



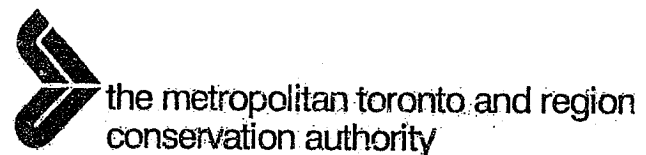
# Integrated Shoreline Management Plan

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## Tommy Thompson Park to Frenchman's Bay

December 1996

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**INTEGRATED SHORELINE MANAGEMENT PLAN  
TOMMY THOMPSON PARK TO FRENCHMAN'S BAY  
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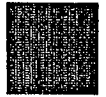
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The Shoreline between Tommy  
Thompson Park and Frenchman's Bay

our **V**ision

# VISION FOR OUR GREAT LAKESHORE

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The Lake Ontario shoreline from Tommy Thompson Park to Frenchman's Bay provides a special quality of life for residents, a source of recreation and beauty for visitors, and a unique identity for adjacent communities. The Lake Ontario Greenway Strategy (prepared by the Waterfront Regeneration Trust), which includes this and adjacent shoreline areas, calls for a waterfront that is clean, green, accessible, connected, open, usable, diverse, affordable, and attractive. However, urban shorelines are subject to many forces of change. Ensuring a sustainable future, reflecting community; environmental; and economic needs, will be a challenge. Fifty years from now what kind of waterfront will our children and other forms of life share?

For certain, parts of the waterfront will be busier and more crowded with human activities. New waterfront residential and commercial communities will have emerged at urban nodes such as Woodbine, Port Union, and Frenchman's Bay as part of a regional population grown to twice its current level. Waterfront neighbourhoods will offer a choice of attractive residential settings including quiet, well-treed streets and other more lively areas with a distinctive character such as the Beaches community.

The water's edge and bluffs will be a vital focus for communities along their length, nurtured by volunteer involvement in regeneration projects and waterfront events and festivals. For young and old the waterfront will have a special sense of place where pride in the past is reflected in active use of heritage buildings, such as the Guild Inn, and where new facilities are both affordable and of the highest quality.

Part of the quality will be the result of improved environmental conditions with waters clean enough that children can swim or fish safely and with a healthy mix of native fish and wildlife living and migrating along the shore. Wildlife will be able to move freely along ribbons of green connecting the regenerated forests and wetlands that occupy much of the shoreline.

Protected natural areas such as the Rouge Park will provide connections through the city in wooded valleys. Many of us will visit special places along the shore to watch how the birds change with the seasons or will take part in educational tours about the geological history of the bluffs or the fish spawning along the open coastline.

The waterfront will be a greener place than now partly because much of the eroding Scarborough Bluffs has been replaced by more gently sloping wooded hillsides. Along the toe of these hills, a variety of shore protection works have tamed the force of the waves. In a few places such as the Needles, where houses are set well back from the top of the bluffs, natural erosion processes will maintain the steep bluff face as an example of this former shoreline feature.

Many of us will be drawn to the shoreline to play, especially to the beaches and the clusters of marinas and boat clubs. Some of us will come to quietly explore the walking trails along the shore edge, including natural paths through near-wilderness sections where the bustle of the city seems so far away. Or we might bring our families to cycle along the Waterfront Trail, as it links the scenic parklands along the top of the bluffs and loops down to the water's edge in several places. Some of us will come by car; but convenient public transit or safe, attractive cycling trails will provide better alternatives for most.

As we visit this future waterfront, we are likely to be struck by its contrasts--from quiet havens of green to lively neighbourhoods and from sweeping vistas of lake and sky to sheltered walks in wooded parks. Fifty years from now we will value that waterfront diversity even more than now and our communities will be committed to working together to ensure the waterfront's continued ecological health, economic vitality, and unique sense of place.

Introduction

chapter 1

## 1.0 INTRODUCTION

Since aboriginal people first settled on the banks of Lake Ontario, the waterfront has provided generations of people with a place to live, sources of food, means of transportation, drinking water, recreation and more. It is a precious asset, but has suffered over the years from the pressures of use and abuse from human activities along the shoreline and in the watersheds that feed it (Waterfront Regeneration Trust (WRT), 1995). This Integrated Shoreline Management Plan (ISMP) provides a plan of action for regenerating, enjoying, enhancing and protecting the waterfront from Tommy Thompson Park to Frenchman's Bay.

### 1.1 Background to the Development of an Integrated Shoreline Management Plan

In 1992 the Royal Commission on the Future of the Toronto Waterfront (Royal Commission) released its final report entitled *Regeneration: Toronto Waterfront and the Sustainable City (Regeneration)*, which outlined the lack of a coordinated, ecosystem approach to shoreline regeneration and the inability to consider cumulative effects of specific projects. The Royal Commission recommended that a Shoreline Regeneration Plan be prepared to protect and regenerate the Lake Ontario shoreline from Burlington in the west to Newcastle in the east.

To implement these recommendations, the Ontario Government established the Waterfront Regeneration Trust (WRT) in June 1992 under Bill 1. To fulfil its mandate as described in Bill 1, the WRT initiated the formulation of a Shoreline Management Strategy for the Lake Ontario shoreline from Burlington Bay to the Trent River. The Shoreline Management Strategy became a component of the overall *Lake Ontario Greenway Strategy* released by the WRT in May 1995.

The *Lake Ontario Greenway Strategy* recommended that Integrated Shoreline Management Plans (ISMPs) be developed providing a framework for future development and management of the Lake Ontario shoreline. Based on the traditional shoreline hazard management activities undertaken by Conservation Authorities, ISMPs are intended to be more comprehensive in their scope, integrating water quality, habitat, and recreational access concerns, and involving the full range of agencies, municipalities, and landowners with shoreline interests.

### 1.2 Goal of the Integrated Shoreline Management Plan

The goal of the ISMP is "*to provide an ecosystem-based framework to ensure that shoreline management activities result in a clean, green, accessible, diverse, connected, open, affordable, attractive and useable waterfront from Tommy Thompson Park to Frenchman's Bay*".

To facilitate achievement of this goal, the following objectives have been established:

1. Identify the features, functions and processes which comprise the shoreline ecosystem.
2. Develop an understanding of the dynamics of the shoreline ecosystem as a basis for initiating and evaluating proposals and measuring changes.
3. Minimize danger to life and damage to property from flooding, erosion and associated hazards.
4. Assess the health of the shoreline ecosystem and identify measures to monitor system health on an ongoing basis.
5. Identify the human and natural stressors and ways to reduce them.

6. Establish criteria for assessing impacts of development and public use.
7. Develop solutions to site specific issues within a broader shoreline context.
8. Provide opportunities for wise public use and enjoyment.
9. Identify roles and responsibilities of agencies with an interest and role in shoreline management.
10. Identify research and monitoring needs.
11. Identify priorities for shoreline regeneration.

**1.3 Framework of the Integrated Shoreline Management Plan**

The ISMP has been developed following a “coordinated, ecosystem approach to planning shoreline regeneration” and builds upon the latest thoughts, initiatives, and policies of the Royal Commission, the WRT, the Ontario Ministry of Natural Resources (OMNR), the Municipality of Metropolitan Toronto, the City of Toronto, the City of Scarborough, the Town of Pickering, the MTRCA, and others in relation to this section of the Lake Ontario shoreline.

***Study Phases***

Initiated in the Summer of 1995, the ISMP has been developed in two phases as depicted in Figure 1.1.

**Phase I** involved describing the shoreline ecosystem, both historically and in its present condition with respect to its physical, natural heritage and cultural characteristics including the identification of significant features and inter-relationships. In addition, Phase I involved

delineation of 12 shoreline segments and identification of challenges and opportunities on a segment basis.

Phase I resulted in the compilation of a comprehensive database related to the physical, natural heritage and cultural components of the ecosystem drawing on a mass of data which has been compiled by many sources over recent years. The following tasks were completed:

- compiled, reviewed and summarized existing data;
- documented key features and processes;
- identified environmental stressors; and
- identified and classified shoreline reaches.

The results of Phase I are provided in the Phase I Report *Characterization of the Shoreline Ecosystem* (Dec. 1995).

**Phase II** involved integration of the technical data compiled in Phase I, with public and government agency input, resulting in the development this ISMP. Three strategies were developed, each one in consideration of the other to ensure an integrated ecosystem approach:

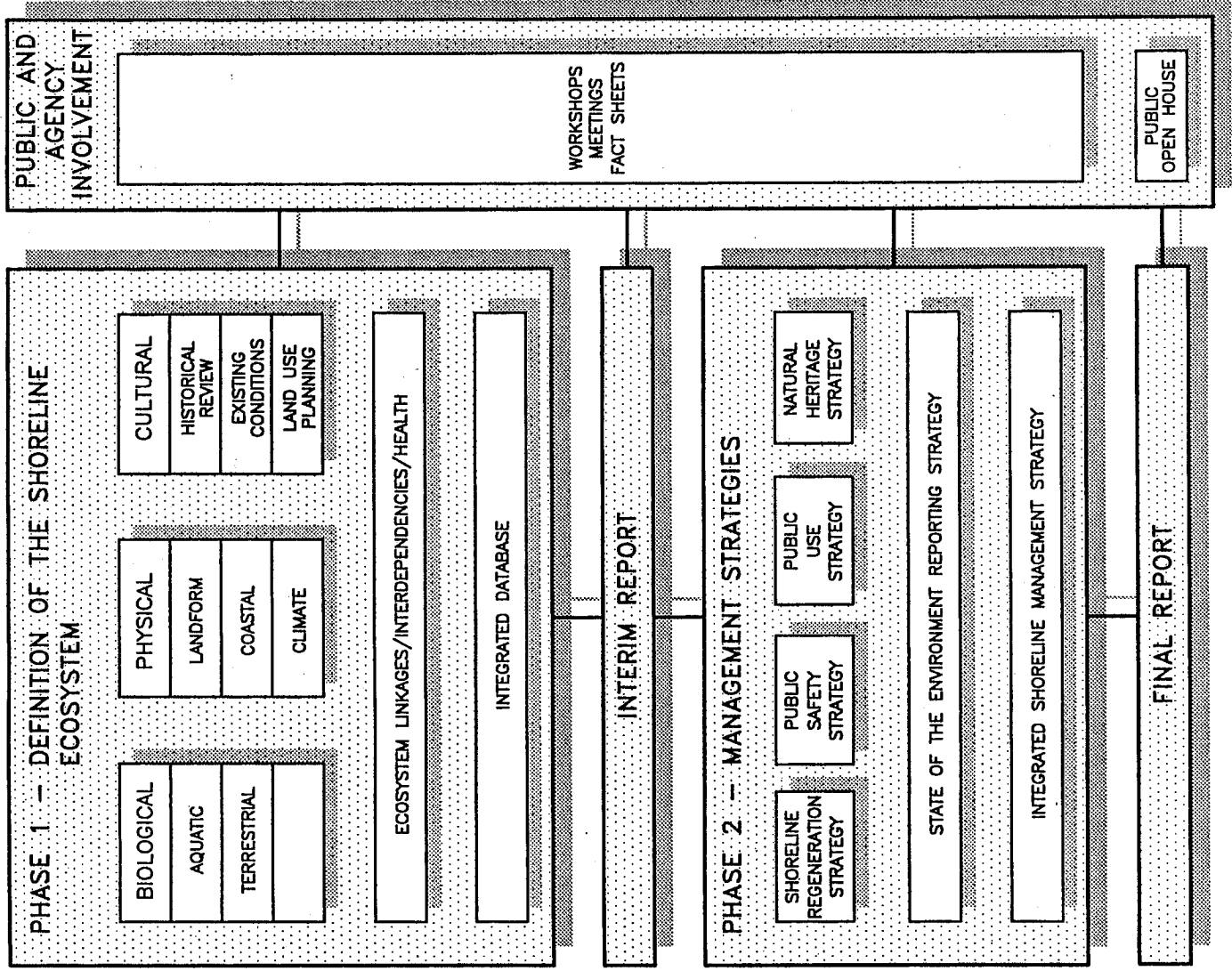
- Public Safety and Shoreline Regeneration Strategy;
- Natural Heritage Strategy; and
- Public Use Strategy.

Each strategy includes working goals, directions to address general shoreline issues, and future monitoring requirements. In addition, key strategy recommendations are made for each individual shoreline segment, and mechanisms for plan implementation are proposed.

**1.4 Management Structure**

Development of the ISMP builds upon work already completed by the various municipalities and government agencies who have a vested interest in shoreline protection, enhancement and management. In

**FIGURE 1.1  
INTEGRATED SHORELINE MANAGEMENT PLAN  
KEY STUDY COMPONENTS**



keeping with this intent, the ISMP Management Structure, as depicted in Figure 1.2, is headed by a Steering Committee comprised of local residents and Councillors from the Municipality of Metropolitan Toronto, the Cities of Scarborough and Toronto, the Conservation Council of Ontario and members of the MTRCA and the WRT. The Steering Committee is responsible for guiding the ISMP study process as well as providing advice and direction to the MTRCA regarding future shoreline management initiatives.

A Technical Advisory Committee (TAC) made up of senior staff from the Municipality of Metropolitan Toronto, the Cities of Scarborough and Toronto, the WRT, the OMNR and the MTRCA has also been developed to provide technical support and direction to the Steering Committee and to review various aspects of the study.

MTRCA staff provided direct supervision to Plan development.

### 1.5 Relevant Legislation and Policy Considerations

A number of government agencies have a vested interest in the management, enhancement and preservation of the Lake Ontario shoreline and have developed a fabric of legislation and policy which governs planning along this important waterfront. The myriad of federal, provincial and municipal legislation and policies critical to the development and implementation of the ISMP are discussed in Chapter 10 of this report.

### 1.6 Integrated Shoreline Management Plan Reports and Data Management

The ISMP findings and recommendations are presented in two documents.

The first, entitled "**Phase I: Characterization of the Shoreline Ecosystem**" (*Phase 1 Report*) outlined the findings of the Phase 1 work including input received from the public and government agencies. It was first released in draft December 1995 for review and comment in traditional report (hard-copy) format. The final Phase I document has now been released in conjunction with the overall ISMP in hardcopy and CD-ROM format.

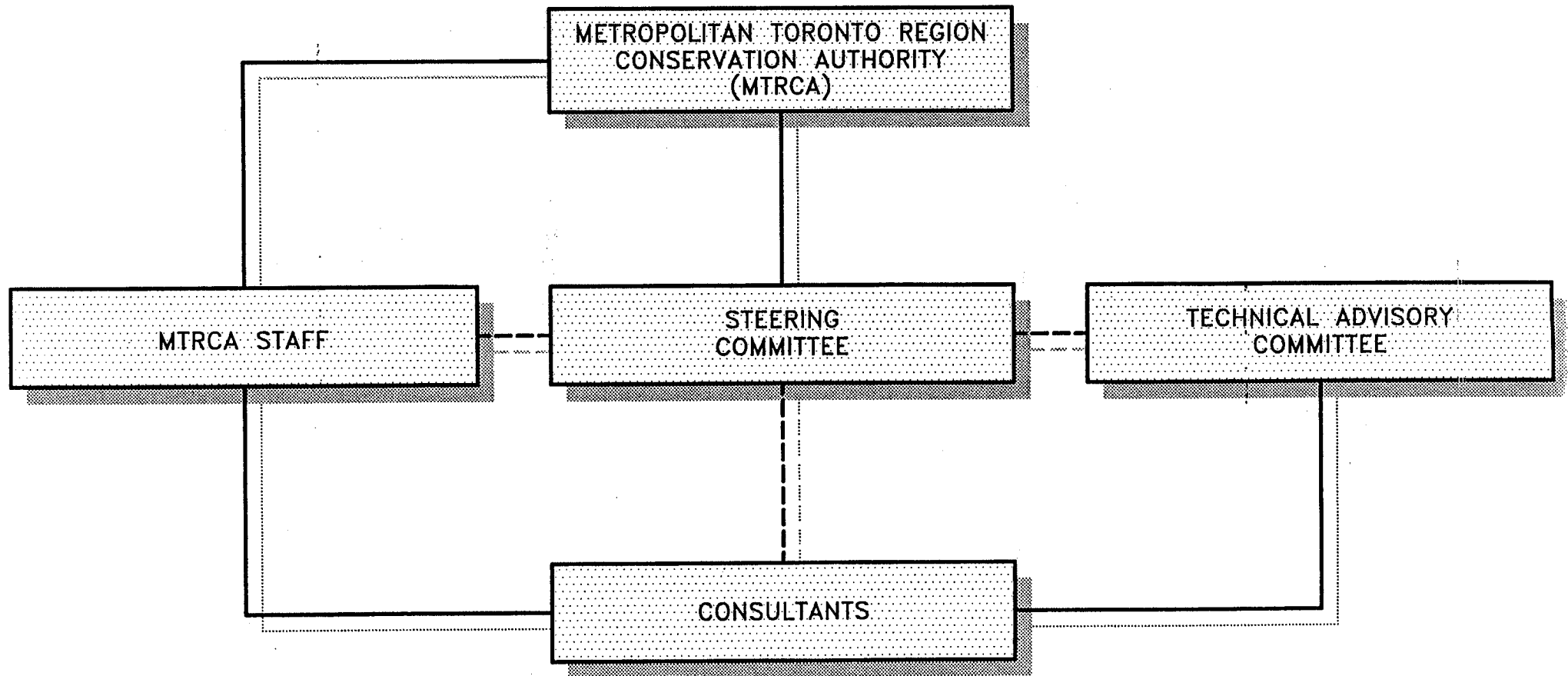
The second, entitled the "**Integrated Shoreline Management Plan**" (*Phase 2 Report*), continues overall recommendations and a planning framework for future management of the shoreline. This report is available for review in local libraries, MTRCA offices, and municipal offices within the study area. This document is also available in hard-copy and CD-ROM format.

