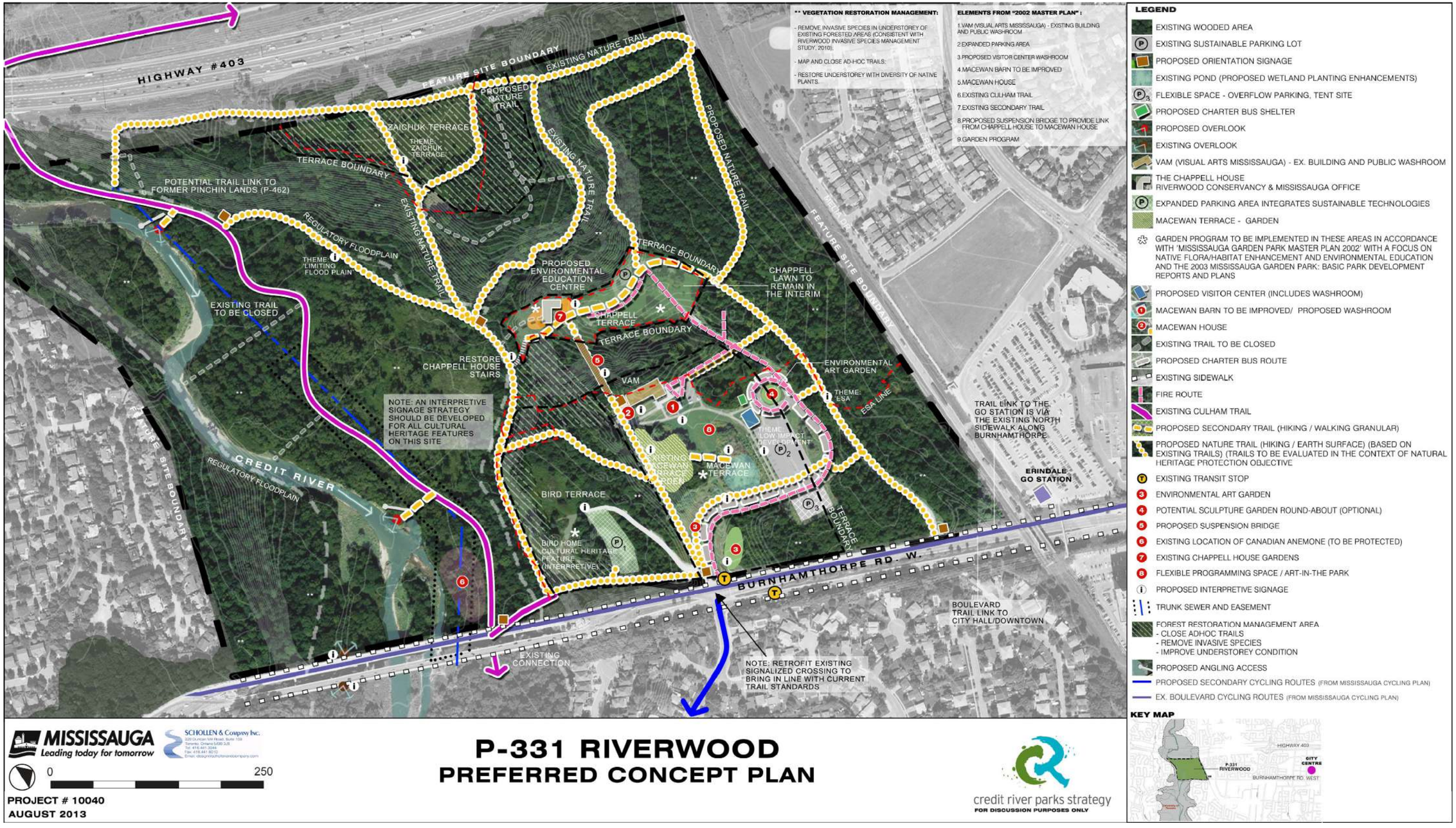


Figure 1.14: Concept Plan –P-331 – Riverwood

Relationship to Park System:

In combination with the former Pinchin Lands, site, Riverwood is proposed to become the "Central Park" within the City. Riverwood itself is proposed to be the focal point for visitor orientation and experiences.

Program Considerations:

The Preferred Concept Plan promotes the continuation and expansion of the programs that are presently delivered by TRC and VAM.

Design Considerations:

The site-specific routing of trails and the location of other amenities as proposed will need to be determined in consideration of the configuration and sensitivity of existing natural and cultural heritage features. Areas identified for reforestation should be confirmed based on habitat investigations and breeding bird surveys.

For works proposed in the vicinity of the river, detailed designs will need to be generated that will address slope stability as well as ice movement and flooding implications. All season access must also be considered in the placement, design and selection of materials for trails.

The recognition of existing easements associated with sewers must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan.

To ensure safe pedestrian and cyclist access across Burnhamthorpe Road West, the existing signalized intersection at the entry to Riverwood should be reviewed by a transportation engineer to ensure current standards are being met, i.e. potential to retrofit existing lights with provisions for the blinds as well as a cyclist priority signal and additional line marking. The engineer should also be retained to review options to provide a direct pedestrian link to the adjacent GO transit station as well as options to strengthen pedestrian and cyclist route links between Riverwood and the downtown core.

Future Studies Required:

A business plan will need to be completed for the operations and management of the Visitors' Centre and related rental, gift shop and food services opportunities. A feasibility and design study will also be required to determine the potential for, and design characteristics of, the proposed Visitor's Centre. The study should include an assessment of the carrying capacity of the Riverwood property and an assessment of parking needs (based on implemented initiatives from this strategy) versus available current parking. The study should include consultation with TRC, CVC, the City and VAM as well as the public to determine the most appropriate design for the facility.

Technical studies, including breeding bird surveys and natural heritage assessments, will be required to guide the location and design of trails and other amenities as well as to confirm appropriate reforestation and habitat enhancement initiatives. An assessment of the existing parking and vehicular circulation system will also need to be conducted by a transportation engineer to assess what modifications may be required to the parking lot and vehicular access roads.

Although the CRPS has reviewed the 2002 MP and the 2008-2009 Garden Development Plan, and has endeavoured to recognize those recommendations that remain relevant within the present economic climate, a more comprehensive review of the existing master plan is necessary to ensure goals remain realistic and achievable.

The technical studies listed in Section 1.3.2 will be required to be completed to support the implementation of the various amenities and elements proposed within the Preferred Concept Plan. In addition, the former farm refuse site located on the Zaichuk Terrace will require further evaluation by an archeologist prior to alteration or reforestation efforts.

Recognizing multiple tenants, a study or recommendation for a property manager is required.

Policy & Regulation:

- The recognition of existing and future maintenance easements associated with sewers must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan; the Region of Peel will require an access agreement from the City to construct a trail and maintain access across/within the easements;
- As the whole of the "Feature Site" falls within the Parkway Belt West Plan, all proposed initiatives will require approval of the Ministry of Municipal Affairs and Housing (MMAH);
- Proposed bridges and alterations proposed within the river will require the approval of MNR DFO *In-water Timing Window and Aquatic SARA process*. The proposed works may also require review by and approval from DFO, CVC and City of Mississauga Transportation and Works Department;
- Work proposed within areas of the "Feature Site" that are regulated by CVC will require a permit to facilitate implementation. This includes any improvements or modification to the MacEwan and Chappell terraces which are owned by the CVC. Given the presence of species at risk within the site a permit may be required from the MNR to facilitate proposed alterations in the vicinity of ESA habitat, which may include proposed modifications to the barn;
- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3, April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010;
- Figure 2 in the Region of Peel OP illustrates the Parkway Belt West lands extending across the Riverwood "Feature Site", however, the Parkway Belt West Plan Area – Figure 2, Nov 2008 plan does not. It is recommended that this anomaly be addressed;
- All proposed initiatives should have regard for the following City of Mississauga Official Plan Designations:
    - Green System - Schedule 1/1a, September 2010;
    - Natural Areas - Schedule 3, September 2010;
    - Public and Private Open Spaces – Schedule 4, September 2010;
    - Parkway Belt West – Schedule 4, September 2010;
    - Parkway Belt West – Schedule 10, September 2010;
    - Greenbelt/Natural Hazards – Schedule 10, September 2010; and,
    - Public Open Space - Schedule 10, September 2010.

- All proposed initiatives should have regard for City of Mississauga Official Plan Designations:
  - Part 10, G1, G1-4 Zone (Greenbelt- Natural Hazards) December 31, 2011; and,
  - Part 9, OS2-7 Zone (Open Space) June 30, 2010.

Partnership Opportunities:

The implementation of various programs and initiatives could benefit from partnerships with private clubs, artists, non-profit organizations, schools and local community groups and could include:

- Continue to promote and support programs run by the VAM and TRC;
- Site Partner to run the Visitors' Centre, retail shop and snack bar;
- Horticultural Trades Association/Landscape Ontario for the gardening programs on the site;
- Heritage Mississauga and non-profit historical society for interpretation opportunities;
- Attract support and participation from the art community for the implementation and animation of the environmental art garden space through hosting public events;
- Stewardship initiatives by volunteer, community, and/or environmental organizations regarding the restoration and reforestation initiatives;
- Naturalist groups, hiking association events;
- Bird watching association events;
- Youth groups and school children-oriented events i.e. outdoor classrooms;
- UTM research and education programs for local high schools – reforestation and valleyland geology, geomorphology etc.;
- Habitat restoration – education and volunteerism; and,
- Showcasing L.I.D. technologies – educational and interpretive programs and outdoor classrooms.

Tourism/Education and Community Outreach:

- Garden tours/meetings, conferences and seminars by horticultural societies;
- Plant sales, flower shows, potential location for Canada Blooms workshop;
- Historical walks;
- Weddings and photography;
- Bird watching/displays from the bird terrace;
- VAM supported art shows, art-in-the park events i.e. theatre, costumed events, etc.;
- Outdoor classroom, interpretive events; and,
- Guided nature walks.

Initiatives, Implementation, Phasing & Costs:

The following Implementation initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works. The cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer Appendix L for detailed summary of costs).