All information collected during development of this ISMP (including GIS mapping and other databases such as bibliographic data) will be integrated by the MTRCA into a comprehensive ISMP database. This database will include text, tables and graphic information, and is intended to grow over time as new and updated data becomes available.

### 1.7 Public and Agency Consultation

To ensure the effective and interactive exchange of information between the study team and the community throughout the ISMP planning process, a public and government agency consultation program was designed and implemented at the outset of the study. The program was designed to inform the community about the ISMP study area and planning process, to provide opportunities for community participation in the goal setting, priority setting, and strategizing about the future of the shoreline. A discussion of the public and agency consultation program is provided in Chapter 12 of this report.

**FIGURE 1.2**  
**INTEGRATED SHORELINE MANAGEMENT PLAN**  
**STUDY MANAGEMENT STRUCTURE**





## 1.8 Study Method

The ISMP is being developed using an ecosystem approach to planning. An ecosystem is an interactive system of air, land, water, and living organisms, including humans, in which each plant, animal or person is an integral part of the whole (Royal Commission, 1992). The ecosystem approach integrates all aspects of the environment (i.e., natural, physical, social, cultural, and economic) in a manner that ensures decisions made in one area will not negatively affect other areas.

An ecosystem approach to planning is based upon the following ecological principles (Royal Commission, 1990a):

- *includes the whole system, not just parts of it;*
- *focuses on inter-relationships among the elements;*
- *understands that humans are part of nature, not separate from it;*
- *recognizes the dynamic nature of the ecosystem -- a moving picture rather than a still photograph;*
- *incorporates the concepts of carrying capacity, resilience, and sustainability -- suggesting that there are limits to human activity;*
- *uses a broad definition of the environment -- natural, physical, economic, social, and cultural;*
- *encompasses both urban and rural activities;*
- *is based on natural geographic units -- such as watersheds -- rather than on political boundaries;*
- *embraces all levels of activity -- local, regional, national, and international;*

- *emphasizes the importance of living species other than humans and of generations other than our own; and*
- *is based on an ethic in which progress is measured by the quality, well-being, integrity, and dignity it accords natural, social and economic systems.*

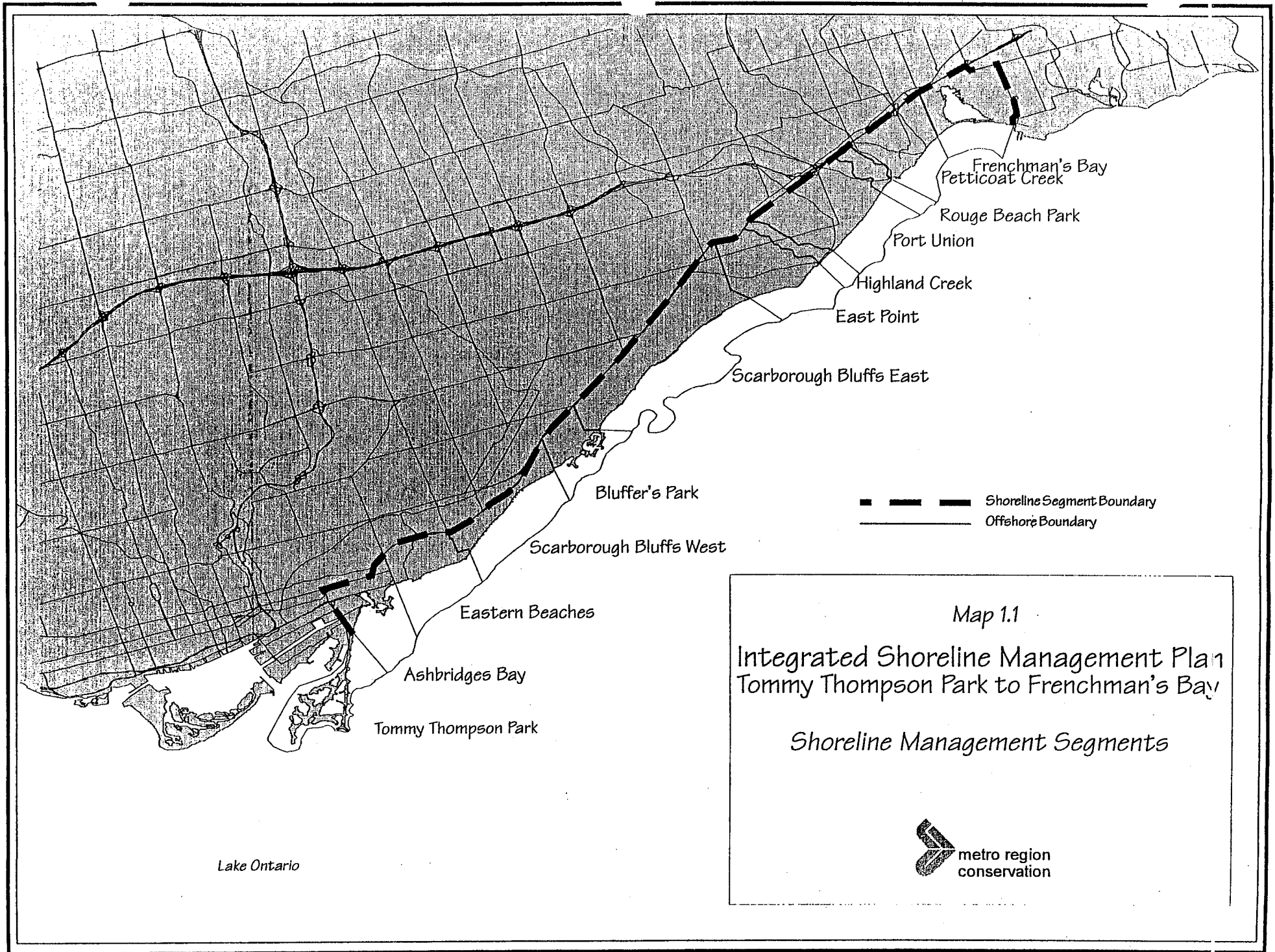
### 1.8.1 Rationale for Selection of the Study Area Boundaries

As depicted on Map 1.1, the ISMP study area encompasses an approximately 35 km section of the Lake Ontario shoreline from Tommy Thompson Park within the City of Toronto, to the east side of Frenchman's Bay in the Town of Pickering.

The study area shoreline is dominated by relatively steep off-shore slopes, creating narrow littoral zones and a wave swept open coast. The shoreline is interrupted by three river mouths - Highland Creek, Petticoat Creek, and the Rouge River, in addition to remnant features of former streams and creeks (eg. Bellamy Ravine). One of the most noticeable features is the Scarborough Bluffs, which were shaped by retreating glacial depositional processes as well as by lacustrine sedimentation and hydrodynamic forces at the time of the glacial Lake Iroquois, some 12,500 years ago (Municipality of Metropolitan Toronto, 1994).

This area represents a shoreline that possesses a broad range of important natural resources or assets specific to the waterfront (ie., beaches, bluffs, high and low relief cliffs, wildlife habitats, wetlands, etc.).

The area is urbanized, consisting of various competing land uses, including, a number of residential communities comprised of predominantly single-family dwellings, major recreational, cultural and commercial areas, clusters of industrial and institutional uses, and major east-west rail and road corridors which parallel the shoreline providing a link to communities located outside the study area. Two



Lake Ontario

Map 1.1  
 Integrated Shoreline Management Plan  
 Tommy Thompson Park to Frenchman's Bay  
 Shoreline Management Segments



water pollution control plants (WPCPs), two water filtration plants (WFPs) and a number of water and wastewater pumping stations are located along the shoreline. Major lakefilling initiatives have been undertaken to create additional lands for industrial, commercial, transportation and recreational purposes. In addition, shoreline modifications have been undertaken to protect public and private property from erosion, ensure public safety, create natural habitat and sheltered harbours.

The northern boundary is delineated predominantly by Queen Street, Kingston Road (Highway 2), Highway 401 (between Port Union Road and Liverpool Road), and Bayly Street (between Liverpool Road and Sandy Beach Road). This boundary represents a major east-west transportation corridor closest to the Lake Ontario shoreline, and constitutes the first significant physical interruption of the numerous corridors and valley systems which traverse the study area. Using this transportation corridor provides recognition of the direct relationship of the roadway to the shoreline, incorporating:

- road and pedestrian access issues;
- immediate shoreline residential areas/communities;
- ecological links from the shoreline to the first significant physical interruption of the green corridor; and
- historic and current land development and land use patterns.

The lakeward (or offshore) limit is the 10 m depth contour and includes littoral cell areas and aquatic habitat features. This depth marks the limit where wave action affects the coastal processes of erosion, sediment transport and deposition, and potentially where sunlight may penetrate to the lake bed, permitting plant and related aquatic species to flourish (Municipality of Metropolitan Toronto, 1994).

The eastern boundary is delineated by Sandy Beach Road in the Town of Pickering. The western boundary extends south along Leslie Street from Queen Street to Unwin Avenue where it is linked to the northern and western shoreline of the Outer Harbour.

## 1.8.2 Phase I Study Approach

Phase I was conducted following a ten step process:

### *Step 1: Study Area Delineation*

As noted above, the easterly and westerly termini of the study area (Tommy Thompson Park and Frenchman's Bay, respectively), were defined by the MTRCA, in part, to be consistent with a recommendation contained within the *Lake Ontario Greenway Strategy* (WRT, 1995). The northern and southern boundaries were delineated at the outset of the study after consideration was given to specific characteristics of the study area.

### *Step 2: Data Collection*

During Step 2, data collection activities included: field visits, existing reports, verbal communication, fly-over, and topographic maps (digital and hard copy). Public and agency input was also used to compile the comprehensive database necessary to characterize the study area shoreline from a physical, natural heritage and cultural perspective.

### *Step 3: Identification of Significant Features by Ecosystem Component*

Data collected in Step 2 was used to prepare a textual description of the shoreline for each ecosystem component and to identify significant features. Maps summarizing this inventory in a graphical format were prepared to assist in understanding the spatial relationship of these significant features.

### *Step 4: Identification of Ecosystem Linkages, Processes and Functions by Ecosystem Component*

As noted above, great importance has been placed on the characterization of ecosystem processes and functions. To this end, the

inventory of significant features compiled in Step 3 was used to identify relationships between individual features, linkages, processes and functions.

***Step 5: Delineation of Shoreline Reaches and Segments by Ecosystem Component***

Shoreline reaches and segments were identified by each discipline in Step 5 to reflect unifying characteristics which distinguish one portion of the shoreline from the next.

***Step 6: Multi-disciplinary Identification of Shoreline Segments***

Inter-relationships between ecosystem components were identified to facilitate delineation of shoreline segments considered both unique and identifiable from an overall/multi-disciplinary ecosystem perspective. Twelve shoreline segments which best reflect the inter-relationships between ecosystem components within the study area, were identified.

***Step 7: Identification of Interrelationships, Linkages, Processes and Functions for Each Multi-disciplinary Shoreline Segment***

Having identified shoreline segments which best characterize the inter-relationships between ecosystem components and processes, a summary of individual linkages, processes and functions present within each shoreline segment was developed for input into the assessment of ecosystem health in Step 9.

***Step 8: Identification of Criteria for Assessing Ecosystem Health***

An outstanding question remained to be answered following completion of Steps 1 through 7: Is the shoreline ecosystem between Tommy Thompson Park to Ashbridge's Bay balanced or "healthy"? To address this question, ten preliminary ecosystem health criteria were developed (and subsequently refined during Phase II).

***Step 9: Assessment of the Ecosystem Health by Shoreline Segment***

The preliminary ecosystem health criteria were used to describe the ecosystem health for each shoreline segment. These descriptions involved drawing on the information developed for a) the significant features inventory conducted for each ecosystem component in Step 3; and b) the description of linkages, processes and functions provided for each ecosystem component developed in Step 7. Subsequently, a discussion of the overall ecosystem health of the study area was conducted.

***Step 10: Preliminary Identification of Challenges and Opportunities for Each Shoreline Segment***

Challenges and opportunities faced within each segment were distinguished to identify imbalances between and within shoreline segments and to facilitate preparation of recommendations to restore balance.

**1.8.3 Phase II Study Approach**

Phase II followed a six step planning process:

***Step 1: Refine Ecosystem Health Criteria and Approach***

The preliminary ecosystem health criteria and approach to ecosystem health evaluation developed in Phase I were reviewed with input received from the public and review agencies. The health criteria were slightly revised. It was concluded that for most of the criteria a clear definition cannot be established on what is "healthy" and what is not. Instead, ecosystem health should be addressed within the context of the individual shoreline segment and should focus on the identification of challenges and opportunities for future shoreline management rather than absolute health.

### ***Step 2: Develop a Vision for the Future of the Shoreline***

A vision of what the ISMP study area shoreline should look like in the long term was developed as a guidance for shoreline management. The vision represents the results of an intense discussion involving the entire study team and the public.

### ***Step 3: Translate Vision into Tangible Goals and Objectives***

The generic views of the vision for the shoreline were translated by each one of the five management strategies (see Step 4) into tangible concrete goals and objectives for future shoreline management. Where appropriate and compatible with the vision statement, goals and objectives of existing planning documents for the shoreline were reviewed and detailed.

### ***Step 4: Develop Shoreline Management Recommendations***

Shoreline Management Recommendations were developed by three strategies. Recommendations were established in response to the vision, goals and objectives and drawn from valuable input received through public workshops. To ensure compatibility and maximize synergies, the three strategies were developed concurrently with intense and iterative consultation between the study team experts and Steering Committee members.

### ***Step 5: Check Recommendations Against Health Criteria/Challenges and Opportunities***

To ensure that the proposed management measures adequately address all ecosystem health criteria, a segment-by-segment discussion of key recommendations was conducted. For each segment, management challenges or opportunities related to the individual health criteria and the proposed management response were identified.

### ***Step 6: Develop Implementation Mechanisms***

Implementation mechanisms applicable to the three strategies and the overall plan implementation were discussed.

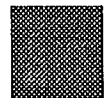
#### **1.9 Implementation**

The ISMP is envisaged to provide residents, municipalities, managing and planning agencies, and generally everyone who takes an interest in the sustainable vision for this section of the shoreline:

- an information and data base;
- a “road map” towards our vision for the future of the shoreline;
- a tool for evaluating future development proposals within the context of the ISMP; and
- a baseline for future monitoring of ecosystem health and compilation of the shoreline report card.

The Plan is by no means considered to be final. Instead, it should be used as a working tool that is adjusted from time to time to reflect changes in the environment or community values. Recommended objectives and strategies may need to be fine tuned or altered depending on monitoring results.

The Plan recommendations reflect the consolidated efforts of the participating municipalities, planning agencies, the public and the Steering Committee. A lot of consideration, expertise and time was invested by these participants to arrive at the planning conclusions and implementation recommendations. It is recommended that the results are adopted by local Councils and planning agencies as a base for future decision making and planning. Plan adjustments should require concurrence from the proposed Waterfront Council and ratification of any recommendations by the participating waterfront municipalities.



The Shoreline

of Today

Ecosystem  
Context

chapter2

## 2.0 ECOSYSTEM CONTEXT

The ISMP study area from Tommy Thompson Park to Frenchman's Bay is located on the north shore of Lake Ontario and, therefore, is a component of the Great Lakes system. It is linked into the Greater Toronto Area Bioregion by the watersheds and sub-watersheds of several creeks and ravines; and by water mains, storm and sanitary sewers, and roads to homes, businesses and communities. The ISMP study area is best understood as part of a shoreline environment comprised of terrestrial, aquatic, physical and cultural components which interact, forming a component of the Lake Ontario shoreline ecosystem.

Given the inter-connectedness of the study area to inland areas within Greater Toronto Bioregion, the activities carried out within the ISMP study area affect and are affected by areas/activities outside it. For example, pollutants entering rivers upstream of the study area affect the water quality at river mouths within the study area.