Initiative 1	– Closure of ad-hoc trails	
Implementation:	– Map/verify existing trails	
Phasing:	– 0->15 years	
Cost:	– $95,000	

Initiative 2	– Transit access:	
	- A. Grounds: charter bus shelter/orientation and information kiosk	
	- B. Charter bus route - existing access road	
Implementation:	– Feasibility study with local transit, transit operator, traffic engineer, City T&W	
Phasing:	– Studies, consultation & design	0-5 years
	- Construction	5-10 years
Cost:	– $415,500	

Initiative 3	– Retrofitting existing signalized crossing across Burnhamthorpe Road West	
Implementation:	– Conduct study of crossing (pedestrian safety/crossing) to ensure current trail and accessibility codes are met	
	- Conduct Signal Warrant Analysis (if required)	
	- Consult with City of Mississauga T&W staff	
	- Consult with City of Mississauga Accessibility Department	
	- Consult with transportation consultant	
Phasing:	– 5-10 years	
Cost:	– $142,500	

Initiative 4	– Implementation of an invasive species management	
Implementation:	– Update 2010 study with field work to verify locations, species type and concentrations	
	- Develop species management plan for 3 year period	
	- CVC approval for development or site alteration within the Regulated Area	
	- Consult with Forestry Staff	
Phasing:	– 0-5 years	
Cost:	– $468,000	

Initiative 5	– Construction of environmental art garden gateway	
Implementation:	– Develop Terms of Reference for Art Garden	
	- Issue RFP or run art competition	
	- Conduct traffic study (pedestrian safety/crossing)	
	- Consult with City of Mississauga Culture and T&W staff	
	- Consult with Public and Select Preferred Artist(s)	
	- Consult with Horticultural Specialists to Develop Planting Palettes	
Phasing:	– Studies & consultation	0-5 years
	- Design/Construction	5-10 years
Cost:	– $360,000	

Initiative 6 – A. Enhancement of existing nature trails (based on existing alignment of natural earth trails
- B. Implementation of new proposed nature trails (proposed alignment of natural earth trail)

Implementation: – Verify position and condition of proposed trail route
- Conduct natural heritage and breeding bird surveys
- Consult with MNR (within ESA)
- Consult with TRC
- Consult with City Parks and Operations (determine clear management widths & heights)
- Stake trail and walk alignment with City, CVC, agency staff and TRC
- Consult with City Parks and Operations (determine clear management widths & heights)

Phasing: – A. Existing trails 5-10 years
- B. Proposed trails 5-10 years

Cost: – $149,750

Initiative 7 – Implementation of a Vistors' Centre with L.I.D. Initiatives

Implementation: – Conduct feasibility and design study
- Business and operations plans
- Parking needs and carrying capacity assessments
- CVC for development or site alteration within the Regulated Area
- Consult with TRC
- Consult with CVC
- Consult with City of Mississauga
- Consult with VAM
- Secure building/ re-development and fire permits
- Secure LEED Certification

Phasing: – Studies 0-5 years
- Consultation, design & construction 5-10 years

Cost: – $3,575,000

Initiative 8 – Establishment of a property manager

Implementation: – Conduct study to establish a property manager for Riverwood

Phasing: – 0-5 years

Cost: – $15,000

Initiative 9 – MacEwan Pond planting enhancements

Implementation: – Studies, consultation & design

Phasing: – 5-10 years

Cost: – $50,000

Initiative 10 – Construction of a section of the secondary trail

Implementation: – Natural heritage assessment
- Cultural heritage assessment
- Archaeological heritage assessment
- Topographic survey

- Geotechnical/Slope Stability Study
- Consult with TRC
- Consult with City of Mississauga

Phasing: – 5-10 years
Cost: – $42,500

Initiative 11 – Construction of two (2) angling access/overlooks + two (2) overlooks

Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment
- Structural engineering
- Study potential impacts of ice jams on structures
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from CVC
- Secure approval from DFO
- Secure approval from Transport Canada

Phasing: – >15 years
Cost: – $162,886

Initiative 12 – A. Design and installation of six (6) orientation signs
- B. Design and installation of sixteen (16) interpretive signs

Implementation: – Sign layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.
- Conduct natural heritage and breeding bird surveys
- Consult with MNR (within ESA)
- Consult with TRC
- Consult with City Parks and Operations (determine clear management widths & heights)
- Stake trail and walk alignment with City, CVC, agency staff and TRC
- Consult with City Parks and Operations (determine clear management widths & heights)

Phasing: – A. 5-10 years
- B. Studies & consultation 5-10 years
- B. Design & Construction 5->15 years

Cost: – Orientation signs $13,250
- Interpretive signs $52,000

Initiative 13 – A. MacEwan Barn: all season use (in the event that a visitor centre does not proceed)
- B. Chappell House: potential Environmental Education Centre (in the event that City offices are relocated)

Implementation: – Business Plan/Feasibility Study to determine viable options and costs
- Consult with City of Mississauga Parks, Operations and T&W
- Consult with TRC
- CVC approval for development or site alteration within the Regulated Area

Phasing:	– A. MacEwan Barn: Retrofit and winterize	10-15 years
	- B. Chappell House: Environmental Education Centre	10-15 years
Cost:	– A. MacEwan Barn: $275,500	
	- B. Chappell House:: $500,000	

Initiative 14 – Implementation of woodland reforestation

Implementation:
- Natural heritage assessment
- Breeding bird surveys
- Stewardship program
- Develop restoration strategy that coordinates with invasive species management protocol (see item 4)
- Apply for relevant grant/funding programs
- CVC approval for development or site alteration within the Regulated Area
- Consult with TRC, VAM, CVC and Forestry
- Seek partnerships with UTM, colleges, NGOs and community organizations

Phasing: – 0->15 years

Cost: – $311,800

Initiative 15 – Implementation of restore Chappell steps into valley

Implementation:
- Cultural heritage assessment
- Geotechnical assessment
- Restoration strategy
- Consult with City of Mississauga Heritage staff
- Consult with Heritage Mississauga
- Consult with TRC
- Consult with CVC
- CVC approval for development or site alteration within the Regulated Area

Phasing:	– Studies & consultation	5-10 years
	- Construction	10-15 years
Cost:	– $150,500	

Initiative 16 – Construction of a suspension bridge (100m span)

Implementation:	– Geotechnical assessment	
	- Structural assessment	
	- Archaeological assessment	
	- Topographic survey	
	- Consult with MNR (within ESA)	
	- Consult with City of Mississauga Engineering	
Phasing:	– Studies/Field Work & Consultation	5-10 years
	- Design/Construction	5-15 years
Cost:	– $1,875,000	

Initiative 17 – Expanded L.I.D. Parking Area
Implementation: – Topographic survey
- Geotechnical studies
- Archaeological studies
- L.I.D. Feasibility Study
- CVC approval for development or site alteration within the Regulated Area
- Consult with City of Mississauga engineering and T&W

Phasing: – A. Studies, consultation & design 10-15 years
- B. Construction >15 years

Cost: – $1,334,600

Initiative 18 – Construction of a experiential playground
Implementation: – Develop Terms of Reference for playground and issue RFP
- Meet with selected proponent, develop alternative designs
- Consult with public and TRC to select preferred design

Phasing: – A. Studies & consultation 10-15 years
- B. Design & construction >15 years

Cost: – $577,000

Implementation Plan - P-331 Riverwood Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Ad hoc trail closures	**Studies**	Map/ verify existing trails	$12,500	✓			
	Design	Develop trail closure strategy and prepare communications, restoration planting and signage for the areas	$6,500	✓			
		Implement and monitor the trail closure measures	$76,000	✓	✓	✓	✓
Retrofits to Existing Features:	**Studies**	Feasibility Study to determine viable options and costs	$20,000	✓			
	Consultation	City of Mississauga Parks, Operations and T&W, TRC and CVC	$5,500	✓			
2A. Grounds:Charter bus shelter/ orientation and information kiosk		Engage architect and engineers to design and oversee construction	$250,000	✓			
2B. Charter Bus Route - Upgrade existing access rd.	**Studies**	Feasibility study with charter bus company	$7,500	✓			
	Consultation	Transit operator, Traffic engineer, City T&W	$5,500	✓			
	Design	Design improvements to access road to facilitate transit and prepare tender documentation	$15,000	✓			
	Construction	Construct improvements	$112,000		✓		
3. Retrofit Existing Signalized Crossing (across Burnhamthorpe Rd West)	**Studies**	Conduct study of crossing (pedestrian safety/ crossing) to ensure current trail and accessibility codes are met	$7,500		✓		
	Consultation	City T&W, Transportation Consultant	$3,500		✓		
		City Accessibility Department	$2,500		✓		
	Design/ Construction	Design Augmented Signals with Pedestrian Activated Signals (if required)	$15,000		✓		
		Implement improvements	$114,000		✓		
4. Invasive species management (250,000m²) (only shrub and herbaceous species)	**Studies**	Update 2010 study with field work to verify locations, species type and concentrations	$25,000	✓			
		Develop species management plan for 3 year period	$60,000	✓			
	Consultation	CVC and City Parks and Operations staff	$8,000	✓			
		Implement recommendations of the study and management plan	$375,000	✓			
5. Environmental Art Garden Gateway	**Studies**	Develop Terms of Reference for Art Garden and Issue RFP or Run Art Competition	$5,500	✓			
		Select Proponent or Invite Artists to Develop Art Garden as Part of Competition	$2,500	✓			
		Conduct traffic study (pedestrian safety/ crossing)	$7,500	✓			
	Consultation	City Cultural and T&W staff	$2,500	✓			
		Consult with Public and Select Preferred Artist(s)	$2,500	✓			
		Horticultural Specialists to Develop Planting Palettes	$2,500	✓			
	Design/ Construction	Detailed Design of Art Installation Concepts	$17,500		✓		
		Establish CNLA and Landscape Ontario Certification	$1,500		✓		
		Detailed design and graphic for entry feature, signage, plantings, bike parking (15 bikes) and lighting	$30,000		✓		
		Construction of art garden and entry feature	$288,000		✓		
6A. Enhancement of Existing NatureTrails (3,000m) (based on existing alignment of natural trail)	**Studies**	Verify position and condition of trails	$3,500		✓		
		Conduct natural heritage and breeding bird surveys	$5,000		✓		
	Consultation	MNR (within ESA), TRC & City Parks and Operations (determine clear management widths & heights)	$1,500		✓		
	Design	Develop trail design and safety improvements	$4,000		✓		
		Develop orientation signage strategy	$2,500		✓		
	Construction	Construct trail improvements & signage for ex. trails	$75,000		✓		
6B. Proposed New NatureTrail (350m) (proposed new alignment of natural trails)	**Studies**	Verify position and condition of proposed trail route	$2,500		✓		
		Conduct natural heritage and breeding bird surveys	$4,500		✓		
		Conduct natural heritage and archaeological assessments	$10,000		✓		
	Consultation	MNR (within ESA), Stake trail and walk alignment with City, CVC, agency staff and TRC	$2,500		✓		
		Develop trail design and restoration plans	$5,500			✓	
		Develop orientation signage strategy for new trails	$3,500			✓	
	Construction	Construct trails under guidance from City, CVC and TRC	$29,750			✓	

Implementation Plan - P-331 Riverwood Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
7. Vistors' Centre with L.I.D. Initiatives	Studies	Conduct feasibility and design study	$25,000	✓			
		Prepare business and operations plans	$15,000	✓			
		Parking needs and carrying capacity assessments	$25,000	✓			
	Consultation	TRC, CVC, the City and VAM	$10,000	✓			
	Design &	Engage architect/ engineers to design the building and service the building	$425,000		✓		
	Construction	Establish building/ re-development and fire permits	$35,000		✓		
		Establish LEED Certification (if possible)	$40,000		✓		
		Construct the building, access paths and associated L.I.D. initiatives	$3,000,000		✓		
8. Establish a Property Manager	Study	Conduct study to establish a property manager for Riverwood	$15,000	✓			
9. MacEwan Pond planting enhancements	Design and Construction	Engage horticulturalist/ landscape architect to design and oversee installation of the improvements; design and install the plantings	$50,000		✓		
10. Secondary Trail (270m)	Studies/ Field Work	Natural, Cultural and Archaeological Heritage Assessments, Topographic Survey, Geotechnical/ Slope Stability Study	$2,500		✓		
	Consultation	TRC and City	$750		✓		
	Design	Design route based on findings of assessment	$5,500		✓		
	Construction	Construct route based on findings of assessment	$33,750		✓		
11. Angling Access (2 items) + Overlooks	Studies	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500				✓
(2 item)	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,250				✓
	Design	Detailed design and tender documentation	$15,300				✓
	Construction	Construct the angling access and overlook structure	$143,836				✓
12A. Orientation Signage (6 items)	Design &	Develop sign design, graphics and layout for all trails	$2,750		✓		
	Construction	Produce and install signage	$10,500		✓		
12B. Interpretive Signage (16 proposed)	Studies	Develop interpretive signage plan for all existing historical features as well as proposed features	$7,500		✓		
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$2,500		✓		
	Design &	Develop sign design, graphics and layout	$8,400		✓	✓	✓
	Construction	Produce and install signage	$33,600		✓	✓	✓
13A. MacEwan Barn: Retrofit with washroom facility and winterize	Design and Construction	Design and install the improvements	$750,000			✓	
13B. Chappel House: Environmental Education Centre		Engage architect/ interior design team to repurpose office space to accommodate the Centre	$500,000			✓	
14. Woodland Reforestation (42,800m²)	Studies	Conduct natural heritage assessment, breeding bird surveys and develop stewardship program	$30,000	✓	✓	✓	✓
		Develop restoration strategy that coordinates with invasive species management protocol (see item 4.)	$15,000	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC,TRC, Seek partnerships with UTM, colleges, NGOs and community organizations	$2,500	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$2,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$5,000	✓	✓	✓	✓
		Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$256,800	✓	✓	✓	✓
15. Restore Chappel Steps into Valley	Studies	Cultural heritage and geotechnical assessments	$6,500		✓		
		Develop restoration strategy	$12,500		✓		
	Consultation	City Heritage staff,Heritage Mississauga, TRC, CVC	$6,500		✓		
	Construction	Implement recommendations of the restoration strategy	$125,000			✓	
16. Suspension Bridge (1 item)	Studies/ Field Work	Conduct geotechnical, structural and archaeological assessments, Topographic Survey	$25,000		✓		
	Consultation	MNR (within ESA), City Engineering	$4,000		✓		
	Design/ Construction	Prepare detailed design submission for approval	$24,000		✓		
		Preliminary and detailed design	$322,000			✓	
		Construct bridge	$1,500,000			✓	

Implementation Plan - P-331 Riverwood Reach							
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
17. Expanded L.I.D. Parking Area (6,800m²)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$75,000			✓	
	Consultation	CVC, City of Mississauga engineering and T&W	$15,000			✓	
	Design	Detail design and tender documentation	$120,000			✓	
	Contruction	Construct the parking lot retrofits	$1,124,600				✓
18. Experiential Playground	**Studies**	Develop Terms of Reference for Playground and issue RFP	$10,000			✓	
	Consultation	Meet with Selected Proponent, Develop Alternative Designs and Consult with Public and TRC to Select Preferred Design	$7,500			✓	
	Design & Construction	Refine Preferred Concept and gain Council approval	$4,500				✓
		Prepare detailed design, tender and contract docs.	$55,000				✓
		Construct and Install the Playground	$500,000				✓
		TOTAL ESTIMATED COST	**$10,945,286.00**				

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: Incorporate Secondary and Looped Nature Trails into City of Mississauga Trails and Cycling Plans

1.5.7 P-60 - Erindale Park

Erindale Park is the largest park in the City of Mississauga encompassing almost 90 hectares and includes facilities to accommodate picnicking, passive and active recreation. The park also affords access to the river for angling. This park is a popular venue for cultural festivals and civic events, providing parking and assembly opportunities for approximately 1000 people.

Theme

- River access, recreation and cultural events; and,
- Strengthening of pedestrian linkages to surrounding neighbourhoods.

Existing Features

Erindale Park encompasses the following facilities and amenities:

- Five picnic areas with barbeques;
- One children's playground;
- One comfort station (wheelchair accessible);
- Parking for 400 vehicles;
- A toboggan hill; and,
- Two wedding photography sites.

Permit fees for use of the picnicking facilities at Erindale Park are a significant source of revenue for the City. Erindale Park encompasses some prominent historical remnants including the former hydroelectric dam. The south portion of Erindale Park includes a former landfill site, which continues to be monitored for leachate migration by the Region of Peel. As the soil depth over the landfill varies between 0.3m-2.4m tree planting or the installation of structures proposed in this area will require testing to determine the presence and depth of the clay cap.

The Credit River Adaptive Management Study (CRAMS) identified a number of erosion sites or issues within Erindale Park. The "Feature Site" spans reaches 5 and 6 as identified within the CRAMS study, including erosion sites #18, #19, #20A and #20B. However, only site #20A was identified for restoration within the 15-20 year timeframe, with monitoring recommended for the other sites. Site #20A is an oversteepened valley slope where the channel has impinged on the toe of the valley wall. There is minimal risk due to erosion at this site as the tablelands atop the valley are mainly wooded areas that are not actively used. CRAMS site #20B consists of an armourstone wall and a series of flow deflecting structures that are in good condition.

The David J. Culham Trail traverses this "Feature Site" on a north to south alignment. With respect to natural heritage, Erindale Park contains a high diversity of locally rare species as well as two species at risk: Jefferson salamander and butternut. The landscape includes vernal pools and old growth forest and provides interior forest habitat.

The Regional Sanitary Trunk Sewer runs along the Credit River and crosses the channel six times within Erindale Park. Any reforestation initiatives or trail realignments must account for the sanitary infrastructure and related easements within the valley. A sub-trunk extends into the valley south of the proposed switchback trail off Credit Heights Drive.

Proposed Initiatives

Within the CRP System, Erindale Park is proposed to accommodate many of its present functions while being positioned as a cultural heritage and recreational amenity within the overall CRP System. However, the Concept Plan promotes the consolidation of these facilities within Erindale Park in order to integrate the "Natural Corridor" within the site and improve ecological functions and connections to adjacent natural areas, as well as to achieve a more sustainable form for the river corridor that will allow for some of the natural fluvial processes of the river to occur.

All initiatives are subject to business plans/feasibility studies, funding discussions with site partners and approval through Council.

The Concept Plan for the "Feature Site" incorporates the existing picnic areas and other amenities and includes the following elements:

Natural Heritage:

- Vegetation restoration and reforestation throughout park;
- Closure of ad-hoc trails;
- Protection of ecologically sensitive areas;
- Protections of local deer habitat;
- Edge management buffer; and,
- Plantings along Dundas St. West.


Existing Trail Through Natural Heritage Area in Erindale Park

Cultural Heritage:

- Interpretive stations related to the former hydro dam, ice breaking structure and history of the site.

Identity:

- Enhanced tree canopy for shade in open space/picnic areas;
- One additional picnic pavilion;
- Canoe/kayak access;
- Angling access opportunities;
- Upgrade to existing washrooms;
- Gateway/entry enhancements; and,
- Signalized crossing at Dundas St West to afford trail linkage southward.

Sustainability:

- Improved connections to adjacent neighbourhoods (east and west);
- Connection of multi-modal transportation and transit to University of Toronto – Mississauga (UTM) campus;
- Improvements to the David J. Culham Trail to enhance stability;
- Provision of a maintenance access road to ice breaking structure;
- Debris stockpile area for maintenance of ice breaking structure;
- Long-term replacement of existing armourstone revetments with biotechnical stabilization techniques;
- Pilot site to showcase green technologies (L.I.D. techniques); and,
- Proposed water quality wetland.

Concept Plan Description:


Precedent Photo: Angling on he Credit River

Picnic and activity areas will be better defined and where possible consolidated in order to make areas available for restoration to supplement the natural vegetation communities that surround the site. Erindale Park is a key destination for anglers. The concept is aimed at providing opportunities for anglers to access the river as well as at enhance riparian areas in order to improve aquatic habitat within the river. The seasonal salmon run is a popular attraction, enticing visitors to come to the river to witness the large numbers of salmon migrating upstream to spawn.

Options to expand (based on demand) and retrofit the existing parking area to incorporate SWM amenities and other L.I.D. solutions including the stormwater detention wetland should be explored. However, the presence of the former landfill site within the park may limit the range of solutions that can be implemented. The trail network is proposed to be redefined as necessary to improve connectivity with UTM and consolidate parallel trails. A formal trail connection to UTM is proposed to link to the south end of the south parking lot within the UTM campus. There is a well-used informal trail in this location and there is an obvious desire for this trail to be improved. It should be noted that UTM supports a formal trail connection to the river valley and Erindale Park in their 2011 Campus Master Plan (see: http://www.campusplanning.utoronto.ca/wp-content/uploads/2012/01/UTM-MP-FULL_Jun2011.pdf). In addition, CVC requires access for heavy equipment to the ice breaking structure within the river for maintenance purposes. This trail would be well-suited to serve this purpose.

Approval from UTM would be required to implement this proposed trail connection. It is acknowledged that formalizing this trail may exacerbate the ongoing problem of UTM students utilizing the parking lots within Erindale Park. However, an increase in the level of parking enforcement is recommended to address this issue.

A debris stockpile area is required by CVC in the vicinity of the ice breaking structure. With the objective of enhancing the appearance of this temporary stockpile area, the proposed reforestation area is configured to extend around the perimeter of the stockpile area. The proximity of the site to UTM affords opportunities for research related to environmental restoration, aquatic habitat, river dynamics, landscape management and other subject areas. Interpretive elements are proposed to be implemented to tell the story of the history of the site, including the function of the hydro-electric dam and past use of the site.

Along the river itself, it is envisioned that ultimately, the existing armouring will be removed and the banks reshaped to a more natural configuration once the existing structures reach the end of their service life. Biotechnical stabilization


Precedent Photo: Softened Approach to Bank Stabilization

methods are proposed to be implemented to mitigate potential erosion from ice movement and water flow. The proposed biotechnical stabilization techniques must be designed to afford adequate protection to the sanitary sewer and bridge abutments. In recognition of the presence of the former landfill site within the property, the design of proposed biotechnical stabilization techniques must ensure that requirements to contain the contents of the former landfill are addressed. Biotechnical stabilization solutions should be designed to address potential impacts from erosive flows and ice movement within the river. Points of access for angling, river viewing and canoe/kayak access should be established at key points along the length of the river.