### 2.1 Greater Toronto Bioregion

Although not formally defined or delineated, the Greater Toronto Bioregion is generally contained within the larger Great Lakes Basin (Royal Commission, 1992). The Greater Toronto Bioregion is typically described as a wedge-shaped area comprising the major basin formed by the Niagara Escarpment on the west, the Oak Ridges Moraine to the north and east, and the Lake Ontario shoreline to the south as depicted in Figure 2.1. Geopolitically, the Greater Toronto Bioregion consists primarily of the five Regional municipalities which together form the Greater Toronto Area (GTA), namely Halton, Peel, York, Metropolitan Toronto and Durham. However, it also extends into Simcoe and Dufferin counties in the northwest, and into Northumberland County as far as the Trent River in the east.

### *The Lands and Waters*

The lands and waters within the Greater Toronto Bioregion share many climatic and ecological similarities. The soils and landforms are based on the glacial deposits of the Lake Ontario plain as it rises northward from the shores of Lake Ontario to the gravelly hills of the Oak Ridges Moraine. The watersheds arising in the moraine drain southwards to Lake Ontario and northwards to Lakes Scugog and Simcoe. The Greater Toronto Bioregion is rich in natural assets, including: beaches, wetlands, and bluffs along the waterfront; deep, wooded river valleys; the moraine's rolling, pastoral hills; majestic rock cliffs along the Niagara Escarpment; cool trout streams; and fertile agricultural soils.

### *The People and Communities*

The five Regional municipalities which comprise the GTA are home to approximately 4.2 million people. The number of people residing within the GTA coupled with the expected high rate of population growth is the greatest challenge facing the Greater Toronto Bioregion (Royal Commission, 1992). The GTA population has grown rapidly from a pre-war population of approximately 1 million and is expected to reach approximately 6 million people by 2021 (Royal Commission, 1992). The anticipated growth places a tremendous strain on all sectors of society, trying to cope with the need to provide basic necessities such as housing, employment, and health care, as well as hard services including transportation, waste disposal and sewage treatment. It threatens the current quality of life, as immense pressure is placed on green spaces, recreational opportunities, clean air and water, and public safety, for example.

### 2.2 Watersheds Associated With the Study Area

The MTRCA is responsible for managing the three watersheds which traverse through the study area (see Figure 2.2). From west to east the three watersheds are: Highland Creek, Rouge River and Petticoat Creek.



**FIGURE 2.1**  
**THE GREATER TORONTO BIOREGION**

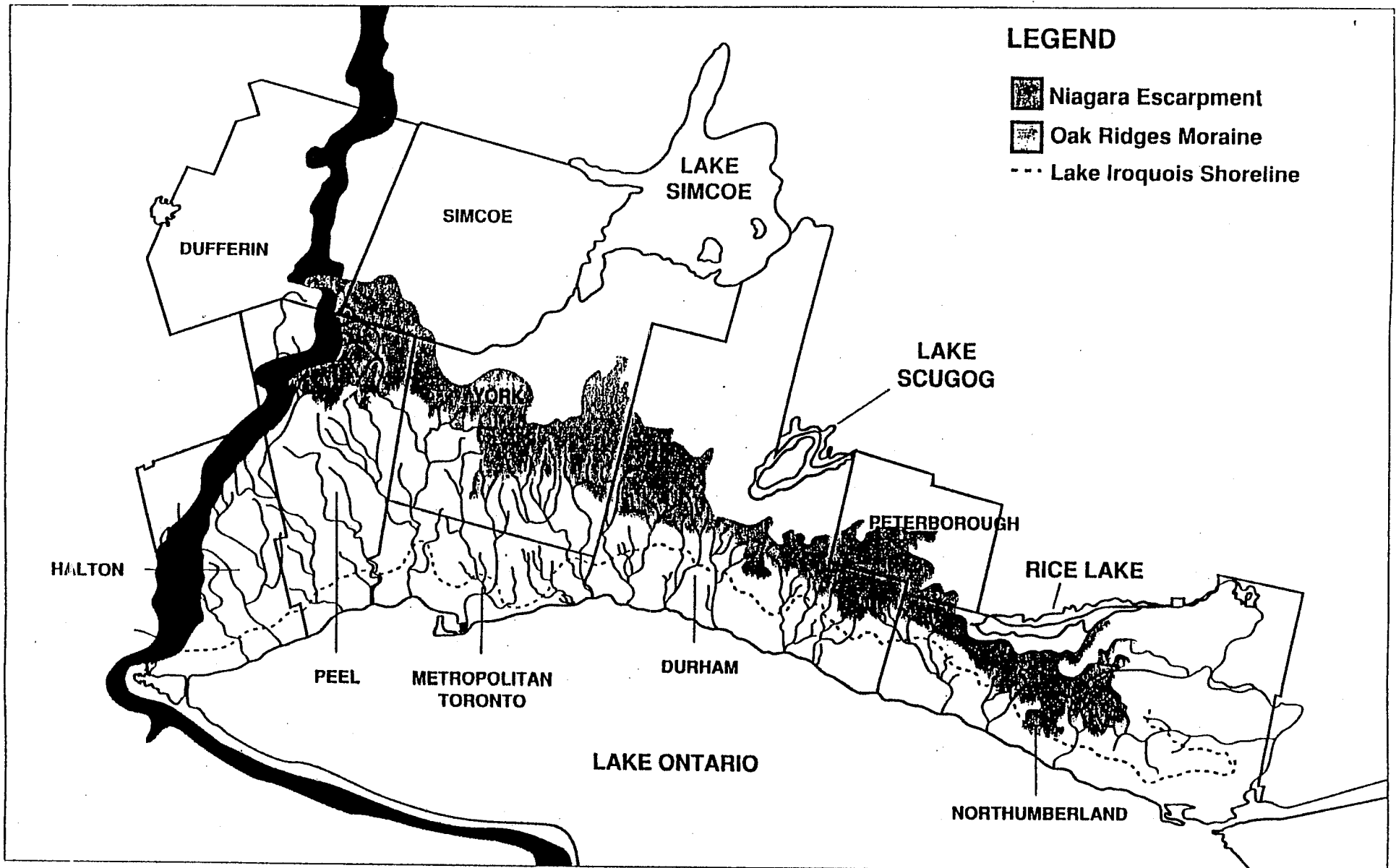
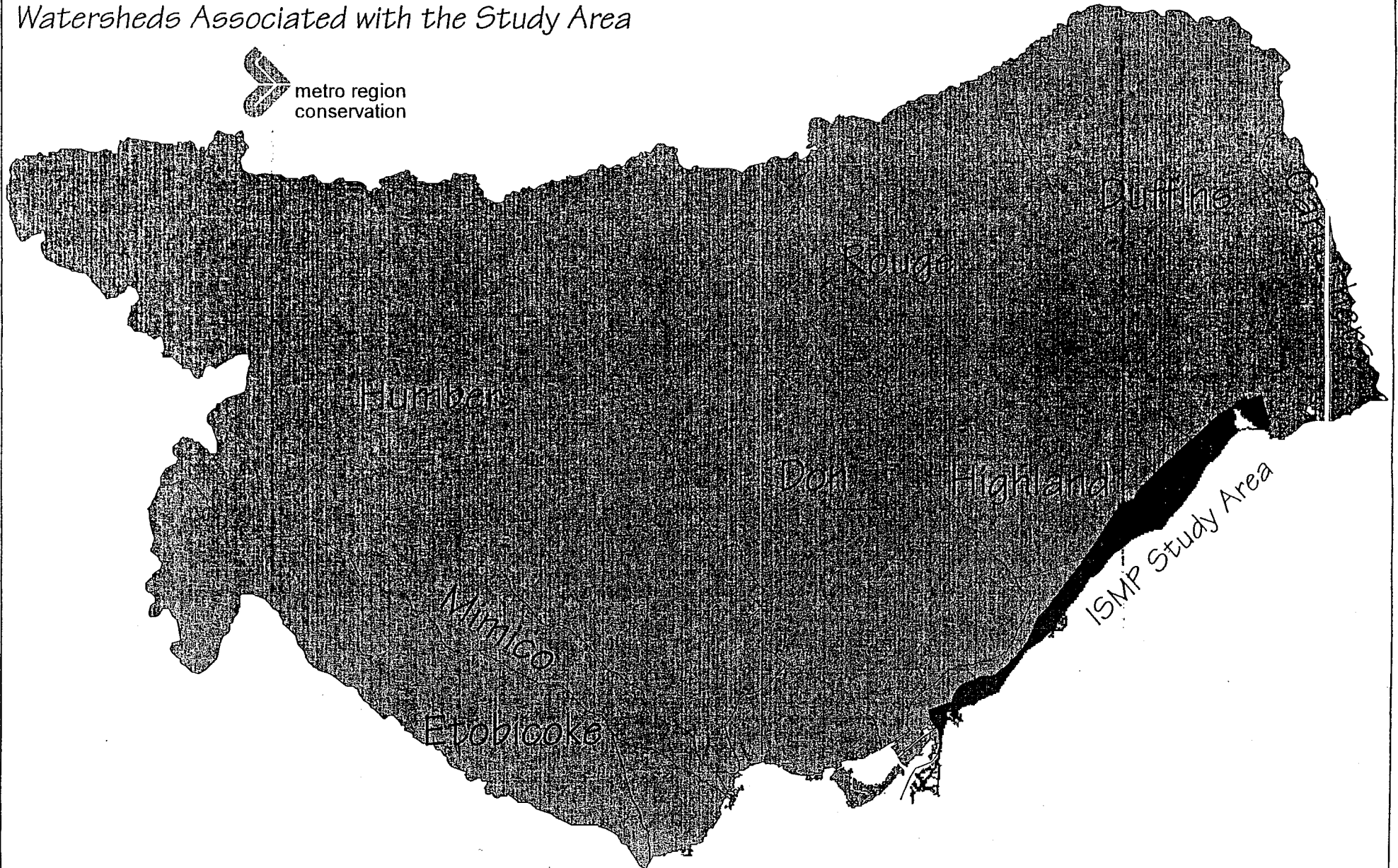


Figure 2.2

# Integrated Shoreline Management Plan Tommy Thompson Park to Frenchman's Bay

Watersheds Associated with the Study Area



The system of major valley corridors within each of these watersheds provides major linkages for species movement into and out of the study area. Recognizing that the health and biodiversity of the study area is in part dependent upon the protection and wise management of these watersheds, further details regarding their significance is provided below.

Together, these watersheds contribute a substantial portion of the area's surface water runoff (via stream flows), draining a total of 460 km<sup>2</sup> into Lake Ontario. The balance of the surface water runoff is contributed by four shoreline watersheds that drain directly to the lake, namely: the Waterfront watershed, the Frenchman's Bay watershed and two small drainage areas located between the Highland Creek and Rouge River, and Rouge River and Petticoat Creek, respectively. Details regarding each of these watersheds are provided below.

#### *Highland Creek Watershed*

The Highland Creek drains a primarily urban watershed with a drainage area of about 107 km<sup>2</sup>. It has two main branches, the West and East branches, both of which originate in the Milliken area of northern Scarborough, approximately 10 km northwest of the ISMP study area. The two branches slope down approximately 125 m in about 25 km before their confluence near Lawrence Avenue. Stream slopes vary between a fairly mild 0.3% near Lake Ontario to a relatively steep 0.78% upstream of the confluence. Downstream of the confluence in the lower reaches, the creek meanders through a fairly wide valley with steep banks 15 m to 30 m high. Both branches have undergone channelization at a number of locations.

The watershed is predominantly covered by moderately permeable soils. Examination of the Highland Creek stream flow records taken at Sta 02HC013 near West Hill, reveals a high value indicative of the highly urbanized character of the watershed.

#### *Rouge River Watershed*

The Rouge River watershed encompasses a 327 km<sup>2</sup> drainage area of predominantly rural and agricultural lands within the Towns of Richmond Hill, Markham, Whitchurch-Stouffville and Pickering, and the City of Scarborough. Roughly 10% of the watershed is urbanized, with development concentrated primarily in the south and western parts of the basin.

The Rouge River and the Little Rouge River are the two main branches and they originate at the edge of the Oak Ridges Moraine located approximately 30 km north of the study area. Further downstream, the stream channel is well defined flowing in a deep cut valley over 40 m deep near Lake Ontario. Stream gradients are generally steep. At its headwaters, slopes on the Rouge River run as high as 2.5%, moderating to about 0.25% near the lake. The slope of the Little Rouge River is fairly uniform at about 0.8%.

Roughly 50% of the surficial soils in the watershed are comprised of moderately permeable loams. Approximately 18% of the basin contains highly impermeable clays and some sandy soils are found in the southern parts of the basin near the lake. The rural nature of the watershed is further evident from the low annual unit peak flows calculated at the Rouge River gauge near Markham (Sta 02HC022) and at the Little Rouge gauge near Locust Hill (Sta 02HC028).

The Rouge River watershed has been studied intensely and is well recognized for its wealth of natural resources as well as for providing an important link between the Oak Ridges Moraine and Lake Ontario. In 1990, the Minister of Natural Resources identified the intent to protect the Rouge River ecosystem through the establishment of a provincial park. The *Rouge Park Management Plan* was released by the OMNR in May 1994 identifying the area south of Steeles Avenue, in addition to a number of corridors north of Steeles Avenue, as the starting point to facilitate the development of management programs to implement park goals and objectives.

*A Comprehensive Basin Management Strategy for the Rouge River Watershed* was released by the MTRCA in January 1990. The *Strategy* outlined the policies, technical standards, operational criteria and implementation actions that may be endorsed or implemented by provincial agencies, municipalities and other bodies with special interests in the planning of the watershed.

### *Petticoat Creek Watershed*

Located in the Towns of Markham and Pickering, the Petticoat Creek watershed has a drainage area of 26 km<sup>2</sup>. Its upstream portion is drained by two main branches that originate near Locust Hill, in the Town of Markham approximately 10 km north of the ISMP study area. They flow with a fairly steep uniform slope of 1% to their confluence near Finch Avenue before discharging to Lake Ontario.

Land use in the basin is predominantly rural north of Finch Avenue and urban south of Finch Avenue. Soils are generally comprised of moderately permeable loams. Available flow records for Petticoat Creek are very sparse and they are not sufficient to estimate a mean annual unit peak flow. However, it appears from data gathered in 1976 (Sta 02HC105 near Dunbarton), the Creek is of a "flashy" nature with a very low base flow including several sustained periods of no flow.

### *Waterfront Watershed*

The Waterfront watershed covers a significant portion of the ISMP study area. Being a shoreline watershed that is predominantly urbanized, surface runoff is discharged to the Lake via storm and combined sewer outfalls.

The terrain of the Waterfront watershed varies from flat to gentle smooth slopes with low topographic relief at the western portion to rolling and steep slopes with high relief along the eastern section. Surficial soils of the watershed is predominantly comprised of moderately permeable loams

within the western portion, with permeable soils blanketing the eastern portion.

### *Frenchman's Bay Watershed*

Frenchman's Bay constitutes the eastern boundary of the ISMP study area. It has a relatively small drainage area with several small watercourses draining the watershed to Frenchman's Bay. Most of these watercourses and their tributaries have been covered up and replaced by storm drainage systems as a result of development in the area. Land use is predominantly urban.

Upstream of Highway 401, the watershed topography is fairly steep with a gradient of about 1.5%. Downstream of Highway 401, the slope is mild as it flattens out to the bay. Moderately pervious soils blanket the western part of the watershed. The eastern portion is roughly split between pervious and moderately pervious soils.

Ecosystem  
Features, Linkages,  
and Processes

chapter 3

### 3.0 ECOSYSTEM FEATURES, LINKAGES, FUNCTIONS AND PROCESSES

The shoreline ecosystem is comprised of important and sensitive elements which continually interact with one another in a series of dynamic processes. The physical features of the shoreline and lake bottom, as well as the dynamic force of climate, contribute to the state of the shoreline ecosystem, its susceptibility to erosion and flooding, and health of the ecological resources. However, before it is possible to describe the inter-connections and linkages between the various components of the shoreline ecosystem and to outline the manner in which activities may affect the ecosystem, it is first necessary to identify and inventory the hundreds of physical, natural, and cultural features found within the study area.

A summary of the significant features found within the study area by ecosystem component and the processes which influence the shape and character of the study area shoreline is provided below. Further details regarding the contents of this chapter are provided within the *Phase I Report* (available on CD-ROM). An excellent synopsis of the ecosystem processes along the shoreline of the plan area is also provided in WRT, *Shore Management Opportunities for the Lake Ontario Greenway*, March 1996, Chapter 2: Lake Ontario North Shore Descriptive Model.

#### 3.1 Physical Features and Processes

##### *Climate*

Climate affects water levels (through precipitation, evaporation, ice and wind) and in terms of storm activity which may result in flooding and erosion (Municipality of Metropolitan Toronto, 1994). Due to the moderating influences of the Great Lakes, the climate of the area is characterized by cold winters and warm summers (Municipality of Metropolitan Toronto, 1994). The area's moderate temperature is a

major influence on the types of terrestrial and aquatic habitat within the study area.