The remnant of the former hydro dam that is located on the west side of the river is a prominent heritage feature worthy of interpretation. This feature also has the potential to be adapted to create a climbing wall.

Management of the slopes that form the valley feature is important in Erindale Park as trampling, soil compaction and slumping contribute to a loss of understorey vegetation, rill formation, erosion and colonization by non-native, invasive species. Improvements to the David J. Culham Trail and the structures along the trail that mitigate erosion are proposed at strategic locations. The northern extension of the David J. Culham Trail is proposed to follow roughly the existing alignment. However, wherever possible, the location of the trail should be adjusted to position it as far away from the river as possible. CRAMS site #18 coincides with the point of impingement where the David J. Culham Trail is confined between the channel and the toe of the valley slope. Armourstone presently protects the trail from erosion, which was determined to be in good condition. As this section of the David J. Culham Trail is to be retained in its existing alignment between the channel and valley, the site should be monitored and maintained as necessary to protect the trail. It should be noted that the alignments of the proposed trails as illustrated on the Preferred Concept Plan are approximate.

Interpretive story lines that should be explored with Erindale Park could include valley formation and river geomorphology and reference historical elements such as mills that were located along the Credit River and drove the early economy, the hydro dam, and First Nations' settlement and habitation of the landscape. The former use of the southern open space area of the park as a landfill facility could also be interpreted.

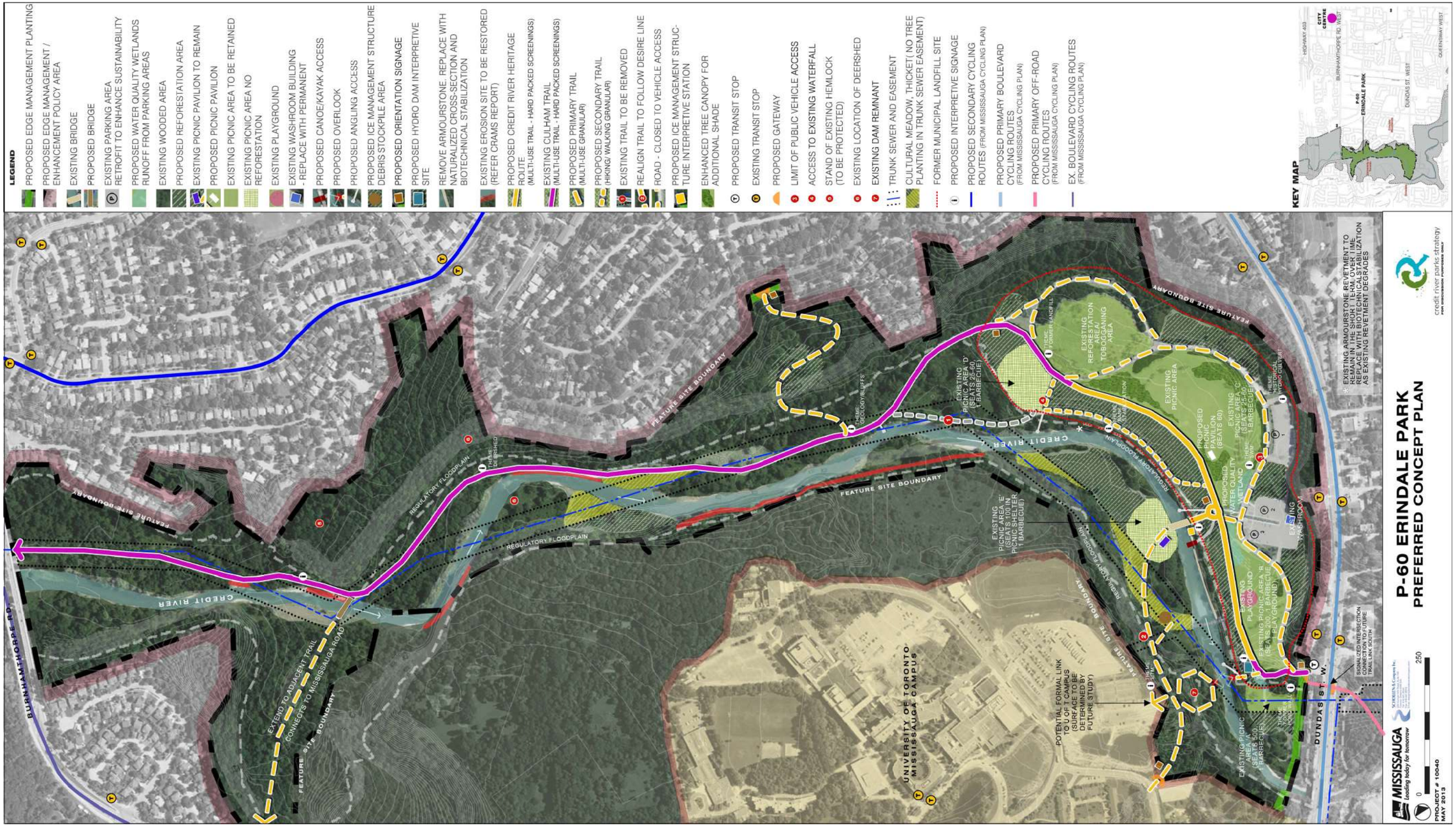


Figure 1.15: Concept Plan –P-60 – Erindale Park

Relationship to Park System:
Erindale Park is intended to continue to function as the social and cultural centrepiece of the CRP System. The park is proposed to support social gatherings, cultural festivals and civic events and will serve as a principal gateway into the CRP System.

Program Considerations:
Erindale Park will continue to support existing programs and events. The visitation for Erindale Park is expected to increase with enhancements to parking, passive recreation, transit linkages and the connected trail system. Therefore, an additional picnic shelter suitable for use of up to 60 people has been proposed.

Interpretive programming is proposed to highlight the history and heritage of the park. Consultation with UTM will be required to determine the feasibility of implementing the proposed trail connection to the university campus.

Design Considerations:
Further detailed investigations will be required to determine specific trail locations in consideration of issues such as the sensitivity of the former landfill, location of infrastructure, erosion, ice movement, slope stability and sensitivity of natural and cultural heritage resources. Future trail development will be subject to a detailed design process.

Works proposed within the extents of the former landfill must be reviewed by a geotechnical engineer to ensure the integrity of the clay cap is retained. As the Region of Peel provides monitoring of the former landfill site it is recommended that the detailed design of proposed works consider consultation with municipal staff to review implications of the data accumulated by the Region through monitoring.

Fluvial geomorphological, hydrologic, hydraulic, aquatic habitat and ice movement studies will be required to facilitate the design of the proposed biotechnical stabilization works along the river as an eventual replacement to the existing armourstone revetments.

Consultation with CVC will be required to guide the design of the proposed stockpile area and maintenance access route to the existing ice management structure.

Future Studies Required:
In addition to the studies identified in Section 1.3.2, for elements that are located in proximity to the former landfill site, an assessment of implications on the integrity of the landfill cap will be required.

Policy & Regulation:
- Edge management/enhancement policy areas are to be established for the interfaces of the "Feature Site" with residential areas to control encroachment, illegal access and dumping as well as control the spread of invasive species into the valleylands;
- The recognition of existing and future maintenance easements associated with sewers must be reviewed and recognized when undertaking detailed design of this feature site. The easements could result in limitations to positioning, design and programming of components of the Concept Plan. The Region of Peel will require an access agreement from the City to construct a trail and maintain access across/within the easements;

- As a portion of the "Feature Site" falls within the Parkway Belt West Plan, all proposed initiatives within this area will require approval of the Ministry of Municipal Affairs and Housing (MMAH);
- Alterations proposed within the river will require the approval of DFO and will need to respect the *In-water Timing Window*. The proposed works may also require review by and approval from City of Mississauga Works Department;
- Work proposed within areas of the "Feature Site" that are owned and/or regulated by CVC will require a permit to facilitate implementation;
- Given the presence of species at risk within the site a permit may be required from the MNR to facilitate proposed alterations in the vicinity of ESA habitat, which may include proposed modifications to the barn. Approval from the MNR will be required to facilitate the implementation of site alterations in the vicinity of habitat for Jefferson salamander and butternut trees;
- A policy and means of implementation will need to be developed to address the undesired use of the parking area by UTM students;
- Restoration initiatives should have regard for River Valley Connections Outside of the Greenbelt as identified in the Region of Peel Official Plan, Schedule D3, April 2010; and Core Areas of the Greenlands System, Official Plan Schedule A, April 2010;
- All proposed initiatives should have regard for the following City of Mississauga Official Plan Designations:
    - Green System - Schedule 1/1a, September 2010;
    - Natural Areas - Schedule 3, September 2010;
    - Public and Private Open Spaces – Schedule 4, September 2010;
    - Parkway Belt West – Schedule 4, September 2010;
    - Parkway Belt West – Schedule 10, September 2010; and,
    - Greenbelt/Natural Hazards – Schedule 10, September 2010.
- All proposed initiatives should have regard for City of Mississauga Official Plan Designations:
    - Part 11, PB1 Zone - Parkway Belt December 31, 2011; and,
    - Part 10, G1, G1-14 Zone (Greenbelt-Natural Hazards) December 31, 2011.

Partnership Opportunities:

The implementation of various programs and initiatives could benefit from partnerships with private clubs, artists, not-for profit organizations, schools and local community groups and could include:

- Stewardship initiatives by volunteer, community, and/or environmental organizations regarding the restoration and reforestation initiatives;
- Naturalist groups, hiking association events;
- Bird watching association events;
- Dogwalking association events;
- 5K, cross country competitions with local schools and fun-runs for charity;
- Youth groups and school children-oriented events i.e. outdoor classrooms;
- UTM research and education programs for local high schools – reforestation and geomorphology;
- L.I.D. technologies;
- Kayaking/canoeing clubs;
- Angling associations; and,
- Pre-arranged guided hiking tours and canoe trips.

Volunteerism opportunities may include:

- Maintenance in terms of the collection of litter throughout park and reporting on damaged amenities and vandalism;
- Maintenance of restoration plantings including weeding and watering;
- Waste management and composting programs; and,
- Naturalist groups to team up with CVC to provide interpretive/educational seminars, outdoor classroom sessions and guided walks.

Initiatives, Implementation, Phasing & Costs:

The following initiatives have been arranged in order of priority ranging from immediate to high to moderate to low as described in Section 1.4 Implementation Phasing. The cost estimates associated with the initiatives identified in the following section include costs associated with studies/fieldwork, consultation, design and construction works the cost estimates do not include easements land/acquisition, construction contingencies, and mobilization costs (refer Appendix L for detailed summary of costs).

Initiative 1 – Implementation of an ad hoc trail closures

Implementation: – Map/verify existing trails

Phasing: – 0->15 years

Cost: – $95,000

Initiative 2A – Completion of Credit River Heritage Route

Implementation: – Environmental Impact Statement (EIS)

- Refine trail route based on risk assessment
- Conduct washroom study
- Consult CVC to secure permit/approval for site alteration within the Regulated Area (components of trail within floodplain)
- Stake confirmed trail alignment in field
- Geomorphological assessment
- Geotechnical assessment
- Hydrological assessment
- Natural heritage assessment
- Archaeological assessment
- Topographic survey

Phasing: – Studies 0-10 years

- Consultation & field work 0-5 years
- Design & construction 5-10 years

Cost: – $189,750

Initiative 2B – Improvements to existing Culham Trail

Implementation: – Geotechnical assessment to identify safety risks

- Geomorphological assessment to identify safety risks
- Consult approval CVC to secure permit for site alteration within the Regulated Area
- Consult with City T&W

Phasing: – 0-5 years

Cost: – $162,000

Initiative 2C	– Implementation of an at grade signalized crossing across Dundas Street West
Implementation:	– Traffic study (pedestrian safety/crossing) - Signal Warrant Analysis - Consult with City T&W - Consult with Transportation Consultant - Consult with City Accessibility Department
Phasing:	– 10-15 years
Cost:	– $625,000

Initiative 3	– Construction of one (1) removable kayak and canoe launch platform
Implementation:	– Hydrological assessment - Geotechnical assessment - Archaeological assessment - Structural engineering - Study potential impacts of ice jams on structures - CVC for development or site alteration within the Regulated Area - Secure approval from CVC - Secure approval from DFO - Secure approval from Transport Canada
Phasing:	– 5-10 years
Cost:	– $30,556

Initiative 4	– Construction of a picnic pavilion
Implementation:	– Needs assessment - Topographic survey
Phasing:	– 0-5 years
Cost:	– $225,000

Initiative 5	– Construction of a proposed ice management ice debris stockpile area
Implementation:	– Natural heritage assessment - Topographic survey
Phasing:	– 0-5 years
Cost:	– $45,000

Initiative 6	– Construction of a proposed water quality wetland
Implementation:	– Environmental Impact Statement - Review monitoring program - Geotechnical investigations to determine impact of design on integrity of former landfill site - Consult with Peel Region - Consult with City of Mississauga T&W - Geomorphological assessment - Stormwater Engineering assessment - Archaeological assessment - Topographic survey

	- Establish approval from Peel Region	
Phasing:	– Studies, consultation & field work	0-5 years
	- Design & construction	5-10 years
Cost:	– $294,000	

Initiative 7

– A. Construction of a section of the primary trail
– B. Construct Pedestrian Bridge (65m span)
– C. Design and installation of four (4) orientation signs.

Implementation:
– Cultural heritage assessment
- Archaeological assessment
- Natural heritage study
- Flood mitigation
- Topographic survey
- Sign layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.

Phasing:
– A. 0-5 years
- B. 5-10 years
- C. 5-10 years

Cost:
– $1,304,850

Initiative 8

– A. Design and construct two (2) gateways
– B. Implementation of landscape enhancements plating (entries)

Implementation:
– Conduct traffic study (pedestrian safety/crossing)
- Consult with City T&W and Transportation Consultant for entry point and potential pedestrian crossing of laneway
- Design pedestrian crossings (no signal)

Phasing:
– 10-15 years

Cost:
– $141,250

Initiative 9

– Construction of sustainable parking areas #1-3. Incorporate L.I.D. techniques including stormwater quantity control and water quality improvements (pilot site to showcase L.I.D. technologies)

Implementation:
– Topographic survey
- Geotechnical assessment
- Archaeological assessment
- L.I.D. Feasibility Study
- CVC approval for development or site alteration within the Regulated Area
- Consult with City of Mississauga engineering and T&W

Phasing:
– >15 years

Cost:
– $1,817,700

Initiative 10

– Implementation of existing washroom upgrade (convert from temporary to permanent)

Implementation:
– Accessibility study
- Consult with Accessibility Groups

Phasing:
- >15 years

Cost:
– $112,500

Initiative 11 – Implementation of edge management planting
Implementation: – Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan
- Consult with City of Mississauga Parks and Forestry
- Consult with homeowners
- Consult with area ratepayers
- Consult with Councillor
Phasing: – >15 years
Cost: – $62,600

Initiative 12 – Construction of a section of the secondary trail (granular surface trail)
Implementation: – Environmental Impact Statement
- Hydraulic studies
- Ice impacts studies
- Natural heritage studies
- Geotechnical studies
- Archaeological assessment
- Topographic survey
- CVC approval for development or site alteration within the Regulated Area
- Establish approval from CVC
Phasing: – 10-15 years
Cost: – $62,950

Initiative 13 – Construction of four (4) angling access/overlooks + two (2) overlooks
Implementation: – Hydrological assessment
- Geotechnical assessment
- Archaeological assessment
- Structural engineering
- Study potential impacts of ice jams on structures
- CVC approval for development or site alteration within the Regulated Area
- Secure approval from CVC
- Secure approval from DFO
- Secure approval from Transport Canada
Phasing: – >15 years
Cost: – $347,300

Initiative 14 – A. Implementation of woodland reforestation
– B. Enhancement of tree canopy for shade (within picnic/open space)
Implementation: – Natural heritage assessment
- Study impacts of ice jams
- Stewardship program
- Within former landfill site determine potential impacts of design on integrity of cap
- Apply for relevant grant/funding programs
- CVC approval for development or site alteration within the

Regulated Area
- Consult with TRC
- Seek partnerships with UTM, colleges, NGOs and community organizations
- Consult with City of Mississauga Parks and Forestry

Phasing: – A. 0->15 years
- B. 10-15 years

Cost: – A. $689,000
– B. $62,500

Initiative 15 – Creation of cultural meadows in locations where tree growth is prohibited (sewer easements)

Implementation: – Natural heritage assessments to determine existing habitat and potential enhancement opportunities
- CVC approval for development or site alteration within the Regulated Area
- Consult with Heritage Mississauga
- Consult with municipal operations staff

Phasing: – >15 years

Cost: – $97,750

Initiative 16 – Construction of a dam remnant interpretive feature

Implementation: – Assess structure integrity and safety issues
- Consult with City Engineering
- Consult with Heritage Mississauga

Phasing: – >15 years

Cost: – $75,000

Initiative 17 – Construction of an ice management interpretive feature

Implementation: – Flood management investigation
- Ice impact investigation
- Geomorphological investigation
- Consult with City Engineering
- Consult with Heritage Mississauga
- CVC approval for development or site alteration within the Regulated Area
- Consult with Public for feedback

Phasing: – >15 years

Cost: – $75,000

Initiative 18 – Design and installation of twelve (12) interpretive signs

Implementation: – Interpretive Strategy
- Sign layout and graphics completed to the satisfaction of Parks and Forestry through the Park Signage Plan.
- Consult with City Parks and Operations (determine clear management widths & heights)

Phasing: – >15 years

Cost: – $36,975

Initiative 19 – Removal/replacement of armourstone wall

Implementation: – Geotechnical assessment
- Hydrogeological assessment
- Structural engineering assessment
- Aquatic habitat specialist
- Consult with City engineering
- CVC approval for development or site alteration within the Regulated Area
- Consult with DFO

Phasing: – >15 years

Cost: – $219,000

Implementation Plan - P-60 Erindale Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
1. Ad hoc trail closures	**Studies**	Map/ verify existing trails	$12,500	✓	✓	✓	✓
	Design	Develop trail closure strategy and prepare communications, restoration planting and signage for the areas	$6,500	✓	✓	✓	✓
		Implement and monitor the trail closure measures	$76,000	✓	✓	✓	✓
2A. Credit River Heritage Route (750m)	**Studies**	Conduct Environmental Impact Statement	$4,000	✓			
		Refine trail route based on risk assessment	$1,500	✓			
		Conduct Washroom Justification Study	$5,000		✓		
	Consultation	CVC permit	$2,500	✓			
	Field Work	Stake confirmed trail alignment in field	$1,500	✓			
		Complete technical assesssments for confirmed trail- Geomorphological, Geotechnical, Hydrological, Natural Heritage, Archaeological and Topographic Surveys	$15,000		✓		
	Design & Construction	Prepare working drawings for trail and enhancements for wildlife passage	$8,000		✓		
		Establish approval from CVC	$1,500		✓		
		Prepare tender documentation	$10,000		✓		
		Construct the trail	$138,750		✓		
		Prepare post construction monitoring and maintenance program for trail	$2,000		✓		
2B. Improvements to Existing Culham Trail	**Studies/ Field Work**	Conduct geotechnical and geomorphological assessments to identify safety risks	$14,000	✓			
	Consultation	CVC and City T&W	$3,000	✓			
	Design/ Construction	Prepare rehabilitation plans	$15,000	✓			
		Implement the improvements	$130,000	✓			
2C. At Grade Signalized Crossing (across DundasSt West)	**Studies**	Conduct traffic study (pedestrian safety/ crossing)	$15,000			✓	
		Conduct Signal Warrant Analysis	$12,000			✓	
	Consultation	City T&W, Transportation Consultant	$1,200			✓	
		City Accessibility Department	$1,200			✓	
	Design/ Construction	Design pedestrian crossing (signalilzed)	$17,600			✓	
		Prepare detailed design and construction of signilized crossing	$78,000			✓	
		Construct Crossing	$500,000			✓	
3. Canoe and Kayak Launch (1 item) (removable)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$2,500		✓		
	Consultation	Establish approval from CVC, DFO and Transport Canada	$600		✓		
	Design	Detailed design and tender documentation	$7,500		✓		
	Construction	Construct two canoe/ kayak launches	$19,956		✓		
4. Picnic Pavilion	**Studies**	Needs Assessment, Topographic Survey	$7,500	✓			
	Design/ Construction	Engage supplier/ architect/ engineer to design structure	$37,500	✓			
		Construct the pavilion	$180,000				
5. Proposed Ice Management Ice Debris Stockpile Area	**Studies/ Field Work**	Natural Heritage Assessment, Topographic Survey	$7,500	✓			
	Design/ Construction	Design and construct access road based on findings of assessment. Install signage (and fencing if required) as CVC off limits ice management are	$37,500	✓			
6. Proposed Water Quality Wetland (2,700m²)	**Studies**	Conduct Environmental Impact Statement	$5,000	✓			
		Conduct geotechnical investigations to detemine impact of design on integrity of former landfill site	$5,000	✓			
	Consultation	Peel Region, City of Mississauga T&W	$3,500	✓			
	Field Work	Geomorphological, Stormwater Engineering and Archaeological Assessments. Topographic Survey	$10,000	✓			
	Design & Construction	Preliminary design drawings for water quality wetland and drainage system enhancements	$15,000		✓		
		Establish approval from Peel Region	$3,500		✓		
		Prepare tender documentation	$25,000		✓		
		Construct wetland and habitat enhancements	$225,500		✓		
		Prepare post construction monitoring and maintenance program for pond and drainage works	$1,500		✓		