During the winter months, the influence of the lakes causes constant freezing and thawing periods, resulting in winter storms which cause extensive shoreline damage between the months of November and April. Snow and ice storms impact the shoreline in terms of loss of stabilizing vegetation, and increased runoff causing flooding and erosion during this period. Precipitation affects lake levels, erosion rates and habitat diversity along the shoreline.

##### *Landform and Topography*

Landform and topography within the study area is varied with elevation varying from approximately 75 m above mean sea level (masl), the general level of Lake Ontario, to 184 masl south of Kingston Road, near McCowan Road and again near Bellamy and Markham Roads. The maximum relief occurs at the Scarborough Bluffs at Cudia and Cathedral Bluffs Parks where the bluffs rise approximately 108 m above Lake Ontario at their maximum height. Significant landforms of the study area include the existing shoreline and beach area, the Scarborough Bluffs, the Iroquois shoreline, the Highland Creek and Rouge River Valley and, to a lesser degree, the flat areas below the Iroquois bluffs and adjacent to Lake Ontario.

##### *Geology*

The surficial geology of the study area is the result of Pleistocene glacial and interglacial periods with deposition of material associated with both warm and cold climates. Bedrock of the study area is composed of grey shales of the Ordovician Georgian Bay Formation and black shale of the Whitby Formation. The Whitby formation underlies the eastern end of the study area from approximately the Rouge Valley east. Although little is known about the bedrock surface through the study area (as few wells or boreholes have been drilled to

bedrock), bedrock along the shoreline is 10 m or more below lake level.

Deposits of Lake Iroquois above the level of Lake Ontario and overlay were formed by the same shoreline development processes as are currently occurring. These deposits represent the results of a sequence of dynamic processes of on-shore erosion and deposition, near shore erosion, transport and deposition and offshore transport and deposition.

### ***Hydrogeology***

The hydrogeological regime is influenced by the varying texture of the bluff deposits which result in groundwater seepage zones at several elevations well above lake level. Piping erosion of the sands above clays and tills is one mechanism which contributed to the formation of many of the gullies now present. Groundwater seepage has potential to contribute contaminants from many inland sources (i.e., industrial land uses, leaching of old landfill sites, combined sewer overflows, road salting, private sewage disposal, residential development, etc.) to Lake Ontario and in particular the shoreline area. Contaminants enter the groundwater environment through infiltration and migrate down gradient to discharge in streams, in the bluffs and directly to the lake.

### ***Surface Water Hydrology***

The surface water (hydrology) regime is comprised of three watersheds (Highland Creek, Rouge River, and Petticoat Creek) which traverse through the study area, contributing a substantial portion of the area's surface water runoff (via stream flows), as they drain a total of 460 km<sup>2</sup> into Lake Ontario. While most storm sewers drain into these tributaries, some sewersheds drain directly into the lake.

### ***Water Levels***

The water levels of Lake Ontario fluctuate due to natural causes and regulatory activity imposed by the St. Lawrence Seaway system under

the International Joint Commission (IJC) regulations. Lake Ontario water levels fluctuate, on the average, approximately 0.6 m annually, with the high water and low water level periods normally occurring in June and December, respectively.

### ***Ice***

Damage from ice generally occurs as a result of floe ice being forced onto a shoreline during a spring storm or as a result of shore ice being lifted due to severe surge. On rare occasion, structures fully enclosed in ice have been lifted and shifted from their foundations during these instances.

### ***Bathymetry***

The bathymetry within the study area is relatively uniform with shore parallel contours. The dominating feature is the Toronto shelf which starts approximately 2 km east of the R.C. Harris WFP and continues with a concave profile in the south-westerly direction. The water depth increases abruptly at the edge of the shelf from about 20 m to a depth of approximately 60 m.

### ***Shore Treatment***

Shore treatment is very common within the ISMP study area, given that the study area is located in or in close proximity to a highly developed urban area located along a continuously eroding shoreline. However, not all protection works are built to withstand design conditions recommended in the *Implementation Guidelines* prepared in support of the *Comprehensive Set of Policy Statements* released as part of the revised *Planning Act* (Bill 163).

Protection works along private properties are mostly evident in small pockets to the east of East Point. For the most part, these structures are considered substandard and susceptible to damage. The most frequent

deficiencies included low crest elevation, unstable foundation conditions and use of inferior materials.

Observations of structures constructed by the MTRCA along the Scarborough Bluffs indicated that they were generally built to high standards, consistent with general design principles described in the Shore Protection Manual (CERC, 1984) and providing a high level of protection. Most of these structures can be categorized as either:

- revetments constructed at or very close to the toe of the bluff;
- armour stone groynes or headlands with naturally accreting or artificially filled sand or gravel beaches; and
- major lakefill projects.

In some cases, the major lakefill projects, such as Ashbridge's Bay and Bluffer's Park, act as a major headland, causing accretion of sand and/or gravel on the undrift side. The location of revetments near the shoreline is generally selected to allow for self stabilization or artificial stabilization of the bluffs. The effects of these structures on fish habitat are discussed in Section 3.2 below.

### *Surface Water Quality*

Near-shore surface water conditions within the study area are tied to the overall quality of Lake Ontario which receives about 80% of its inflow via the Niagara River. However, the proximity of point sources of contamination has a much greater influence on the quality found in the study area. These point sources include:

- storm and combined sewer outfalls draining areas well in excess of the study area itself;
- significant tributary rivers and creeks (i.e., Rouge River, Highland Creek and Petticoat Creek) which receive both urban runoff/ agricultural drainage along with their attendant contaminants; and
- the Main WPCP (at Ashbridge's Bay) and the Highland Creek WPCP (at the mouth of the creek).

Water quality problems which have been identified in the study area include high nutrient, trace metals and bacteriological levels and the continued presence of numerous persistent toxic compounds (e.g., PCBs, mirex, mercury). These toxic compounds are generally not detected in near-shore waters except in trace quantities. However, they are present in the aquatic environment as contaminants in aquatic sediment and biota (benthic organisms, fish, aquatic birds) and have led to sport fish consumption advisories in local waters.

### *Sediment Quality*

Examination of near-shore sediments provides a measure of past water quality conditions. Near-shore sediments are derived mainly from shoreline and bluff erosion, tributary discharges, storm sewer discharges, WPCP discharges and lakefill activities. Shoreline and bluff erosion is the major source of sediment, with tributary loadings and WPCP discharge the second and third largest contributors, respectively. Tributary sediment loadings result from urban construction activities and street drainage and, to a lesser extent, agricultural and streambank erosion. In protected waterfront areas (e.g., embayments) outside the influence of lake currents, contaminated sediments will accumulate. The WPCP and storm sewer discharges are the primary source of sediment contamination to the waterfront.

### *Wave Climate*

Wave climate within the study area, was viewed in terms of near-shore and off-shore wave climate. Most nearshore sites are generally subjected to waves of less than 2.5 m. Exceptions include structures that extend lakeward of the natural shoreline (i.e., Tommy Thompson Park, Ashbridge's Bay Park and Bluffers Park), which are subjected to much larger wave heights and associated erosion forces.



### *Erosion*

Erosion of the shoreline is an ongoing long-term process within a majority of the study area which has resulted in a variety of slopes and bluffs along the shoreline of differing inclinations, and configurations. Typically, the erosional processes include surficial erosion due to a combination of surface water run-off, frost action and wind erosion, gully erosion, surficial slope instabilities resulting in sloughing and shallow landsliding, and piping erosion resulting from the lateral migration of groundwater seeping out of the bluff slopes predominantly at geological contacts where pervious strata overlies semi-pervious strata. These processes result in the accumulation of eroded material (talus) at the lake shore or toe of slope. Wave attack and longshore drift ultimately remove this talus and steepen the slope causing the cycle to be repeated.

### *Littoral Transport*

Littoral transport of sediment along the shoreline is caused by the along shore component of the wave energy that reaches the surf zone. When waves approach a shore at nearly a perpendicular direction, very little alongshore transport occurs. When waves approach the shore at an acute angle, the potential transport rate increases, as the rate of transport is proportional to the cosine of the angle between the shore and wave direction.

### *Littoral Cells*

Littoral cells are defined as segments of shoreline with a self contained sediment budget, that is, no sediment is transported into, or out of, the littoral cell. Littoral cells are often formed by natural or artificial headlands. Within the study area, East Point has been identified as a littoral cell boundary (Reinders, 1988) with two cells extending east and west, respectively:

- the east littoral cell extends from East Point beyond the east limit of the study area at Frenchman's Bay;

- the west littoral cell extends from East Point to the western limit of the study area at Tommy Thompson Park.

### *Sediment Budgets*

Sediment budgets have been completed for the western littoral cell. The sediment budget is considered to be an accurate description of pre-protection conditions. The estimates indicate that approximately 100,000 m<sup>3</sup> of sediment has been supplied annually by erosion of the Scarborough bluffs (prior to the provision of various protection structures over the last two decades), and through nearshore erosion, (lowering of the nearshore bottom).

Under present conditions, with substantial portions of the Scarborough Bluffs having been armoured by various types of structures, the supply is estimated to be reduced to approximately 30% or 26,000 m<sup>3</sup> annually (Atria, 1993).

The above sediment budget deals with sand size materials only. The eroding bluff and nearshore also supply washload (clays and silts), sub-littoral material (very fine sands) and shingle size material (pebbles and cobbles). Washload materials are generally not considered in assessing shore stability. They are responsible for turbidity of the water and settle out in deep water. Sub-littoral materials are generally not critical to shoreline stability, unless they are present in significant quantities and the wave climate is relatively mild. At Eastern Beaches, and likely within the entire study area, the sublittoral material may be unstable (Atria, 1993).

The amount of pebble and cobble, which are important in coastal processes, is very low. It is difficult to provide an accurate percentage estimate, since small samples generally collected for gradation analysis may exclude large pebble or cobble. However, it is likely that shingle size materials are less than 5% of the bluff's composition. This would suggest that less than 5,000 m<sup>3</sup> of shingle size material is generated annually from bluff erosion. This quantity also includes large boulders

that may be found along the shore or on the lake bottom. These are generally too large to move or are moved only marginally under the most severe conditions.

The sediment budget information regarding the east cell is much less detailed. The only source of information available reported suspended and bedload transport rates at the intake channel of the Pickering Nuclear Generating Station (Ontario Hydro, 1988). The report estimates that approximately 11,000 m<sup>3</sup> of sediment moves past this site in both directions.

In completing a review for the Pickering Harbour Company Ltd. dealing with possible modifications of the entrance breakwaters to Frenchman's Bay, it was estimated that approximately 6,000 m<sup>3</sup> of littoral material could be generated from bluff erosion, assuming that no protection existed in the area (Shoreplan, 1993). The study was completed during winter months and the presence or condition of protection works could not be confirmed. However, based on the level of protection established under this study, the actual quantity is approximately 4,400 m<sup>3</sup>. These quantities do not include nearshore erosion of the lake bottom or any sediment supplied by rivers entering the lake in the area.

### *Shoreline Reaches*

The classification of shoreline reaches described in the *Phase I Report* refers to classification with respect to coastal processes and general requirements of the *Comprehensive Set of Policy Statements*. As previously noted, the study area is divided into two littoral cells with East Point being the boundary between the two cells. In total, 103 coastal reaches were identified; twenty seven are located east of East Point and seventy six are located west of East Point, respectively. The characteristics of the reaches with respect to their profile, controlling nearshore substrate, general shore type, nearshore surficial deposits, shoreline exposure and planform and the presence or absence of shore

protection works, were identified to ascertain their general shoreline stability.

## **3.2 Natural Heritage Features**

Natural heritage features of the Lake Ontario shoreline between Tommy Thompson Park and Frenchman's Bay comprise a variety of flora and fauna and their related landform. Beaches, bluffs, river valleys and ravines, sheltered bays, open coast, river mouths, remnant woodlands, and wetlands are all represented in the study area and support specific and unique assemblages of species and ecological function.

### *Aquatic Features*

The study area shoreline is generally characterized by a wave-swept open coast of low aquatic productivity. While much of the shoreline is continually swept free of sediment, deposition occurs at a number of locations forming spits, bars, and estuaries at inflowing river mouths. Sheltered areas or embayments, many of which have been created by lakefill and other man-made structures, are unique landforms which, through the shelter they provide, encourage submergent and emergent plant growth and provide important habitat for warmwater fish production through thermal isolation from the cold Lake Ontario waters by relatively steep offshore slopes resulting in a narrow littoral band.

Fifty fish species have been collected from the Metropolitan Toronto waterfront, which includes the study area (Strus, 1994). These include native and introduced species whose presence ranges from common to rare along the waterfront, including several provincially rare and nationally vulnerable species. Fish communities of the study area are generally dominated by economically lower-valued species, such as carp and white sucker, which are able to survive and reproduce in disturbed and degraded habitats (Strus *et al.*, 1993).

Table 3.1 indicates the relative abundance of various fish species collected on the Toronto waterfront by the OMNR in 1989. The types of aquatic habitat found along the study area shoreline include; open coast, sheltered embayment and river mouth. Each is described below including fish habitat characteristics and community composition.

**Table 3.1: Relative Abundance<sup>1</sup> of Fish Collected on the Toronto Waterfront, 1989 (from Buchanan, 1991)**

Abundant	Very Common	Common	Uncommon	Rare
alewife	gizzard shad	brown trout	chinook salmon	sea lamprey
	white sucker	rainbow smelt	rainbow trout	bowfin
	emerald shiner	goldfish	shorthead	walleye
	common shiner	lake chub	redhorse	lake whitefish
	spottail shiner	common carp	river chub	round whitefish
	bluntnose minnow	golden shiner	spotfin shiner	whitefish
	longnose dace	sand shiner	creek chub	rosyface shiner
	pumpkinseed	fathead minnow	threespine stickleback	
	yellow perch	brown bullhead	trout-perch	
	johnny darter	american eel	white bass	
		white perch	bluegill	
		rock bass	logperch	
		smallmouth bass		
		largemouth bass		
		northern pike		
		black crappie		
		freshwater drum		
		mottled sculpin		
		brook stickleback		

<sup>1</sup> Abundant > 10% of total catch, Very Common = 1.0 - 10%, Common = 0.1 - 0.99%  
 Uncommon = 0.01 - 0.099%, and Rare = 0.001 - 0.0099%

### ***Open Coast Habitat***

Open coast habitat dominates the study area shoreline. These unsheltered habitats of the littoral zone are characterized by high wave exposure, limited physical structure, and frequent coldwater upwellings caused by wind-generated currents. The resulting biological community exhibits low species diversity and abundance (Martin-Downs, 1988). The open coast, however, can also periodically provide calm and thermally warm and stable fish habitat. The resulting value and use of the open coast shoreline as fish habitat is not well understood due to these highly variable habitat characteristics.

Within the open coast shoreline of the study area, structural variations, such as constructed groynes, revetments and more natural areas, are found. These man-made structures provide spatial diversity of habitats (e.g., substrates and structure) which create concentration areas for biota relative to the homogeneous substrates which characterize much of the shoreline (Piercey, 1994).

### ***Sheltered Embayment Habitat***

Several sheltered embayments are found along the Lake Ontario study area. With the exception of Frenchman's Bay and river estuaries, all other sheltered embayments in the study area are lakefill parks (ie., Tommy Thompson Park, Ashbridge's Bay Park, and Bluffers Park). All sheltered habitats of the study area shoreline are characterized by more complex physical habitat which provides food, cover and habitat for juvenile and adult fish. Protection from wave action and from thermal upwellings has favoured the development of warmwater fish communities which typically exhibit higher species diversity and production than those of the exposed lake shore (Martin-Downs, 1988). These sheltered areas provide habitat characteristics which starkly contrast habitat characteristics of the open coast. The major physical features of these sheltered areas include: shoreline protection, in the form of rip rap, armourstone and gabions, which creates steep slopes; and quiescent areas which support emergent (e.g., cattail marsh at

Frenchman's Bay) and submergent aquatic vegetation (e.g., Bluffers Park).

### ***River Mouth Habitat***

River mouths are a unique combination of coastal and riverine processes which have promoted the development of significant marshes/coastal wetlands at the confluence of river and lake. Shelter from the high energy effects of the lake, combined with the constant inflow of river water, has resulted in the establishment of submergent and emergent vegetation and warmer water temperatures, both of which favour warmwater fish species such as northern pike and bass. Additional habitat diversity in these river mouth marshes, afforded by the growth of aquatic vegetation, has expanded ecological function (i.e., spawning and nursery areas) and has increased species diversity and ecological stability.

The Rouge River is the most significant river-mouth habitat found in the study area. Other river-mouth habitat is found at the discharge of Highland Creek and Petticoat Creek to Lake Ontario. River mouths provide specialized feeding, spawning, and nursery habitats for a variety of lake-resident fish and provide the corridor to upstream spawning areas for migratory trout and salmon.