Implementation Plan - P-60 Erindale Reach

INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
7A. Primary Trail (3,130m)	**Studies/ Field Work**	Cultural Heritage and Archaeological Assessments, Natural Heritage Study, Flood Mitigation, Topographic Survey	$60,000		✓		
	Design	Design route based on findings of assessment	$53,500		✓		
	Construction	Construct route based on findings of assessment	$453,850		✓		
7B. Bridges (1 item - 65m span over river)	**Studies/ Field Work**	Assess implications existing storm channel on bridge design; assess easement/access requirements with Peel Region	$30,000	✓			
		Develop RFP for Design Competition for 'salmon inspired' river crossing; Select Bridge Designer	$15,000	✓			
		Conduct geotechnical, geomorphological, structural and archaeological assessments, Topographic Survey	$30,000	✓			
	Consultation	MNR,CVC,Transport Canada (NWPA), Peel Region, Public Review of Options for Artistic Bridge Design	$6,000	✓			
	Design/ Construction	Develop Selected Bridge Design	$6,000		✓		
		Prepare preliminary and detailed design	$40,000		✓		
		Construct the bridge	$600,000		✓		
7C. Orientation Signage (5 items)	**Design & Construction**	Develop sign design, graphics and layout (for primary trail only)	$1,750		✓		
		Produce and install signage (for primary trail only)	$8,750		✓		
8A. Gateway Features (2 items)	**Studies**	Conduct traffic study (mid-block pedestrian crossing)	$3,500			✓	
	Consultation	City T&W, Transportation Consultant	$1,250			✓	
	Design/ Construction	Preliminary design pedestrian crossings (no signal)	$4,000			✓	
		Prepare preliminary and detailed design for entry including bike parking (15 bikes). Prepare tender documentation	$12,000			✓	
		Construction of entry features	$45,000			✓	
8B. Landscape Enhancement Plantings (entries)	**Design/Construction**	Prepare detailed planting plans, tender documentation	$19,000			✓	
		Construct the landscape plantings	$56,500			✓	
9. Parking Areas # 1-3 L.I.D. Retrofit (10,000m²) (pilot site to showcase L.I.D. technologies)	**Studies**	Topographic survey, geotechincal and archaeological studies, L.I.D. Feasibility Study	$75,000				✓
	Consultation	CVC, City of Mississauga engineering and T&W	$8,000				✓
	Design	Detail design and tender documentation	$125,000				✓
	Contruction	Construct the parking area	$1,609,700				✓
10. Existing Washroom Upgrade (convert from temporary to permanent)	**Studies**	Accessibility Study	$5,000				✓
	Consultation	Meet with Accessibility Groups	$2,500				✓
	Construct	Design Improvements (as required)	$15,000				✓
	Construct	Construct Improvements	$90,000				✓
11. Edge Management Planting (315m) (assumed 20 m wide)	**Studies**	Engage Natural Heritage Specialist and Arborist to prepare Edge Management Plan	$4,200				✓
	Consultation	City of Mississauga Parks and Forestry	$1,200				✓
		Homeowners, Area Ratepayers and Councillor	$1,200				✓
	Design	Prepare planting plans, tender documentation	$5,600				✓
	Construction	Construct the edge management plantings	$50,400				✓
12. Secondary Trail (400m) (granular surface trail)	**Studies**	Conduct Environmental Impact Statement (hydraulic, ice impacts, natural heritage and geotechnical studies), Archaeological Assessments, topographic survey	$3,200			✓	
	Consultation	CVC (determine clear management widths & heights)	$750			✓	
	Design	Design trail, establish approval from CVC	$9,000			✓	
	Construction	Construct trail	$50,000			✓	
13. Overlooks (2 items)/ Angling Access (4 items)	**Studies**	Hydrological, geotechnical, archaeological and structural engineering. Study potential impacts of ice jams on structures.	$3,500				✓
	Consultation	Establish approval from CVC, DFO and Transport Canada	$1,200				✓
	Design	Detailed design and tender documentation	$13,800				✓
	Construction	Construct the angling access and overlook structure	$328,800				✓

Implementation Plan - P-60 Erindale Reach								
INITIATIVE		IMPLEMENTATION	Estimated Costs *	PHASING/ years			
NOTE: Please be advised that the associated implementation schedule is an estimate and will be dependent upon the rate and degree of funding allocated through City capital programs and external funding sources.				0-5	5-10	10-15	>15
14A. Woodland Reforestation	**Studies**	Conduct natural heritage assessment, study impacts of ice jams, develop stewardship program	$30,000	✓	✓	✓	✓
		Within former landfill site determine potential impacts of design on integrity of cap	$15,000	✓	✓	✓	✓
		Apply for relevant grant/ funding programs	N/A	✓	✓	✓	✓
	Consultation	CVC, UTM, colleges, community organizations	$5,500	✓	✓	✓	✓
		City of Mississauga Parks and Forestry	$3,500	✓	✓	✓	✓
	Design	Develop reforestation plans, signage and details	$65,000	✓	✓	✓	✓
	Construction	Install under guidance from CVC and City with volunteer forces, schools, private and public partners	$570,000	✓	✓	✓	✓
14B. Enhanced Tree Canopy for Shade (within picnic/ open space)	**Studies**	Within former landfill site determine potential impacts of design on integrity of cap	$4,000			✓	
	Design	Develop planting plans	$8,500			✓	
	Construction	Install the plantings	$50,000			✓	
15. Cultural Meadow (2,000m²)	**Studies**	Natural heritage assessment	$3,500				✓
	Consultation	CVC, Heritage Mississauga, Municipal operations staff	$750				✓
	Design	Prepare cultivation, planting/ seeding plans	$12,000				✓
	Construction	Construct the meadows	$80,000				✓
		Prepare and implement maintenance program	$1,500				✓
16. Dam Remnant Interpretive Feature	**Studies**	Assesss structure integrity and safety issues	$3,500				✓
	Consultation	City Engineering, Heritage Mississauga	$1,500				✓
		Develop Interpretive Concept	$5,000				✓
	Design & Construction	Develop Art Installation Concepts	$5,000				✓
		Install under guidance from City and Heritage Mississauga	$60,000				✓
17. Ice Management Interpretive Feature	**Studies**	Flood management, ice impact, geomorphological investigations	$3,500				✓
	Consultation	City Engineering, Heritage Mississauga, CVC	$1,500				✓
		Consult with Public for feedback	$5,000				✓
	Design & Construction	Develop Interpretive Concept	$5,000				✓
		Install under guidance from CVC and City	$60,000				✓
18. Interpretive Signage (12 items)	**Studies**	Interpretive Strategy	$4,500				✓
	Consultation	Consult Heritage Mississauga and City signage department to develop sign graphics and layout	$1,500				✓
	Design & Construction	Develop sign design, graphics and layout	$5,775				✓
		Produce and install signage	$25,200				✓
19. Removal/ replacement of armourstone wall (200m)	**Studies**	Geotechnical, hydrogeologicial and structural engineering assesments, aquatic habitat specialist	$20,000				✓
	Consultation	City engineering, CVC, DFO	$3,500				✓
	Design & Construction	Develop Biotechnical Alternatives to Slope Stabilization	$4,500				✓
		Prepare Tender Based on Preferred Option	$16,000				✓
		Remove and Reconstruct the Edge with Habitat Enhancements	$175,000				✓
			TOTAL ESTIMATED COST	**$6,770,681.00**			

** Refer to Table L-1 in Appendix L for itemized cost estimates*

Policy Note 1: All elements of this Feature Site must consider the implication of design and construction upon access and maintenance easements to sewer and stormwater facilities

Policy Note 2: An edge management/ enhancement policy area should be established, in coordination with the City's encroachment bylaw, for all areas of the "Feature Site" that interface with residential areas.

Policy Note 3: Incorporate Credit River Heritage Route and Secondary Trails into City of Mississauga Trails and Cycling Plans

Policy Note 4: Proposed wetland and drainage system alterations must consider municipal and watershed planning policies

Source: http://www.topix.com/album/detail/ca/mississauga-on/N625VOFE51FTEO05

1.6

1.6 Implementation

The Master Plan and Preferred "Feature Site" Concept Plans set out an overall vision for the CRP System that is intended to be implemented over the period of 25 years. The Master Plan and Preferred Concept Plans provide proposals at a high level that are intended to serve as a guide to direct the implementation of future natural and cultural heritage protection and enhancement initiatives, programs and amenity improvements. In moving towards implementation, a number of technical studies will be required to be completed to inform the detailed design process and determine the most beneficial operational models. In addition, ongoing consultation amongst various departments within the City will be required to ensure that initiatives are addressed in an integrated and complementary way. For example, the implementation of forecasted stormwater management facilities within the Sanford Farm Lands should be coordinated with initiatives proposed within the Concept Plan for this "Feature Site" in terms of both timing and design integration.

In conjunction with the implementation of the recommendation set out in the CRPS, the establishment of a long-term monitoring and adaptive management program is recommended. The monitoring program should be aimed at gauging the potential direct and indirect impacts of human use on the valleyland and "Feature Sites" and natural heritage features and ecological functions. The monitoring program should be developed in consultation with CVC to ensure consistency with existing monitoring protocols and confirm potential opportunities for collaboration to develop and implement the proposed monitoring program.

Further consultation with the public and stakeholders will be required throughout the process of generating detailed designs in order to facilitate the implementation of trails and other proposed amenities. The following provides a list of actions required to be addressed in the process of implementing the proposed Master Plan and "Feature Site" Concept Plans.

1.6.1 Consultation

Consultations with a number of groups identified in the list of stakeholders will be necessary to advance the design of components of the Master Plan and "Feature Site" Concept Plans. Notably, it will be necessary to consult with the following agencies to address requirements for approval:

- DFO for approval of proposed in-water works that constitute harmful alteration, disruption or destruction of fish habitat;
- Transport Canada Marine for approval of works that may alter the ability to navigate the river under the Navigable Waters Protection Act;
- Ontario Ministry of Natural Resources for approval for alteration to dams under the Lakes and Rivers Improvement Act, and disturbance to habitat of species designated under the Endangered Species Act, including redside dace in Levi Creek and Fletcher's Creek;
- CVC for development or site alteration within the Regulated Area;
- First Nations where archaeological sites have direct significance or artefacts could be disturbed;
- The Region of Peel to address the implications of the recommendations of the CRPS on Regional infrastructure, both existing and planned; and,
- The City of Mississauga Parks and Forestry Division in order to identify opportunities for forest management activities, such as reforestation, invasive species management and habitat creation, through evaluating and prioritizing

appropriate locations for these activities within City owned woodlots and natural areas.

1.6.2 Business/Operations Plans

The successful implementation of the CRPS and realization of the programs identified for each of the "Feature Sites" will require a dedication of staff resources. In response, the CRPS recommends that a dedicated staff be established with the specific mandate of implementing the recommendations of the Strategy and moving the Concept Plans to reality.