### ***Terrestrial Features<sup>1</sup>***

Terrestrial features found within the study area and of importance from a Natural Heritage perspective, are remnant natural areas comprised of individual (or a combination of) forests, wetlands, meadows, stream and river systems and shorelines. Primary natural heritage features and

<sup>1</sup> Waterfront Natural Areas - Part I (Brownell, 1993) is an especially important source of information for terrestrial considerations, but, as a matter of convenience, has been cited only with respect to specific information. The MTRCA Environmentally Significant Areas document (MTRCA, 1982) and the update (MTRCA, 1994b) have been used in the same way. Brownell's (1993) references of relevance to the study area, whether cited herein or not, are included in the bibliography of this report.

functions identified within the study area are discussed in the following text.

### ***Forest Habitat***

Forests provide a distinctly three-dimensional system, with complex and numerous habitats used by wildlife. Forest interiors are buffered by edges and canopies against extremes of temperature, wind, and precipitation providing a greater range of microclimates. Forests provide erosion protection and other forms of hydrological stability. Forests, because of these characteristics, have high corridor value and, especially in stream valley systems, provide an important link with inland processes.

The study area is in the Carolinian life zone (Eagles and Beechey, 1985) and the Deciduous Forest Region, which Rowe (1972) indicates is characterized by broadleaved trees also common in the Great Lakes - St. Lawrence Forest Region immediately to the north. These include sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), white elm (*Ulmus americana*), basswood (*Tilia americana*), red ash (*Fraxinus pennsylvanica*), white oak (*Quercus alba*) and butternut (*Juglans cinerea*). Other broadleaved species having their northern limits in this locality (Carolinian species) include sassafras (*Sassafras alba*) and black walnut (*Juglans nigra*). Conifers are few and there is only scattered distribution of white pine (*Pinus strobus*), tamarack (*Larix laricina*) and hemlock (*Tsuga canadensis*).

Forest tracts in the study area are generally small with the largest occurring on ravine slopes of valley systems in the eastern portion of the study area (i.e., Rouge River, Highland Creek, and, to a lesser extent, Petticoat Creek). A number of trees within these forests, especially red and white oaks and white pine, are very large and over 100 years old. Floodplains of these systems variously contain forests of crack willow (*Salix fragilis*) and white cedar (*Thuja occidentalis*). In the larger ravine systems, the forest tracts are generally part of a

corridor that extends considerable distances from the shoreline, *per se*, to the north of the study area.

There are some areas of tableland forest such as the white ash, sugar maple, and beech- dominated Guild Woods, and blocks of trembling aspen (*Populus tremuloides*)/balsam poplar (*P. balsamifera*) successional forest at East Point. The ravines and gullies associated with the Scarborough Bluffs are collectively of mixed composition, including white birch (*Betula papyrifera*), aspen (*Populus* spp.), oak (*Quercus* spp.), maple (*Acer* spp.), hawthorn (*Crataegus* spp.) and willow (*Salix* spp.). These woods tend to be mosaical in both composition and distribution in the ravine systems.

Small fragments of forest are scattered throughout the study area (particularly east of the Scarborough Bluffs with the exceptions of Fallingbrook Woods and Glen Stewart Ravine woods), often in association with small parks and residential vegetation. Small areas of cottonwood (*Populus deltoides*) forest are found in Tommy Thompson Park, where they provide nesting sites for a large population of double-crested cormorants (*Phalacrocorax auritus*) and other birds with an affinity for water.

Forest wildlife is most abundant, both in number and in kind, in larger tracts of forest, and where the forest is part of an extensive corridor/linkage. Isolated forest fragments contain fewer species and smaller numbers per unit area than do larger or more connected forest systems (Riley and Mohr, 1994). A primary value of forest fragments to wildlife in the study area is in providing temporary habitat for migratory song birds.

### ***Wetlands***

Wetlands are lands that are seasonally or permanently covered by shallow water or have a water table so close to the surface that the abundance of water has resulted in hydric soils and vegetation of hydrophytic or water-tolerant plants (Riley and Mohr, 1994). Wetlands

serve many ecological functions including being areas of generally high primary productivity which supports a complex food chain and, along with three-dimensional structural complexity, supports a high diversity of species. Additionally, wetlands afford hydrologic stability, they maintain conditions for natural cycles, and they may provide a functional interface between aquatic and terrestrial systems. Additionally, they provide socio-economic benefits such as some degree of flood control, recreation, production of economically important products, educational benefits and improvement of water quality (OMNR, 1993).

There are three OMNR classified wetlands in the study area (OMNR wetlands mapping), namely:

The Provincially Significant Class 2 Rouge River Marsh (Lower Rouge marshes) which is the largest lakefront marsh in Metropolitan Toronto (Eagles and Beechy, 1985) and serves as an important stop-over and feeding area for waterfowl and shore birds. Furthermore, it contains at least two provincially rare plant species, three provincially significant breeding bird species, two turtles rare in Metro Toronto, and approximately 35 plant species that are regionally rare.

The Provincially Significant Class 2 Frenchman's Bay Marsh Complex contains a similar number of rare plants and birds, although the presence of some of these is in question (Gartner Lee Limited, 1995). Shoreline marshes such as these are few in number along the western shoreline of Lake Ontario, and certainly rare in the study area. This complex includes the Hydro Marsh at the eastern terminus of the study area.

The Regionally Significant Class 6 Highland Creek Wetland Complex is mostly swamp (i.e., with a significant presence of trees and/or shrubs) with small cattail marshes on the flood plain. As with all wetlands in the study area, this is important for migrating birds.

A number of smaller wetlands are in various locations throughout the study area, particularly at East Point and at the foot of the bluffs. All of these wetlands, including the aforementioned provincially and regionally significant ones, contribute greatly to the biodiversity of the study area.

#### *Other Vegetational Communities*

Additional plant communities found within the study area include successional shrublands and old-field communities which, if left undisturbed for an extended period, would become mature forest. Those communities directly along the shoreline and subject to disturbances by water and wind action would retain their successional nature. Mature vegetation exists on stable substrate, while successional vegetation reflects disturbances, either presently or in the recent past.

The best representation of successional shrubland communities are on the steep shoreline face, in association with the Scarborough Bluffs. An increasingly rare shoreline community type is represented by the Rouge Lakeshore Swale ESA #78 (MTRCA, 1982), where a wet area adjacent to the beach is occupied by willow shrubs, usually sandbar willow (*Salix exigua*).

Old-field vegetation, an early stage of succession, where typically introduced forage grasses and pioneer forbs dominate, are in various places throughout the study area. A good representation of this system in the study area is at East Point. Disturbed areas such as railway beds and industrial sites are also among the earlier successional habitats, sand and gravel beaches notwithstanding, and they remain that way because of constant disturbances.

Other communities include vegetation in "open spaces" such as parklands, recreational areas, and some manicured lawns, which are presently of less ecological value. It should be noted that some have

the potential of being essential elements in regeneration and restoration of the shoreline ecosystem in the future.

Wildlife in these areas may be as variable as the areas themselves. Shrublands are very important habitats for migratory and nesting birds. Communities with a significant amount of grass cover nearly always have thriving populations of meadow voles (*Microtus pennsylvanicus*), the major prey item for raptors and weasels (*Mustela* spp.), thereby being very important habitats relative to the food chain. Additionally, red fox, coyote, and white-tailed deer are found within the study area. On the other hand, the more disturbed areas, such as industrial sites, are inhabited by generalists, both plant and animal, such as various pioneer plant species, house mice (*Mus musculus*), brown rats (*Rattus norvegicus*), starlings (*Sturnus vulgaris*) and English sparrows (*Passer domesticus*).

#### ***Significant Natural Areas***

The most prominent of these natural areas are Areas of Natural and Scientific Interest (ANSIs) and Environmentally Significant Areas (ESAs).

#### ***Areas of Natural and Scientific Interest (ANSIs)***

Life Science and Earth Science ANSIs have been established by the OMNR “to identify a system of natural areas that best represent the full spectrum of vegetation and landform types that occur within Ontario’s ecological site districts and physiographic regions” (Riley and Mohr, 1994). Life Science ANSIs located in the study area, or in part of a corridor that extends from the shoreline north of the study, are presented in Table 3.2 (including their significance).

**Table 3.2: Life Science ANSIs Located in or Adjacent to the Study Area**

Life Science ANSI	Status	Major Feature(s)
Scarborough Bluffs	Provincially Significant	Bluffs and associated vegetation and wildlife
East Point	Regionally Significant	Rare plants, unique communities, bird migration
Highland Creek Swamp (north of study area)	Regionally Significant	Tamarack swamp with species of northern affinities, attended by mature forest with large tree specimens
Lower Rouge Valley	Provincially Significant	Class 2 Wetland, migratory birds, waterfowl and shorebird habitat, rare plant species, exceptional forest units
Rouge Valley - Midsection (north of study area)	Provincially Significant	High species diversity, high plant community diversity, contains valley slope woodland with mature forests
Rouge Valley - Upper Section (north of study area)	Provincially Significant	As with Rouge Valley midsection

#### ***Environmentally Significant Areas (ESAs)***

Whereas ANSIs are “representative” sites, ESAs are more inclusive (Riley and Mohr, 1994) in that they are sites of ecological significance, significance being determined by a set of established criteria. Table 3.3 provides a listing of all ESA’s (MTRCA, 1982) within the study area.

**Table 3.3: ESAs in the Study Area and MTRCA Criteria Fulfilled**

ESA #	Name	Area (ha)
120	Tommy Thompson <sup>1</sup>	approx. 60.0
130	North Shore Park <sup>2</sup>	approx. 80.0
121	Glen Stewart Ravine	9.93
122	Fallingbrook Woods	0.77
123	Scarborough Bluffs Sequence	72.94
124	Guild Woods	10.27
125	East Point	12.2
74	Stephenson's Swamp	44.25
75	Highland Forest <sup>3</sup>	82.41
78	Rouge Lakeshore Swale	1.47
79	Rouge Marsh Area	84.54
81	Little Rouge Forest <sup>3</sup>	119.55
80	Rouge River-Whitby Formation Section <sup>3</sup>	0.07
94	Petticoat Creek Forest	44.44
	Frenchman's Bay Marsh	14.9

<sup>1</sup> Aquatic Park ESA updated to Tommy Thompson Park ESA - some configurational and areal changes (MTRCA, 1994). Criteria as per MTRCA, 1993.

<sup>2</sup> New ESA (MTRCA, 1994b). Criteria as per MTRCA (1982). Most of this ESA is outside of the study area.

<sup>3</sup> North of study area, but linked to the shoreline by segments of the same system within the study area.

### *Valley Systems*

Topographically defined valleys, usually with a stream or river, are often significant sites of natural vegetation and wildlife habitat. These valley systems also may provide a continuous corridor inland from the

shoreline to north of the study area. Petticoat Creek, the Rouge River, and Highland Creek are examples of such corridors. The ravines in association with Scarborough Bluffs, such as Bellamy Ravine, may contain locations with rare plants and significant wildlife habitat. Most of the forested areas are located in valley systems. In general, valley systems in the study area provide important interfaces between terrestrial systems and the aquatic systems of both Lake Ontario and the rivers and smaller streams that flow into the lake.

### *Species-at-Risk*

Species considered rare, vulnerable, threatened, endangered, or otherwise relatively few in number and potentially vulnerable to human impacts are collectively termed "species-at-risk" (Riley and Mohr, 1994). Riley and Mohr (1994) indicate that there are about 475 species-at-risk among vascular plants, all vertebrate groups including fish, and butterflies across southern Ontario, and they are concentrated in the "Carolinian Life Zone". It is clear that a relatively small proportion of these have been documented in the study area which, among other things, reflects the intensity of human impact. Also, species-at-risk in the study area tend to be located mostly in association with valley systems and wetlands in the east end of the study area.

Table 3.4 shows the number of rare species as reported by Brownell (1993) and MTRCA (1982), respectively. These data account for the number of rare species reported at each location, but do not account for possible repetition between locations. Also, there are at least three jurisdictions which identify regionally rare species which may result in repetition. The table is presented to show pattern, at some expense of precision.



Table 3.4: Distribution of Rare Species Reported from the Study Area

Location	Number of Rare Species				
	Nationally or Provincially Rare Vascular Plants	Regionally Rare Vascular Plants	Provincially Significant Breeding Birds	Regionally Significant Breeding Birds	Rare in Metro Toronto or other as indicated
Tommy Thompson Park	1 (5)	10 (6)	3	2 (5)	
North Shore Park	(7)	(6)			
Glen Stewart Ravine		(1)			3 plants
Fallingbrook Woods					1 plant
Scarborough Bluffs			2		
Guild Woods		(1)			
East Point	2 (4)	5 (10)			
Highland Creek Mouth and Stephenson's Swamp	1 (2)	1 (1)			
Highland Creek Swamp and Forested Slopes	1	12		(1)	
Rouge Lakeshore Swale	(3)	(7)			
Lower Rouge	3 (9)	32 (20)	3	(7)	1 <sup>1</sup> , 3 <sup>2</sup> (2) <sup>2</sup>
Frenchman's Bay Marsh	5 <sup>3</sup> (3)	(5)	2 (4)	(7)	

Numbers without parentheses are deduced from Brownell (1993), numbers in parentheses are deduced from MTRCA (1982).

<sup>1</sup> Regionally rare mammal

<sup>2</sup> Regionally rare reptiles

<sup>3</sup> From Brownell (1993) and Gartner Lee Ltd. (1995)

### *Landscape Biodiversity*

There is considerable topographical and physiographical variation in the study area, which is reflected in the concomitant diversity of associated biota. While the lake has a moderating influence on the shoreline landscape, the interface between lake and land results in additional complexity in structure and function over time. For example, the instability of shoreline communities due to alteration by wind and water results in successional communities that add to the overall diversity of the study area.

The highest diversity of plant species within the study area is in the Rouge River system (762 species). A case could be made that this system also has the greatest topographical diversity, and that it is the least isolated. It is the only major linkage to the hydrologically and biologically important Oak Ridges Moraine. Also, east-west linkages within the study corridor, other than the lakeshore itself, are not well developed, but north of the eastern portion of the study area, there is some linkage between the Rouge River, Petticoat Creek, and points east.

The general lack of forest blocks with low edge to woodland area ratios and wetlands, along with small and fragmented remnant habitats has resulted in a reduction of biodiversity in much of the study area. Nonetheless, these remnants provide a number of associated ecological values (WRT, 1995):

- “a variety of representative and specialized landforms and natural communities, including those associated with current and previous Great Lakes shorelines (such as dunes, beaches, bluffs), and some with Carolinian or prairie affinities”;
- a reasonably large diversity of species under the circumstances (see Brownell, 1993, and MTRCA, 1982, for example), including many that are at-risk;

- “critical breeding destinations for fish, amphibians, and birds which disperse broadly into the surrounding environment, as well as important staging and wintering areas for a large number of migratory birds”;
- “the capacity of natural landscapes to reduce the erosive effect of streams and lakes, and to capture sediments and nutrients from adjacent landscapes before they enter the lake”;
- “the patterning of woodlands or marsh habitats which in some places provides large blocks or corridors that act as source areas for species and genetic replacement of adjacent areas, or as linkages between similar habitats”.

### *Natural Heritage Processes, Functions and Linkages*

Natural Heritage implies connectedness of processes, functions and linkages within the physical, and biological components of the environment. The OMNR (1992) provided the following description which emphasizes these important interrelationships:

“Natural heritage includes geological features and landforms; associated terrestrial and aquatic ecosystems; their plant species, populations and communities; and all native animal species, their habitats and sustaining environment”.

Biological processes and functions for these purposes include the phenomena that contribute to ecosystem quality in the study area. Processes, functions, and linkages are interrelated, often without clear distinction in the use of these terms. For example, linkages enable the process of dispersal to occur from one place to another, thereby providing corridor function. Core areas and corridors are not functions strictly speaking, but they are places where important processes occur, thus providing valuable ecological function(s).

Ecological succession, dispersal of plants and animals including seasonal migration, distributional and genetic events that result in changing biodiversity, fragmentation of natural systems in the shoreline, and interrelationships with physical factors such as erosion are all processes to be considered in assessing the dynamics of the shoreline ecosystem. Functions include such things as hydrologic function, corridor function, and accommodation of migration. While processes and functions can be addressed in a general way, they assume greater relevance when discussed in terms of actual places and events. As an example, a brief discussion of core area functions is presented.

### *Core Area Functions*

Core areas are the most valuable ecological sites in an area, and they are vital to the protection of natural populations and communities (WRT, 1995). They function as refuge areas and as sources of gene pools for potential recolonization of presently impoverished areas. Terrestrial Biology Core Areas identified in the study area by the WRT include:

- Rouge River;
- East Point, including Greyabbey Ravine;
- Frenchman's Bay;
- Highland Creek;
- Scarborough Bluffs;
- Tommy Thompson Park;
- Petticoat Creek;
- Guild Woods;
- Fallingbrook Woods; and
- Glen Stewart Ravine.

All of these areas include ESAs and three (Rouge River, East Point and Scarborough Bluffs) include ANSIs. All ESAs and ANSIs in the study area are included in a designated core area.

### *Aquatic Biology Core Areas*

Aquatic biology core areas found in the study area include:

- Rouge River (river mouth);
- Frenchman's Bay/hydro marsh (embayment);
- Tommy Thompson Park (embayment);
- Bluffers Park (embayment);
- Ashbridge's Bay Park (embayment);
- East Point headlands (open coast);
- R.C. Harris WFP headlands (open coast); and
- Toronto Scarp (open coast off Tommy Thompson Park).

The most significant aquatic core area found in the study area is the Rouge River mouth and its associated marshes, which support one of the richest fish communities in the GTA, including habitat for rare species such as the bowfin. The headlands located at East Point and off the R.C. Harris WFP, and the Toronto Scarp off Tommy Thompson Park, represent open coast core areas.

### *Linkages and Corridor Functions*

Linkages provide corridors of biological habitat between two or more areas of biological importance. Most linkages of the ISMP study area are in a general north-south direction connecting the shoreline with inland areas. There are two major east-west linkages: the shoreline itself, and north of the study area between the Rouge River systems and Petticoat Creek, and points east. East Point, because of its roughly linear configuration, provides an additional east-west linkage. Other features adjacent to the shoreline such as Bellamy Ravine and Guild Woods provide relatively short linkages inland from the shoreline. Linkages and corridors identified within the study area include:

- Rouge River;
- Entire water-land interface of shoreline in the study area. Even though sometimes sporadic, this system is considered very important because of its length, variety, and conjoining of two major habitats, land and water;
- Tommy Thompson Park;
- Highland Creek;
- Petticoat Creek;
- Frenchman's Bay and Hydro Marshes;
- Bellamy Ravine, including Hill Crescent and Sylvan Avenue Areas;
- East Point, including Greyabbey Ravine;
- Brimley Road Ravine Complex;
- Guild Woods;
- Cathedral Bluffs Ravine System;
- Cudia Park Ravine System;
- Adams Creek Drainage;
- Cliffside Ravine; and
- Fishleigh Ravine.

### *Aquatic Biology*

Offshore, the aquatic environment provides a continuous linkage between physical habitats such as embayments and river mouths which provide important life history functions. Numerous fish species, particularly salmonids, use the open coast shoreline as a migratory route between feeding and spawning areas. During calm summer periods, thermal stratification of Lake Ontario create warm water conditions in the nearshore zone. During these conditions, the open coast shoreline becomes an important corridor for warm water fish species between warm water embayments which are frequently isolated by cold water conditions.

Study area tributaries, specifically the Rouge River, provide a linkage between warmwater and coldwater fish communities. Salmonids annually ascend the Rouge River in the spring and fall, moving many

kilometres upstream, to spawn. Impassable barriers, however, limit the upstream movement of migratory runs of fish on the Rouge River (Milne Reservoir), and Highland (at Morningside Park) and Petticoat Creeks. Other lake species utilize the lower reaches of study area tributaries to spawn or find refuge (e.g., nursery areas) during various stages of their life history.

### *High Plant Diversity*

Sustained high biodiversity is considered generally to be an indication of ecosystem quality. Areas with greater than 130 vascular plant species as per Brownell (1993) are as follows (number of species in parentheses):

Rouge River (762)  
 Petticoat Creek (169)  
 Fallingbrook Woods (156)

Tommy Thompson Park (152)  
 Highland Creek (146)  
 East Point (133)

### *High Fish Diversity*

Core areas of the study area provide diverse habitats which support a variety of fish species. The diversity of native fish species, which can be indicative of pre-disturbance (i.e., historical) habitat conditions and environmental quality, was examined at embayment/river mouth locations along the Metropolitan Toronto waterfront by Strus (1995). Within the ISMP study area, Tommy Thompson Park, Ashbridge's Bay Park, Bluffers Park and the Rouge River were examined. Of these four, native species diversity was highest at the Rouge River and lowest at Ashbridge's Bay (Strus, 1995).

Species dominance was also calculated by Strus (1995) as a measure of diversity. The lowest concentration of community dominance (i.e.,

most diverse site) was the Rouge River, followed by Tommy Thompson Park, Bluffers Park and Ashbridge's Bay (Strus, 1995).

### *Rare Plants*

Rare plants and animals are of special interest because of their rarity, although rarity on a wide scale may reflect ecosystem degradation. Locations with rare plants (as per Brownell, 1993) are presented with the number of rare plants identified. The first number is the number of nationally and/or provincially rare plants; the number in parentheses is the number of regionally rare plants. An asterisk indicates rare in Metropolitan Toronto.

- Tommy Thompson Park 1 (10)
- Glen Stewart Ravine 3\*
- Fallingbrook Woods 1\*
- Guild Woods (1)
- East Point 2 (5)
- Highland Creek 1
- Rouge River 3 (32)
- Frenchman's Bay and Hydro Marshes 5 (5)

### *High Quality Vascular Plant Habitat*

The following locations have communities with large mature tree specimens and/or communities designated rare in some jurisdictions and considered to be of high quality (from Brownell, 1993):

Rouge River  
 Highland Creek  
 Fallingbrook Woods  
 East Point  
 Petticoat Creek  
 Glen Stewart Ravine  
 Neville Park Ravine

### *Rare or Significant Wildlife*

The following areas have been identified as sites of rare or significant breeding birds, amphibians, reptiles and mammals (see Brownell, 1993) and Gartner Lee Limited (1995). The number of species is given, and areas are listed in order of west to east.

	Birds	Amphibians/ Reptiles	Mammals
Tommy Thompson Park	2-4		
Scarborough Bluffs	2		
Rouge River	3	2	1
Frenchman's Bay and Hydro Marshes	4		

### *Rare or Significant Fish*

Table 3.5 provides a list of fish species considered rare in the ISMP study area for a variety of reasons including: current/historical habitat alteration and/or loss; exploitation through recreational and commercial fishing; and competition from exotic species.

**Table 3.5: Fish Species Considered Rare in the Study Area**

Rare Species	Collection Location
bowfin <sup>1,2</sup>	Rouge River/Frenchman's Bay
lake whitefish <sup>1,2</sup>	East Point
round whitefish <sup>1,2</sup>	East Point
shorthead	Ashbridges Bay
redhorse <sup>3</sup>	East Point
lake chub <sup>2</sup>	Rouge River
rosyface shiner <sup>1,2</sup>	Rouge River
sand shiner <sup>3</sup>	Frenchman's Bay
brook silverside <sup>3</sup>	Bluffers Park
brook stickleback <sup>2</sup>	Tommy Thompson Park, Ashbridges Bay,
walleye <sup>1,2</sup>	Frenchman's Bay
logperch <sup>2</sup>	Rouge River
longnose gar <sup>2</sup>	Tommy Thompson Park

<sup>1</sup>Rare = 0.001 - 0.0099% of total catch (Buchanan, 1991)

<sup>2</sup>Rare = seldomly found; restricted distribution; very seldomly collected (Municipality of Metropolitan Toronto, 1995)

<sup>3</sup>Metropolitan Toronto and Region Conservation Authority (Gord MacPherson, *personal communication*)

**Important Habitats for Migratory Birds**

The following sites are essential staging, nesting and/or feeding areas for migratory birds (deduced from Brownell, 1993, and MTRCA, 1982; 1994b):

- Tommy Thompson Park
- Scarborough Bluffs
- East Point
- Rouge River
- Frenchman's Bay

**High Faunal Diversity and High Quality Wildlife Habitat**

When wildlife habitat becomes diminished the richness of faunal species decreases. Conversely, a healthy and diverse habitat complex is usually represented by a more diverse fauna. Data for vertebrate wildlife groups are from Brownell (1993) and include those areas with at least 60 species recorded. Numbers in parentheses indicate breeding birds. Blanks indicate that no data were given.

	Birds	Mammals	Reptiles/ Amphibians
Rouge River	225 (123)	27	19
Leslie Street Spit	255 (25)		
Frenchman's Bay/ Hydro Marsh	126 (34)		
Highland Creek Swamp	69		
East Point	67 (51)	7	

**Wetland Function**

Wetland function is considered most important in those systems specifically designated by the OMNR listed below. Other, non-designated wetlands exist at East Point, and as small areas mostly along the base of some areas of the Scarborough Bluffs. Ontario Ministry of Natural Resources designated wetlands in the study area are:

Provincially Significant	Rouge River Marsh, Class 2 Frenchman's Bay Complex, Class 2
Regionally Significant	Stephenson's Swamp (Highland Creek), Class 6

### 3.3 Cultural Features and Process

Human activity, as part of the environment, produces a cultural ecology which includes heritage landscapes and sites, community resources, services, residential and employment areas, visual resources, open space and recreational/parkland facilities.

#### **General Land Use Characteristics**

The significance, access potential and present functions in the context of general land use characteristics found within the study area include recreational, residential, commercial and institutional features, as well as transportation and shoreline access. Characteristics of the area were described in the context of "inland" and "at shore" conditions, recognizing that throughout much of the study area there are significant physical barriers between them which, in turn, create distinctly different patterns of use and enjoyment.

For the purposes of the **Phase I** analysis, a description of the cultural environment within the ISMP study area was based on five similarly sized segments.

#### **Tommy Thompson Park to R.C. Harris Water Filtration Plant**

##### *Inland Characteristics*

This segment is located predominantly within the City of Toronto. The west end of this section, north of Lakeshore Boulevard and west of

Woodbine Avenue, accommodates a small employment area which has a number of retail facilities and commercial businesses.

The area south of Kingston Road and east of Woodbine Avenue is predominantly residential, with a commercial strip along Queen Street (between Woodbine Avenue and approximately Balsam Avenue). Beyond this point, land use is a mixture of commercial and residential along Queen Street through to Victoria Park Avenue. Small pockets of commercial activity are also found among the largely residential uses located on Kingston Road from Woodbine Avenue to Victoria Park Avenue. A number of institutional uses, such as schools and churches, are also present within this part of the study area.

##### *At Shore Characteristics*

The shoreline area from Tommy Thompson Park to the R.C. Harris WFP contains a variety of public uses. Within this portion of the study area, there exist a number of centres of activity, a number of ways to access the area, and a continuous water's edge trail. This trail is a component of the Martin Goodman Trail with a western terminus at the Humber River and an eastern terminus at the Balmy Beach Club. This segment of the trail is improved allowing access by bicycles, walkers and other recreational modes (e.g., roller blades, etc.). A number of marina/ yachting/sailing facilities, playing fields, bicycle trails, passive parkland, swimming pools and beachfront activities are present. Significant recreational destinations include the Ashbridge's Bay Park and marina, Tommy Thompson Park, the Outer Marina and the Eastern Beaches. In addition, portions of Tommy Thompson Park are also recognized conservation/preservation areas, due largely to the aquatic and bird habitat created within this area. Public utility sites (i.e., Main WPCP and R.C. Harris WFP) are also found at Ashbridge's Bay, and at the foot of Victoria Park Avenue/Nursewood Road, respectively. While the R.C. Harris WFP provides a considerable amount of open space, the Main WPCP is not generally accessible to the public (and therefore restricts access to the shore), and the R.C. Harris WFP is fenced off from the waters edge.

steep slopes. Such access raises questions of public safety in some locations.

### *At-Shore Characteristics*

Bluffers Park provides a number of public use opportunities which extend a relatively short way east to the base of the Fairmount Playing Field. Yacht clubs and the Bluffers Park Marina provide boating opportunities at Bluffers Park. A significant amount of the land base is committed to both passive open space and parking area. Access along the shore is partially obstructed by steep slopes, and rough terrain, but improves greatly from the Bellamy Ravine/Gates Gully Area for several hundred metres east. Here, the shoreline area below the bluffs accommodate easier travel east, although once again pedestrian access is modal from a single point access at the Guild Inn.

A lakefill access road is located in proximity to the Guild Inn. While steep, this road does lend itself to inland access and allows some shoreline use of areas where fill has been placed.

There are few well defined access routes from the top to bottom of the bluffs with the exception of Bluffers Park.

### **The Guild Inn to Port Union Road**

#### *Inland Characteristics*

This study area segment is located within the City of Scarborough. Commercial uses are located along Kingston Road and several commercial sites are located among the essentially residential neighbourhoods.

The residential areas include a combination of high, medium and low density dwellings. Higher densities are associated with areas in closer proximity to Kingston Road. Overall however, low to medium

densities are most common through much of this section of the study area.

Two industrial areas, Coronation Park and Centennial Park, are located within this portion of the study area. While Coronation Park appears to be remaining industrial, Centennial Park is experiencing a period of development pressure where mixed residential/commercial proposals may replace the industrial designation. Proposed development south of Lawrence Avenue and Port Union Road also includes potential "at-shoreline" facilities, conceivably in the form of recreational, marina or residential uses. An increased population of local residents and waterfront "users" are anticipated, and could require an increased level of services and facilities. For the purposes of describing the existing condition, the Port Union Road area does not represent a node of human activity currently, but may at some future time.

A number of small inland parks and playgrounds are present within this segment, often located in close proximity to the many schools serving the local community. In stark contrast, Highland Creek dissects this portion of the study area with the large Colonel Danforth Park which extends well north of Kingston Road and has tributaries reaching north of Highway 401. On a much smaller scale, the Greyabbey Park and Ravine extend inland to approximately the C.N. Rail line. As well, Guildwood Park, East Point Park and Adams Park add to the number of larger open spaces found within this area.

GO Transit service is provided on the C.N. Rail line, with stations located at both Livingston Road in the west and Lawrence Avenue east of Port Union Road. While providing significant transportation service through (rather than within) this portion of the study area, the GO line also poses access obstacles to shoreline areas. This is particularly evident from Highland Creek eastward where the C.N. Rail line clearly divides the shoreline from inland areas. A similar, though less pronounced, barrier condition is created by the C.N. line from Livingston Road to Highland Creek. Public transit is otherwise provided by public transit service fed through the Kingston Road



## **R.C. Harris Water Filtration Plant to Bluffers Park**

### ***Inland Characteristics***

This study area segment is located entirely within the City of Scarborough. The inland uses of this portion of the study area are largely residential but contain other uses as well. These can be generally inventoried as retail/employment uses, occurring sporadically along Kingston Road, and institutional uses (schools, churches) and open space/recreational uses (some of which extend close to the waterfront). Several parks and the Toronto Hunt Golf Course extend south towards the waterfront.

Continuing east, Kingston Road comes closest to the waterfront near Rosetta McClain Gardens and then extends slightly north and parallel to the waterfront. At this point, the residential uses are contained between the bluffs and Kingston Road. Throughout this portion of the study area much of the in-land access to the waterfront is limited due to difficult topography and terrain conditions. The exceptions to this are described below.

### ***At-Shore Characteristics***

A combination of conditions are found at the shoreline through this segment of the study area. Steep slopes (the Bluffs), divide the shore from the inland areas. In some locations (through groyne fields west of Fishleigh Drive) a corridor of beach type shoreline provides an informal pathway. Due to terrain conditions (steep slopes and rough underfooting), other stretches exhibit physical obstacles which interrupt continuous passage along the shoreline at the water's edge. Although there are several recreational/parkland facilities near the shore such as Rosetta McClain Gardens and the Toronto Hunt Club, formalized "at shore" access is only available at Bluffers Park and to a limited extent at Fishleigh Drive. Fishleigh Drive at a point extending south of Midland Avenue, provides inland access west of Bluffers Park, but stops short of making a connection to the Bluffers Park

facilities. The Scarborough Pumping Station (Scarborough Heights) is located within this section of the shoreline, and is subject to significant grade separation from the waters edge as well.

The Scarborough Bluffs exhibit their full physical presence along this section and extend further to the east, providing a visually dramatic edge and physical barrier to the shoreline.

The most significant recreational destination within this section is Bluffers Park. This location provides a marina, sufficient land area to accommodate both passive and active recreational activities, and an opportunity to view some spectacular shoreline features (i.e. Cathedral Bluffs).

From a transportation perspective, this segment is somewhat removed from primary public transit corridors and is generally disconnected from the existing waterfront trail system which ends at the R.C. Harris WFP.

## **Bluffers Park to Guildwood Park**

### ***Inland Characteristics***

This segment of the study area is also located entirely within the City of Scarborough. Much of the inland area between Bluffers Park and within the Guildwood District is essentially residential, with a greater concentration of commercial/employment activity along Kingston Road. A number of institutional uses are located within this area, providing churches and schools for the surrounding communities.

Recreation destinations within the inland area are largely open spaces including the Fairmount Playing Field, Cudia Park, Sylvan Park and South Marine Drive Park. Use of these spaces is generally limited to the top of the bluffs, however some access to the waterfront is possible for the more adventurous and those choosing to traverse the steep terrain. Much of the inland area is separated from the waterfront by

transit corridor. The F.J. Horgan WFP and the Highland Creek WPCP are situated west and east of East Point Park, respectively.