The responsibilities of the dedicated staff would include:

- Coordinating the Technical Studies required to facilitate the detailed design and implementation of the proposed components of the Strategy;
- Fostering partnerships with private landowners to facilitate public access and implement recommended initiatives on privately owned lands;
- Liaising with existing and potential partners to confirm protocols for the delivery of programs;
- Exploring opportunities for sponsorships to fund or contribute to the implementation of components of the project;
- Negotiating lease arrangements with potential operators of components of the plan including the orchard, Adventure Experience, Urban Farm and native plant nursery;
- Consulting with First Nations, stakeholders and the community to maintain communication throughout the process of implementation; and,
- Overseeing programs aimed at monitoring the state of the natural heritage system within the Credit River valley.

In addition to the dedicated staff, it is recommended that Property Managers be assigned to several of the "Feature Sites" to manage both programs, facilities and landscapes within each of the sites (contingent on the preferred operational model – sites within which operations will be leased to a separate party may not require a dedicated Property Manager).

Given that the Credit Valley and the "Feature Sites" constitute the City's most important natural heritage assets, it is essential that an appropriate staff be dedicated to manage this important resource.

1.6.3 Lease/Ownership Arrangements

In order to implement the strategy, leases and management agreements may need to be amended and/or new leases entered into to afford access. Specific lease/ownership considerations that will need to be addressed include the following:

- Lease Agreements with CVC:
  A review of future development proposals for Erindale Park, portions of Riverwood and Credit Meadows will be required by CVC. Written permission under lease agreements will be required between CVC and the City to allow future development to proceed.
- Highway Underpasses:
  Permission will be required from Ministry of Transportation (MTO) to facilitate the implementation of trail underpasses or improvements within the rights-of-way of Highways #401, #403 and the Queen Elizabeth Way.

- Railway Crossings:
  Permission from the owner of the railway will be required to permit trail crossings of, or trails within, the rights-of-way of railway corridors.
- Hydro Corridors:
  Access agreements will be required from Hydro One to facilitate the implementation and management of trails within hydro transmission corridors.
- University of Toronto – Mississauga Campus (UTM):
  Approval will be required to facilitate the implementation of the proposed trail link to Erindale Park.
- Private Landowners:
  Ongoing consultation with private landowners will be required in an effort to secure public access through private lands with the objective of creating a connected trail system. Key landowners include the Mississaugua Golf Club, Credit Valley Golf Club, Kraft Mill and ADM Milling as well as the owners of a number of adjacent residential properties.
- Oil and Natural Gas Pipelines:
  Crossing agreements for trails and infrastructure will be required.

1.6.4 Coordination

Coordination amongst the various departments within the City of Mississauga will be required to facilitate the logical implementation of the initiatives proposed, including the following:

- Transportation and Works Department regarding related erosion control and SWM initiatives;
- Culture Division related to proposals related to the preservation of cultural heritage features and interpretive programming; and,
- The Cycling Office relative to integration with existing and proposed cycle routes, etc.

In addition, coordination with the various funded projects identified in the City's Capital Forecast will be necessary to identify complementary initiatives and confirm the appropriate staging of works.

1.6.5 Partnership Building and Funding

Establishing strategic partnerships and securing funding and the commitment of private donors will be essential to facilitate the realization of some of the components of the CRPS, ensuring its long-term implementation. Capitalizing on opportunities to acquire funding and foster partnerships will be a key consideration in the implementation process.

Opportunities exist to acquire additional funding from a number of sources including the following:

- Corporate contributions;
- Approaching foundations that provide funds for environmental projects, including the following:
  - TD Canada Trust's – Friends of the Environment Foundation;
    - This is a national charity that funds environmental projects that are aimed at protecting natural environments and ecosystems.

- Shell Foundation;
  - The Shell Foundation invests in projects that are aimed at reducing greenhouse gases, including reforestation projects.
- The Schad Foundation;
  - This charitable organization funds environmental projects around the world and supports the Earth Rangers.
- The W. Garfield Weston Foundation;
  - The fund supports projects aimed at land conservation and stewardship.
- Individual donors;
- Environment Canada Funding Programs including:
  - Eco-Action – This program provides funding to community groups for action-oriented environmental projects;
  - Endangered Species Recovery Fund – This program provides funding to project and restore habitat of endangered species;
  - Habitat Stewardship Program – This program provides funding for projects that protect and rehabilitate habitat for Species at Risk;
  - Wetland Habitat Fund – This program provides funding to landowners for improvements to the ecological integrity of wetland habitats;
  - Green Investment Fund – This fund provides financial assistance to municipal governments to invest in new technologies and approaches to improve and protect the environment; and,
  - Evergreen Foundation – The Evergreen Foundation provides funding for schools and community groups to advance environmental projects.
- The Ministry of Natural Resources Community Fisheries and Wildlife Improvement Program (CFWIP);
  - This program funds projects that benefit biodiversity, involve the public and provide a public benefit. Specific types of projects include habitat rehabilitation, monitoring, stewardship and environmental education. The MNR will provide financial help, expertise, equipment and materials for approved CFWIP projects. The program supports any project as long as it benefits biodiversity especially fish and wildlife and involves and benefits the public. Examples of projects include; habitat rehabilitation, monitoring and assessment of fish populations and environmental education. For more details visit the following website: www.mnr.gov.on.ca/en/Business/LetsFish/2ColumnSubPage/STEL02_166030.
- Partnerships with existing City initiatives such as the Million Tree Program which seeks to increase the canopy cover within the City of Mississauga through partnerships with local interest groups such as Evergreen; Credit Valley Conservation; Credit River Anglers Association; and, the Toronto and Regions Conservation Authority;
- Partnerships with private sector groups such as the Landscape Ontario Horticultural Trades Association which contributes labour and materials to charitable community-based “green” projects; and,
- Other innovative funding models, such as trust funds, shares in conservation projects and adopt-a-park programs. This latter program

could be enacted by the City to involve Mississauga residents in removing litter or planting trees through local community group participation. A trust fund could be established that would allow the City to accept donations for the purposes of acquiring land and supporting environmental initiatives.

- Foundations that provide funds for infrastructure and tourism-based projects, including the following:
  - Infrastructure Stimulus Fund: (water, SWM, parks and trails): http://www.infrastructure.gc.ca/regions/on/on-prof-eng.html
  - Young Canada Works: (Cultural Heritage): https://www.heritagecanada.org/en/resources/jobs-heritage/young-canada-works
  - Tourism Development Fund: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/OSAPQA005130
  - Tourism Event Marketing Program: http://www.tourismpartners.com/partnerOps/tourismEvent.xhtml?language=en
  - EnAbling Change Program: (accessibility) http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006997
  - Ontario Sport and Recreation Communities Fund: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006918

In addition to establishing partnerships for financial purposes, seeking out opportunities to partner with or work with other groups and organizations will assist in propelling the implementation of the CRPS. Potential partnership opportunities include:

- Communities in Bloom;
- Canada Blooms & Flowers Canada;
- Ontario Trails Council;
- Ontario Urban Forest Conservation;
- Hike Ontario;
- Earth Day Canada;
- The Composting Council of Canada;
- Go For Green! - The Active Living & Environment Program;
- International Holistic Tourism Education Centre (IHTEC);
- International Society of Arboriculture – Ontario;
- CVC*;
- Conservation Ontario;
- Federation of Ontario Naturalists;
- Smart Commute Mississauga; and,
- City of Mississauga Million Tree Program.

The various potential partner organizations may offer highly specialized knowledge and technical resources to assist in implementing and/ or developing various initiatives.

** CVC and City of Mississauga currently work together on multiple projects. Continuing and expanding this relationship through to implementation will be a valuable component of the Strategy.*

The CRPS is intended to be a living document that will be adapted over time. It is estimated to take 25 years to implement. Based on this understanding, it is clear that funding and partnerships will be important throughout various stages of the implementation process. Capitalizing on funding and partnership opportunities will be especially useful during the early stages of implementation in order to build the momentum necessary to propel the vision forward to reality.

1.6.5.1 Business Collaboration and Partnerships

Working collaboratively and strategically with businesses will help to support the successful implementation of the CRPS. Opportunities for partnering with businesses could include hosting private events, concerts or other special events in Credit River parks, and using a portion of the proceeds for park improvements or programs. Initiatives the City could implement to improve collaboration with business partners could include:

- Coordination of web links with businesses across departments;
- Investigation and implementation of opportunities for improved marketing and publicizing of parks resources, together with programs, events and activities that take place in parks;
- Implementation of improvements to portals on the City's web site and integration with information technology;
- Improvements to be proposed for library and recreational services; and,
- Implementation of a "Community Improvement Plan" to allow for tax incentives to be offered to local businesses that support projects that are aimed at achieving the objectives of the CRPS.

It may also be desirable to undertake Public/Private Partnerships. For example a privately operated facility could provide funding, additional park amenities and/or ongoing park maintenance, in return for the rights to operate a program.

Specific strategies that could be adopted from the precedent examples described in Section 1.5.5.2 in Part 2 Document and adapted for the Credit River Parks System include:

- Joint promotion with the various municipalities within the Credit River Watershed including Brampton, Orangeville and Caledon. This will allow for cross-promotion of events that will allow the City of Mississauga to capitalize upon resources that are located beyond the borders of the City, including the scenic 'Forks of the Credit' and the spectrum of popular festivals and events staged throughout the watershed;
- Partnerships with privately operated attractions and tourism enterprises including local art galleries, outfitters, sport fishing clubs, restaurants and accommodations;
- Adoption of a recognizable 'brand' for the CRPS that speaks to and promotes the unique attributes of the Credit River within Mississauga;
- Encouragement of school boards to developing work plans that incorporate Credit River valley ecology and cultural heritage into curriculum; and,
- Development of a comprehensive visitor experience strategy for the Credit River valley that will address interpretation, recreation and tourism opportunities.

1.6.5.2 Recommendations for the Development of a Tourism Strategy

The role of parks and natural areas in place-based cultural tourism depends on the cultural experiences that make up the community's "sense of place" and where they are located (i.e., a heritage site in a park, a publicly owned geological site).

Furthermore, as stated in recommendation #40 from Future Directions: Master Plan for Parks and Natural Areas (2009), the City should, in considering opportunities for parks-based tourist destinations, undertake studies to establish the appropriate themes and concepts that define its cultural character.

The recommendation further suggests "prior to embarking on any specific initiatives for parks based (or other) types of recreational tourism, the City will need to undertake tourism studies that address the feasibility for specific sites to serve as tourist destinations. These studies should include an assessment of the following:

- Potential for each site to function as a tourist destination in the industry's definition of the term 'anticipated market' in relation to the site's potential draw and other competing destinations;
- The need for municipal investment in planning and development to achieve the site's tourism potential;
- Likely trade-offs that will be required in meeting community needs for recreation/leisure if park sites are put to tourism uses; and,
- Development of a business plan outlining all capital and operational costs and potential revenues to develop and maintain."

1.6.6 Designation

Although the Federal "Heritage Rivers Program" is presently on-hold, it is recommended that that the City of Mississauga support any future efforts undertaken by CVC to designate the Credit River as a "Canadian Heritage River".

The CRPS addresses many of the technical requirements of the "Canadian Heritage River" application should be the program be re-initiated in the future.

The Ontario Ministry of Municipal Affairs and Housing is proposing to amend the Greenbelt Act, 2005 to add a new "Urban River Valley" designation to the Greenbelt Plan. The new designation is intended to facilitate adding publicly owned lands that are located within urban river valleys that are currently outside of the Greenbelt into the Greenbelt Plan. Should the proposed amendment be approved, municipalities that have an interest in having the "Urban River Valley" designation apply to publicly owned lands, a request would be submitted to the Ministry based on the "Growing the Greenbelt" criteria.

For the publicly owned lands that are located within the Credit River valley in Mississauga, the proposed designation would rely on the policies contained within the Region of Peel and City of Mississauga Official Plans that relate to Greenbelt objectives and any other applicable criteria. The Protected Countryside policies of the Greenbelt Plan would not apply.

Should the proposed amendment be approved, it is recommended that the City seek to designate the publicly owned lands within the Credit River valley as "Urban River Valley" within the Greenbelt Plan.

Throughout the implementation process, consultation with the community should be a priority given the success of the public engagement program that was implemented to generate the CRPS. Members of the public expressed a desire to remain informed and involved as the recommendations of the Strategy are advanced towards implementation.

1.6.7 Specific Management Considerations

The implementation plan considers construction sequencing in order to minimize impacts to natural areas by limiting the movement of equipment. The implementation of recommended initiatives should be staged to enable equipment to traverse areas that have been disturbed as a result of a previous phase of construction. This will afford access to areas where boardwalks and bridge structures are required to make key linkages viable in the short term. In the case of multi-use trails, it is recommended that the interim sub-base be prepared to rough grade, then left to settle allowing any drainage issues that are identified during this interim period to be rectified prior to the installation of final surface material in the next phase. This approach will also assist in distributing implementation costs over a longer period.

In consideration of the above, careful thought will need to be given to the location of staging areas for materials and equipment. It is recommended that future implementation sites be utilized as staging areas for construction.

During the implementation of trails and other structures near or within sensitive natural areas, the smallest piece of equipment that is capable of executing the work should be utilized. Machinery will need to be operated with care near trees and tree roots. Supervision by a certified arborist will be required where ever exposed roots are encountered and whenever augering for posts and piles for boardwalks, structures and bridges is to be implemented. Roots that are encountered during the process of constructing structures and excavating for footings should be assessed and hand pruned. Hand digging or air spading is preferred to facilitate root pruning prior to the initiation of construction to prevent trees and root zones from disturbance.

Trails, boardwalks, stairways and other structures should be built to last, utilizing materials that are hardwearing and durable. Footings should be properly installed below frost level using concrete piers or helical piles. The understructure of stairways and footbridges should be designed and certified by a structural engineer to ensure that required loads can be accommodated and that the structure can withstand lateral and uplift forces and to address specific soil and groundwater conditions. Prior to the construction of any structures, inspection of sub-surface soil conditions by a geotechnical specialist will be required. Steel structures should be used wherever possible because they are durable and vandal resistant. Where wood structures are proposed, wood should not be used in sub-surface installations or come in contact with the ground in order to avoid the potential for rot, extending the service life of the structure.

Fencing and signage should be installed prior to the construction of new structures and trails to address public safety concerns. These installations should be maintained throughout the duration of the construction period. Temporary signs should also be located at each end of the trail segment and also at main access points to the completed trail system to indicate the type and duration of work being undertaken. A map should accompany the sign indicating the location of the work

and clearly illustrate segments of the trail system that are to be closed to facilitate construction. Detours should also be identified on the map.

To facilitate the closing of ad-hoc trails, temporary fences and brush bundles should be placed at regular intervals on existing trails that are to be closed to access. Instructive and interpretive signage should also be placed in several key visible locations to identify which trails have been identified for long term closure and to explain why they are being closed. Closed trails and deterrents should be monitored for effectiveness. Should impacts to the forest environment continue to be observed as a result of illicit trail use, barrier fencing may need to be installed around the most sensitive habitats. This fencing is meant as a deterrent and should therefore be robust but in keeping with the natural character of the landscape. Post and wire mesh fencing is recommended for its ease of installation and relatively low cost. Prior to installation, the location of fencing should be determined with the objective of preventing access to sensitive native vegetation, seepage areas and eroded slopes that are most proximate to newly constructed trails.

Glossary

- Aquatic: Refers to living in or near water or taking place in water.
- Biodiversity: The term used to describe the variety of life on earth.
- Biofunction: A joining of the words biological and function, referring to the function of living organisms within a system
- BRT: City of Mississauga's Bus Rapid Transit System
- Business Plan: Set of documents prepared to summarize the operational and financial objectives of a business in the future and to show how they will be achieved. It serves as a blueprint to guide the projects' policies and strategies, and is continually modified as conditions change and new opportunities and/or the need for modifications emerge. The plan details the past, present, and forecasted performance of the owner/vendor and usually also contains pro-forma balance sheets, income statements, and cash flow statements, to illustrate how the financing being sought will affect the organizations financial position.
- CC: Coefficient of Conservatism
- CGBC: Canadian Green Building Council
- COSEWIC: Committee on the Status of Endangered Wildlife in Canada
- COSSARO: The Committee on the Status of Species at Risk in Ontario, as defined by the Ontario Ministry of Natural Resources
- CPTED: Crime Prevention through Environmental Design
- CRAMS: Credit River Adaptive Management Study, as prepared by Credit Valley Conservation
- CRP: Credit River Parks
- CRPS: Credit River Parks Strategy
- CVC: Credit Valley Conservation, the Conservation Authority that oversees the management of the Credit River Watershed
- DFO: Department of Fisheries and Ocean Canada
- DPCDSB: Dufferin-Peel Catholic District School Board
- Ecofunction: A joining of the words ecological and function, referring to function of the abiotic (non-living) and biotic (living) interactions within a system.
- Ecosystem: Consists of all of the organisms and all the abiotic pools (non-living chemical and physical factors in the environment, such as soils and minerals) with which they interact

- ELC: Ecological Land Classification, as defined by the Ontario Ministry of Natural Resources
- ESA 2007: Ontario Endangered Species Act, as defined by the Ontario Ministry of Natural Resources
- ESA: Environmentally Sensitive Area, as defined by the Ontario Ministry of Natural Resources
- FQI: Floristic Quality Index
- GIS: Geographic Information System
- HAC: Heritage Advisory Committee
- HADD: Harmful Alteration, Disruption or Destruction, as designated under the Fisheries Act administered by the Department of Fisheries and Oceans Canada
- HAVE: Heritage Appreciation and Visitor Experience Plan
- Heritage Orchard: Existing remnant orchard that will be allowed to naturally decline contingent of completion of recommended business plan
- HSTPP: High School Tree Planting Program
- IHTEC: International Holistic Tourism Education Centre
- IMP: Integrated Monitoring Program
- In-water timing window: Also referred to as the "*In-water Timing Window*". When works are timed to occur during the In-water window, there is a reduced risk of damage to spawning habitat, fish eggs, and juvenile fish and reduced impacts to adult and juvenile aquatic organisms that may be migrating, over-wintering or rearing.
- Invasive species: Plants, animals and micro-organisms that are introduced from other countries or regions and threaten our environment, economy, or society by disrupting local ecosystems.
- Jefferson Salamander (Ambystoma jeffersonianum): Salamander ranging in 12-20 cm long with a grey or brown-coloured back, lighter underparts, and blue flecks that may be visible on the sides and limbs. Listed as endangered both federally and provincially and ranked S2 in the province.
- L.I.D.: Low Impact Development
- LOISS: Lake Ontario Integrated Shoreline Strategy as prepared by the City of Mississauga and CVC
- LSA: Landscape Scale Analysis
- MNR: Ministry of Natural Resources Ontario

- MRL: Minimum Risk Level
- NAS: Natural Areas System, as designated by the City of Mississauga
- NHIC: Natural Heritage Information Centre
- NWPP: Navigable Waters Protection Program administered by Transport Canada Marine
- OASD: Ontario Archaeological Sites Database
- Operations Plan: Set of documents prepared to describe the production management system for a production-oriented facility. It describes what is to be produced and how. The plan documents the critical operational procedures that will make the business successful.
- PBWP: Parkway Belt West Plan, developed by the Province of Ontario
- PDSB: Peel District School Board
- PSW: Provincially Significant Wetlands, as designated by the Ontario Ministry of Natural Resources
- PWQO: Provincial Water Quality Objectives, as defined by the Ontario Ministry of the Environment
- QEW: Queen Elizabeth Way, provincial highway linking Toronto to the Niagara Region
- Redside Dace (Clinostomus elongates): A minnow reaching up to 12 cm in length with a red stripe along the front half of the body and a bright yellow stripe above that extends almost to the tail fin. Listed as endangered both federally and provincially and ranked S2 in the province.
- RVA: River Valley Alliance
- SAR: Species at Risk, as defined by the Ontario Ministry of Natural Resources
- SARA: Species at Risk Act, as defined by the Ontario Ministry of Natural Resources
- SWM: Stormwater Management, initiatives proposed to moderate runoff rates and improve water quality
- SWOT: Strengths, Weaknesses, Opportunities and Threats
- TCPL: Trans Canada Pipeline
- Terrestrial: Refers to objects or processes occurring on land rather than in water.
- Understory Vegetation: The assemblage of plant species growing below taller plants such as trees or tall shrubs.

- UTM: University of Toronto Mississauga Campus
- VAM: Visual Arts Mississauga
- Wetland: As defined in the ORMCP (2002) vegetation communities "such as a swamp, marsh, bog or fen (not including land that is being used for agricultural purposes and no longer exhibits wetland characteristics) that,

  (a) is seasonally or permanently covered by shallow water or has the water table close to or at the surface;
  (b) has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants; and,
  (c) has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time".

- Woodland: As defined in the Oak Ridges Moraine Conservation Plan (ORMCP) (2002), "vegetation communities are identified as woodlands if they either:

  (a) have a tree cover of over 60%, considered "forest" in the Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998); or
  (b) have a tree cover of over 10%, considered "treed area" in the Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998) and satisfy the following criteria:
    - 1,000 trees of any size per hectare, or
    - 750 trees measuring over five centimetres in diameter, per hectare, or
    - 500 trees measuring over 12 centimetres in diameter, per hectare, or
    - 250 trees measuring over 20 centimetres in diameter, per hectare.

  And the diameter of a tree shall be measured at breast height (1.37metres from the ground)".