### *At-Shore Characteristics*

The steep terrain of the bluffs poses an obstacle to access to the shoreline, from inland areas through much of this portion of the study area. As a result, this segment is clearly divided between the "Upper" and "Lower" portions. For example, Guildwood Park, Greyabbey Park and Ravine, F.J. Horgan WFP, and East Point Park, extend to the shoreline but are interrupted by the bluffs. Where the slope conditions retreat (at Highland Creek) one obstacle is replaced by another, being, the C.N. Rail/GO Line which abuts the "Upper" shoreline, and continues to obstruct "shoreline" access. Shoreline access through this area is largely nodal centred on a very few number of locations.

### **Port Union Road to Frenchman's Bay**

#### *Inland Characteristics*

This study area segment is partially located within the City of Scarborough and partially within the Town of Pickering. The boundary between Pickering and Scarborough is formed by the Rouge River.

There is a diversity of land uses and features within the segment. They include residential communities of varying densities, significant parkland/open space in the Rouge River corridor, the Petticoat Creek Conservation Area, and areas surrounding Frenchman's Bay; employment areas at Whites Road as well as within commercial centres dispersed through the study area. Through this study area segment, the northern boundary changes from Kingston Road to Highway 401. Highway 401 and the GO Transit service provided on the C.N. Rail line are significant parts of high volume transportation systems serving the GTA. Within this study area segment, Port Union Road, Whites Road, and Liverpool Road have full or partial clover leaf

access to Highway 401 greatly enhancing access into shoreline areas. A GO station is located at Liverpool Road enhancing accessibility to the Frenchman's Bay area.

Unique to the study area, Frenchman's Bay could be considered a semi-inland feature in that a barrier beach complex extends across the mouth of the Bay, creating a shoreline. Frenchman's Bay is a major recreational destination, providing a range of uses including a marina facility, parkland, and environmental areas, serving a local population as well as users from other communities.

### *At-Shore Characteristics*

The C.N. Rail line continues to divide the shore from the inland areas up to the Rouge River; however, pedestrian access along the shore at water's edge is good for some distance. Private ownership of waterlots interrupts access, particularly around West Shore Boulevard. The mouth of the Rouge River includes a beach and parking lot within the flood zone and is the historic location of the West Rouge Canoe Club. A pedestrian bridge located north of the C.N. Line accommodates east-west travel over the Rouge River and into adjacent parkland areas. The Rouge Park is one of the most significant parkland areas in the GTA and is the subject of provincial policy addressing boundary issues and protection measures.

The Petticoat Creek Conservation Area is a large open space feature which has upper and lower portions. A small beach area is located at the mouth of Petticoat Creek.

The barrier beach and sandbars at Frenchman's Bay are found in conjunction with open space areas located east and west of Frenchman's Bay. Numerous marina/mooring and recreational opportunities are found within the bay. The Ontario Hydro Park, providing passive recreation opportunities, is located just north of the Pickering Nuclear Generating Station and west of Sandy Beach Road.

## Recreation, Infrastructure and Land Use Activities

The segment descriptions provided a backdrop against which recreation, infrastructure and land use activities were examined and included in the overall assessment of nodes. Nodes were defined as concentrations of human activity and divided into either *major* or *minor* depending on the relative size of the feature or feature location, and the extent to which it is presently developed or in the process of being developed.

The level of intensity of use is categorized as high, medium and low. High intensity uses generally include major active recreational and tourism facilities, medium intensity uses generally include passive and active recreational uses in a parkland setting while low intensity uses are restricted to preservation, protected or conservation areas as well as passive recreational areas with low levels of human use.

Node locations identified in the study area are provided in Table 3.6 together with an inventory of the specific types of activity found at each node location.

## Land Ownership and Public Access

Ownership of shoreline lands is a significant issue in the context of public accessibility and use. Publicly-owned lands are generally accessible and useable for a wide range of recreational uses with the exception of many public utility sites. Privately owned lands are not accessible nor useable for public recreational purposes and were not assessed in **Phase I**.

## Water's Edge Access - Current Status

Currently, much of the study area provides varying degrees of nodal pedestrian access along the shoreline, which centre on relatively few points of inland access. The type of access available varies from improved trail (e.g., Martin Goodman Trail in western portion of the

study area shoreline) to rocky or sandy shore. Revetments and groynes have added to the variety of opportunities to access the water's edge. A number of sections of the study area do not provide continuous access between nodes due to difficult terrain (ie., steep and unstable slopes) associated risk to public safety, and private property ownership.

Descriptions for the sections of shoreline considered to be "difficult" to access due to physical obstacles (ie., unstable slopes or very narrow shore conditions) or where access is constrained as the user must cross private property, are provided below.

- a) From the R.C. Harris WFP east to approximately Rosetta McClain Gardens, steep terrain, property ownership and a rubble lined shore pose obstacles to pedestrian access. At the R.C. Harris WFP, a retaining wall and fence structure separate the grounds from the shoreline, very close to the water's edge.
- b) Pedestrian passage is halted at the eastern end of the Fishleigh Drive revetments, separating this section of the study area from Bluffers Park. The Scarborough Bluffs and harsh wave climate found in this location present physical obstacles to continuous connection from the end of the revetment to Bluffers Park.
- c) East of Bluffers Park, the steep and unstable slopes of the Scarborough Bluffs limit shoreline access to a point west of the Bellamy Ravine (Gates Gully Area).
- d) Shoreline improvements (revetments) through the Gates Gully Area provide a route east for some distance but steep slopes and difficult terrain make continuous access very difficult up to a point west of South Marine Drive Park.
- e) East of Guildwood Park, access is restricted by terrain conditions where steep and unstable slopes physically limit access. Shoreline access is more passable east of Greyabbey Park.

**TABLE 3.6  
EXISTING LANDUSE ACTIVITY**

SHORELINE NODES EXISTING USES		TORONTO						SCARBOROUGH											PICKERING								
		T-1	T-2	T-3	T-4	T-5	T-6	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12	S-13	S-14	S-15	S-16	S-17	P-1	P-2	
		TOMMY THOMPSON PARK	OUTER HARBOUR MARINA	MAIN WPCP	ASHBRIDGE'S BAY PARK	GREENWOOD RACE TRACK	EASTERN BEACHES	R. C. HARRIS WFP	TORONTO HUNT CLUB	HARRISON PROPERTY	ROSETTA McCLAIN GARDENS	FISHLIGH DRIVE PUMPING STATION	BLUFFERS PARK/MARINA	CUDIA PARK	BELLAMY RAVINE/SYLVAN PARK	SOUTH MARINE PARK	GUILDWOOD PARK	GREY ABBEY PARK	F. J. HORGAN WFP	EAST POINT PARK	HIGHLAND CREEK WPCP	HIGHLAND CREEK PARK	PORT UNION	ROUGH BEACH PARK	PETTICOAT CREEK PARK	FRENCHMAN'S BAY	
CATEGORY 1 PRESERVATION	1.1 PRESERVATION	●													●					●							●
	1.2 PROTECTION	●													●				●								
CATEGORY 2 CONSERVATION	2.1 REHABILITATION	●	●		●							●			●									○	●		
	2.2 BIO-ENGINEERING	●	●		●							●			●												
	2.3 HARD ENGINEERING	●	●	●	●		●	●	●			●			●				●		●				○	●	
	2.4 TRAIL/LOOKOUT	●			●	○	●					●			●				●					○	●		●
CATEGORY 3 PASSIVE USES	3.1 HIKING TRAIL	●			●		●					●	●	●	●	●		●		●				○	●	●	●
	3.2 PICNICKING/FISHING	●			●		●					●	●	●	●	●		●		●				○	●	●	●
	3.3 VIEWING/SITTING	●			●	○	●	●			●	●	●	●	●	●	●	●		●				○	●	●	●
CATEGORY 4 ACTIVE USES	4.1 SWIMMING BEACH				●	●						●											○	●			●
	4.2 SPORTS FIELDS					○	●													●							
	4.3 GOLF COURSE								●																		
	4.4 PLAYGROUNDS				●	○	●					●	●			●										●	
CATEGORY 5 INTENSIVE USES	5.1 ZOO/AQUARIUM										●																
	5.2 BOTANICAL GARDEN																										
	5.3 THEME GARDEN																										
	5.4 SWIMMING POOL						●										●										
	5.5 BOAT LAUNCH/MARINA	●	●		●								●											○			●
CATEGORY 6 TOURISM/ RECREATION DEVELOPMENT	6.1 RESORT/HOTEL																●										
	6.2 CONFERENCE CENTRE																●										
	6.3 RESTAURANT/SHOPS																										
	6.4 RESIDENTIAL DEV'T					○																		○			○
	6.5 COMMERCIAL DEV'T					○																		○			○

● Existing Facilities  
○ Proposed Development

- f) In combination, the close proximity of the C.N. Rail line and grade separation present physical obstacles to shoreline access east of Highland Creek Park. The passable shoreline at water's edge is also very narrow. This condition persists east to the Rouge Beach Park in proximity to the mouth of the Rouge River. At a more localized level, both the mouths of Highland Creek and the Rouge River are traversed by bridge structures located inland, reasonably close to shore.
- g) East of Rouge Beach Park, shoreline access can be described as sporadic. A combination of private property ownership and physical obstacles at the waterfront restrict passage. This condition continues to Frenchman's Bay and through the Bay area. At Frenchman's Bay, the shoreline of the Bay is considered to be the waterfront. To provide continuous access along the lakeshore, a bridge structure at the entrance to the Bay would be required.

### **Cultural Heritage Resources**

In recognition of the essentially timeless quality of "things of the past", cultural heritage resources were identified within the study area to ensure that cultural heritage concerns are incorporated into the overall planning and development process. For the purposes of this study, cultural heritage resources were categorized into three types:

- cultural heritage landscapes;
- built heritage features; and
- archaeological sites.

### **Cultural Heritage Landscapes**

Cultural landscapes are those landscapes or lands modified by humans in the course of their daily lives. Cultural landscapes, as distinct from natural landscapes, are the result of past and/or current human activity in the environment. These landscapes may be wholly man-made, as is the case of town or streetscapes, or represent significant modifications

or transformations of pristine natural landscapes as in rural, agricultural landscapes.

Nineteen Cultural Heritage Landscapes were defined within the study area including port and harbour areas, roadscape and rail lines, modified courses of rivers and creeks, large residential estates, hydro generation complexes, water treatment facilities, villages and hamlets, and shoreline cottage areas.

### **Built Heritage Resources**

Built heritage resources are defined as any man-made feature that is of historical, architectural or engineering interest and can include such features as buildings, structures, landscaping and planting. Built heritage resources include a wide array of building types from dwellings, churches, town halls, to lighthouses, railway stations and bridges. Examination of inventories of buildings of architectural and historical importance provided through either municipal Local Architectural Conservation Advisory Committee (LACAC), Heritage Division or Historic Board, resulted in the identification of twenty-four extant structural heritage sites located within the study area.

### **Archaeological Sites**

An archaeological site may be defined as any cultural features or objects on land or under water. Archaeological sites are distributed, in a variety of locational settings across the landscape, given their association with past human activities, endeavours, or events. As such they may occur on or below the modern land surface. Archaeological sites are both highly fragile and non-renewable, being subject to threat from a variety of human actions in addition to the natural processes of decay and disturbance.

Fifteen known archaeological sites have been identified within the study area to date. However, they represent a fraction of the sites

within the study area, as archaeological resources are only located through physical examination of property.

### Visual Character, Views and Landmarks

The importance of the waterfront landscape goes well beyond the initial sensory experience. Landscape character and visual resources contribute significantly to a wide range of important benefits including:

- Tourism Potential
- Natural and Cultural Heritage Interpretation
- Quality of Life
- Variety of Recreational Activities
- Economic Value

Visual resources identified within the three study area municipalities include:

**Tommy Thompson Park** provides numerous short and long distance views along paths and through vegetation and along shore as well as many views that include the bays and lagoons with wetland vegetation and waterfowl. The peninsula itself is a landmark on the lake, when seen from the mainland, the lake or the air, as is the Eastern Headlands Lighthouse.

**Ashbridge's Bay and Eastern Beaches** provide numerous opportunities, especially in Kew Gardens Park with unrestricted observation to the lake. From the water, the unit is heavily treed with the occasional high rise building breaking through the canopy along the Kingston Road ridge. Existing landmarks include Greenwood Race Track and the Ashbridge's Bay Park Lighthouse.

**Scarborough Bluffs (R.C. Harris WFP to East Point Park)** provide numerous views over the lake from along the bluff edge and the R.C. Harris WFP. Landmarks include the R.C. Harris WFP, the Guildwood Village Apartment Building and the St. Augustines Seminary Cupola.

**Port Union (East Point Park to Port Union Village)** provides no significant opportunities for long or panoramic views except from East Point Park over the lake and along the shore. The main landmark is the Highland Creek WPCP.

**Rouge River Park** provides little opportunity to view the shoreline or panoramic views of the lake. The only landmark is the railway trestle.

**Petticoat Creek to Frenchman's Bay** provides few opportunities for long and panoramic views. However, there are some views over Frenchman's Bay from neighbouring streets, while viewing opportunities over the lake exist from the shore and the barrier beach at Frenchman's Bay. The most significant landmark in this segment is the Pickering Nuclear Generating Station power house and stack.

### Cultural Linkages

Historical development patterns along the shoreline reflect cultural needs of the times. Residential development is located along the shore in most cases with minimal setback, except at the Eastern Beaches and the industrial areas in the City of Scarborough. In general, throughout the study area, the natural shoreline was respected, with little intrusion into the lake.

The perceived need for additional port industrial lands resulted in the Leslie Street Spit being initiated. As this major lakefilling project progressed, it became increasingly evident that new industrial land requirements were not as pressing as originally thought and alternative uses for the spit, including recreation, were explored in the 1970s and '80s.

The demand for additional recreation facilities in the 1960's and 1970's, resulted in the initiation of major lake filling projects beyond the natural shoreline including Tommy Thompson Park, Ashbridge's Bay Park and Bluffers Park. Originally undertaken purely as recreational projects, they have evolved into very different thematic areas. These

have become highly popular waterfront recreation destinations, yet represent a significant departure from utilizing the natural shoreline only.

The process of change is continuing with new proposed development at the former Greenwood Race Track and the former Port Union industrial lands. Both of these developments include new residential and mixed uses adding to the already significant need for public access and public recreation lands at the shoreline.

### **Relationships Between Nodes, Linkages and Gateways**

Table 3.7 summarizes the findings regarding relationships between nodes, linkages and gateways. To summarize, there exists a wide diversity of cultural activity both in terms of the existing features and the extent to which those features are utilized. These differences are not only the result of the presence or absence of human-made facilities but also the product of natural resources and barriers at the waterfront and measures taken by humans to utilize and/or overcome these.

There are a number of clear correlations which exist between the relative size/intensity of uses found at Nodes, the Gateways serving each node, and the Linkages between Nodes. Without exception major Nodes exhibiting high intensity of use, also exhibit strong linkage qualities and proximity to a major Gateway.

In contrast, there are a number of minor Nodes identified with moderate or low intensity of use which are not served by a major Gateway and do not demonstrate strong internodal linkages. Linkages and Gateways appear to contribute to the scale and intensity of use observed at various nodes. Thus, for shoreline management planning purposes, it can be assumed that improved Linkages and Gateways will likely result in increased scale and use intensity of cultural features and public spaces as these have been represented by nodes

Table 3.7 also illustrates that the greatest degree of connection between shoreline and in-land areas occurs where major nodes, highly accessible linkages and major gateways are present. Conversely, weaker connections are present between shoreline and in-land areas which do not have these strong relationships.

It is difficult and may be impossible to define the most important processes and functions related to cultural features or to determine which ones are at the beginning of a cause-effect chain and which ones at the end. After all, the subject matter relates to an ecosystem within which all components, functions, and process are interrelated.

Certainly the physical environment is very distinct from non-coastal/non-lakeshore environments and can be considered as a key factor defining the characteristics of the study area. It can therefore be used as a starting point in the discussion of ecosystem processes and functions involving cultural features.

Challenges  
and  
Opportunities  
chapter4



## 4.0 CHALLENGES AND OPPORTUNITIES

### 4.1 Ecosystem Health - Approach

In Phase I of the ISMP planning process, an approach to assessing ecosystem health was developed which included a set of ecosystem health criteria and indicators. These were developed from a review of other applications, including *East Bayfront and Port Industrial Area: Pathways* (Barrett and Kidd, 1991), *Metro Waterfront Environmental Study* (Municipality of Metropolitan Toronto, 1992b), and the principles set out in *Watershed* (Royal Commission, 1990a).

Through subsequent discussion of the Phase I document, it became clear that measuring the absolute health of the shoreline is impossible in the absence of defined health standards, and/or without another period of time with which to compare (i.e., a trend). Although it was generally agreed that the developed criteria are relevant to assessing the health of the environment, there is no simple answer to questions such as: “How many fish species or how much habitat diversity is required before the shoreline, a segment, or a specific habitat can be defined as ‘healthy’?”

Further complicating the assessment of ecosystem health is the fact that “health” is a relative term, relevant only within a specific context. For example, the number of fish species considered to constitute a “healthy” river mouth environment in an urban area may reasonably be expected to be lower than the number which constitutes a “healthy” river mouth environment in a pristine, rural area, unaffected by the pressures of urban development. In addition, the definition of “health” may change over time with the change in community values, expectations and scientific knowledge. What is considered “unhealthy” today may have been considered perfectly “healthy” some years ago.

For example, in the past it may have been considered that the presence of non-native species in a habitat had no bearing on the health of a natural area. Yet today, with changing value systems, it is considered that the

presence of non-native species (e.g., purple loosestrife), especially to the detriment of native species, represents a trend towards “unhealthy”. Only a few criteria, such as water quality, for which standards currently exist (through policies or guidelines), can absolute health be assessed.

Recognizing the difficulties in defining absolute health conditions it was concluded that:

- ecosystem health criteria are useful in identifying challenges and opportunities for future shoreline management;
- in the absence of defined ecosystem health standards the objectives for managing the shoreline are defined in the context of our vision for the future shoreline; and
- the existing ecosystem conditions are used as a starting point or benchmark against which the health of the ecosystem can be assessed in the context of changes over time (ie. through monitoring).

### 4.2 Ecosystem Health Criteria

A list of ten ecosystem health criteria was defined for application in Phase II. The list represents the combined input of the ISMP Steering Committee, the Technical Advisory Committee, the public and the study team:

## SHORELINE ECOSYSTEM HEALTH CRITERIA

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### **Habitat and Species Diversity, Rare Species**

The diversity of both habitats and species provides some indication of the health or quality of an ecosystem. Conversely, changes to the health or quality of the ecosystem may be reflected in changes to community composition, diversity and/or abundance.

In an urbanized environment, the presence of rare species can also indicate low stress levels, a sign of ecosystem health.

### **Biological Connectedness**

Spatial links between ecosystem components such as stream corridors, hedgerows, woodlots and valley lands provide opportunities for species migration and exchange of gene pools and are essential for the sustainability of a healthy ecosystem.

### **Water Quality**

Water and sediment quality is an indicator of the sustainability and therefore the health of aquatic and terrestrial communities to the extent that these are linked through the food chain with the aquatic environment. Water quality is also of great importance in the context of human use (e.g., for recreational or drinking water purposes).

### **Variety and Quality of Opportunities for Recreation Activities**

Waterfronts provide significant potential for human recreation activities. The variety and quality of these opportunities is considered an ecosystem health indicator from a human-centred point of view.

### **Accessibility**

Accessibility is essential for human enjoyment of the waterfront. The degree of access to the waterfront (i.e., between the shoreline and inland locations) and along the shoreline is an indicator of recreational opportunities and enjoyment.

### **Safety from Environmental and Coastal Hazards**

Incompatible land uses within areas with erosion, flooding or dynamic beaches or within areas of existing contamination indicate risk to human safety and property damage within the study area.

### **Variety of Water Related and Water Enhanced Economic Activities and Opportunities**

The presence of a commercial focal point with commercial activities complementary to open space/waterfront recreational use can be an indication of ecosystem health as far as existence of employment opportunities is concerned.

### **Connectedness with the Past (Cultural and Natural Heritage)**

The presence of historic features related to human activities or natural heritage provides a sense of continuity with the past. Historic links are maintained or enhanced within a healthy ecosystem.

### **Neighbourhood Integrity/Community Cohesion**

Areas characterized by disconnected uses, or areas which are characterized by overly homogenous uses may be an indication of a lack of neighbourhood integrity and community cohesion and therefore, an indication of an unbalanced or "unhealthy" socioeconomic environment.

### **Aesthetics**

An individual's perception of aesthetic quality is based on a variety of factors including landmarks, vistas, urban design, architectural form, etc. Aesthetic quality indicates ecosystem health from a human-centred point of view.

### 4.3 Ecosystem Health/ Challenges and Opportunities

#### 4.3.1 Overall Ecosystem Health

To provide a planning framework for the entire shoreline, it is considered important to understand the health of individual segments within the overall context of the ecosystem of the entire study area. These overall health aspects relate to a number of aspects of shoreline management as expressed by the ecosystem criteria listed above.

In accordance with our discussion on ecosystem approach (Section 4.1 above), the current overall health status of the plan area has been described on the basis of a number of parameters associated with the health criteria. The results are tabulated in Appendix D. The analysis does not provide a judgement on the overall absolute health of the ecosystem due to the difficulties inherent to such a definition.

In summary, it can be stated though that the characteristics associated with ecosystem health of the ecosystem vary significantly from one segment to another. For example, at the east end of the study area, the near-natural Rouge River Valley corridor represents an exceptionally "healthy" (ie. balanced) segment of the shoreline. Here, habitat and species diversity is exceptionally high and the continuous valley system provides excellent corridor functions.

At the opposite end of the study area, Tommy Thompson Park represents another relatively "healthy" or balanced segment of the study area. Here, an anthropogenic environment has resulted in an increase over pre-existing conditions in both biomass and biodiversity, which, although different in kind, rivals some aspects of other, older natural areas. The area although physically isolated from other natural inland areas, is highly accessible, as it is directly linked with the Martin Goodman Trail.

In contrast, Port Union Road represents a segment where intensive public use/access may even serve to enhance the character of the area and contribute significantly to recreation objectives for the overall shoreline,

without negatively affecting natural resources. In fact, through wise management, the intensification of the Port Union Road area could provide opportunities for the enhancement of natural features within an urbanizing context.

Ecosystem components under stress include Frenchman's Bay as a result of dense development, habitat removal, intense recreation and deteriorated water quality. The Ashbridge's Bay area also exhibits some signs of stress attributed to poor water quality and intense recreational use.

#### Ecosystem Health on a Segment Basis

The ecosystem health discussion on a segment-by-segment basis is presented in Chapter 9 together with an identification of challenges and opportunities for future shoreline management.

#### Challenges and Opportunities

In light of the ecosystem health characteristics of the individual shoreline segments (as expressed by the health related shoreline ecosystem criteria and parameters) and the public comments received through the public consultation program, challenges and opportunities focus on the following key issues:












































































- improving environmental conditions (water quality and biological systems);
- improving access to and along the shore ;
- support for economic renewal and viability;
- maintaining cultural and heritage values;
- improving decision making; and
- balancing competing objectives.

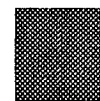
These issues represent the central set of challenges addressed by the individual strategies of this ISMP, and the key areas with opportunities for progress. While the individual strategies presented in the following chapters tend to provide management measures on a general level,

Chapter 9 presents segment-specific recommendations on how to address challenges and opportunities within individual segments. Chapter 10 provides the necessary catalogue of implementation mechanisms.

**TABLE 3.7  
NODES, LINKAGES AND GATEWAYS**

**METROPOLITAN TORONTO AND REGION CONSERVATION AUTHORITY  
INTEGRATED SHORELINE MANAGEMENT PLAN**

INTEGRATED SHORELINE MANAGEMENT PLAN	TORONTO										SCARBOROUGH										PICKERING						
	TOMMY THOMPSON PARK	OUTER HARBOUR MARINA	MAIN WPCP	ASHBRIDGE'S BAY PARK	GREENWOOD RACE TRACK	EASTERN BEACHES	R. C. HARRIS WFP	TORONTO HUNT CLUB	HARRISON PROPERTY	ROSETTA McCLAIN GARDENS	FISHLAIGH DRIVE PUMPING STATION	BLUFFERS PARK/MARINA	CUDIA PARK	BELLAMY RAVINE/SYLVAN PARK	SOUTH MARINE PARK	GUILDWOOD PARK	GREY ABBEY PARK	F. J. HORGAN WFP	EAST POINT PARK	HIGHLAND CREEK WPCP	HIGHLAND CREEK PARK	PORT UNION	ROUGH BEACH PARK	PETTICOAT CREEK PARK	FRENCHMAN'S BAY		
LOCATION	T-1	T-2	T-3	T-4	T-5	T-6	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12	S-13	S-14	S-15	S-16	S-17	P-1	P-2		
<b>CRITERIA</b>																											
<b>CRITERIA NODES:</b>	<b>INTENSITY OF USE:</b>																										
MAJOR - 	HIGH - 																										
MINOR - 	MEDIUM - 																										
	LOW - 																										
<b>LINKAGES: ACCESS ALONG WATER'S EDGE</b>																											
HIGHLY ACCESSIBLE TRAIL - 																											
INCREMENTAL (PHYSICALLY POSSIBLE) - 																											
DIFFICULT (TERRAIN AND OWNERSHIP LIMITATIONS) -																											
<b>GATEWAYS:</b>																											
MAJOR - 																											
<b>STUDY AREA SEGMENTS</b> (related to cultural features and land uses)																											
<b>ACCESS FROM LAND TO SHORELINE:</b>																											



The Shoreline of  
the **Future**

Shoreline  
Management  
Our Vision and  
Planning Principles  
chapter5

## 5.0 SHORELINE MANAGEMENT: OUR VISION AND PLANNING PRINCIPLES

This ISMP builds on the vision sketched out by the WRT in its *Lake Ontario Greenway Strategy* for the shoreline between Burlington Bay and the Trent River (WRT, 1995), in that it sharpens the *Greenway Strategy's* vision for the portion of the lakeshore between Tommy Thompson Park and Frenchman's Bay. It also works towards the nine *Waterfront Principles* followed by the *Greenway Strategy*. In this regard, it details wherever possible the road map towards a waterfront that is "clean, green, accessible, connected, open, useable, diverse and attractive".

### 5.1 Our Vision for the ISMP Study Area

The vision for the shoreline between Tommy Thompson Park and Frenchman's Bay was developed by the ISMP Steering Committee with input from the Technical Advisory Committee, the public and the study team consultants. It is presented in the front of this report and draws a long-term objective for future shoreline management of the plan area. The vision served as a basis for the establishment of clear management principles which are discussed below. The planning principles, in turn, have been adopted by the various shoreline management strategies and translated into tangible management objectives (refer to Chapters 6.0 through 9.0).

### 5.2 Overall Management Objectives

The management objectives provide a clear direction for future management of the shoreline. They have been developed on the basis of the vision for the shoreline, and include policy objectives formulated by the various municipal plans established within the Plan area.

In working towards our vision for the future of the shoreline between Tommy Thompson Park and Frenchman's Bay, the overall management objectives are intended to:

- provide for a diversity of natural habitat types capable of supporting and sustaining a diverse population of birds, terrestrial and aquatic species;
- provide for a system of natural areas, consisting of natural core areas interconnected by local natural corridors and linked to regional corridors within the broader urban and rural landscape;
- support and be supported by vibrant, stable neighbourhoods with a diverse social, cultural and economic life;
- provide for water of sufficient quality to provide a safe water supply, and to support a diverse and sustainable system of natural features and human activities (including swimming and other water-based activities);
- provide for a variety of passive and active water-related or waterfront-enhanced recreation opportunities;
- provide a system of continuous pedestrian access from Tommy Thompson Park to Frenchman's Bay at or near the water's edge which physically connects waterfront users to the regional transportation system and the waterfront, while enhancing the social and economic well-being of the local community;
- provide a system of preventative measures which prevent exposure of any person or land use to hazards or risks originating from natural processes such as flooding or erosion, or to sources of soil/groundwater contamination;
- recognize the existence and importance of economic activities and provide opportunities for further development of suitable



economic activities along the shoreline, which are consistent with objectives for natural and social conservation and complementary to other waterfront activities;

- provide waterfront users access to, and opportunities for experiencing and appreciating the rich cultural and natural heritage of the shoreline;
- provide waterfront users access to the high quality vistas along the shoreline and provide design standards for urban, recreational and natural heritage development which maintain a high standard for the future.

Therefore, it is important to note that prior to making changes to any one strategy, the implications to other strategies must be fully understood and that appropriate adjustments be made, if necessary.

### 5.3 Shoreline Management Strategies

To make the vision come true and to achieve the individual goals and objectives of the ISMP, three individual management strategies have been developed:

- Shoreline Regeneration and Public Safety Strategy;
- Natural Heritage Strategy; and
- Public Use Strategy.

The vision statement and the overall shoreline management objectives are translated into detailed strategy objectives presented at the beginning of each of the strategy chapters contained within this report (i.e., Chapters 6 through 8).

Although discussed separately in the following chapters, these strategies have been developed in close consultation between the various disciplines involved to facilitate the integration and maximizing of synergies. The result is a set of integrated strategies that are not only compatible but complementary.

Shoreline  
Regeneration  
and Public Safety  
Strategy

chapter 6

## 6.0 SHORELINE REGENERATION AND PUBLIC SAFETY STRATEGY

### 6.1 Shoreline Regeneration Objectives

Consistent with the WRT's *Greenway Strategy*, our vision and goals for the future of the ISMP study area, this Shoreline Regeneration and Public Safety Strategy has established the following objectives:

- to protect and restore water and sediment qualities;
- to protect and restore natural shoreline structures and processes; and
- to prevent exposure of any person or land use to hazards or risks originating from natural processes such as flooding or erosion (i.e., to ensure public safety).

A fundamental value of this Strategy is that shoreline regeneration and public safety cannot be seen in isolation. Instead, the Strategy needs to be developed by balancing requirements related to natural heritage, recreation (public use), economics, and private landownership. In this regard, protection and enhancement of natural shoreline features and their enjoyment through recreational uses is encouraged. The Strategy recognizes that public safety and shoreline regeneration on the one side and natural heritage conservation and public use on the other side can successfully co-exist with effective management and the application of multi-functional shoreline regeneration techniques. This balanced approach aims at achieving the nine principles identified within *Regeneration* (Royal Commission 1992), namely *Clean, Green, Accessible, Usable, Diverse, Affordable, Attractive, Open and Connected*.

The public safety-related strategy aims at, in particular, directing new development to areas outside of hazardous lands (i.e., those lands which are prone to flooding, erosion, and/or dynamic beach hazards). For existing uses, the strategy intends to identify current or to potential

future hazards and to provide mechanisms for management including, relocation of uses, shoreline regeneration, and monitoring.

Strategy recommendations related to the individual objectives are discussed in the following sections.

### 6.2 Protection and Restoration of Water and Sediment Quality

Borrowing from the Metro Toronto and Region Remedial Action Plan (RAP), an important goal for the Shoreline Regeneration and Public Safety Strategy must be to provide "fishable, swimmable, drinkable and aesthetically pleasing water". It must be recognized that restoring degraded water quality in the nearshore zone, however, requires action at a much larger scale. This is because the shoreline receives contamination from local tributaries, sewer outfalls, and WPCPs all draining upstream areas much larger than the study area. Indeed, the background water quality in the lake which influences nearshore quality is a function of all lake inputs, including the Niagara River inflows and atmospheric deposition.

It follows that the Shoreline Regeneration and Public Safety Strategy must support all initiatives which will significantly improve water and sediment quality at both a local and lake-wide scale.

Although a number of initiatives have been implemented by various government agencies and organizations over the last few years, those provided below are particularly deserving of broad support within this Strategy.

- **Metro Toronto and Region Remedial Action Plan (RAP):** an ecosystem-based approach designed to identify problems and select and implement remedial options. The RAP goals form the basis for RAP action. The RAP process still needs to achieve several levels of approval prior to remedial actions being implemented. Stage 2 of the process has been completed and is

awaiting provincial and federal response/ approval. The WRT and MTRCA are in the process of assuming a lead and implementation role, respectively.

- **Lake Ontario Toxins Management Plan (LOTMP) and Lakewide Management Plan (LaMP):** the LOTMP is to provide safe drinking water and ensure fish are safe for unlimited consumption. A number of priority persistent toxic substances have been identified which will form the basis for a broader ecosystem-based LaMP.
- **Municipal/Industrial Strategy for Abatement (MISA):** the MISA program is designed to reduce the flow of toxic contaminants into Ontario waters by setting effluent standards for industrial and municipal dischargers to receiving waters.
- **Watershed Planning Process:** the MTRCA has begun implementation of the “40 Steps to a New Don” watershed plan. A Comprehensive Basin Management Strategy has also been prepared for the Rouge River watershed. Similar initiatives should be undertaken for the other watercourses discharging into the study area, particularly the Frenchman’s Bay drainage area.
- **Sewer Separation and Source Detection Programs:** the elimination of combined sewer overflows and the remediation of storm water runoff are critical to the restoration of water and sediment quality in the nearshore areas. Particular attention should be given to the removal of the remaining combined sewers which discharge effluent into Lake Ontario at outlet points along the Eastern Beaches and at Coatsworth Cut (Ashbridge’s Bay).
- **Water Pollution Control Plant (WPCP) Improvements:** Metropolitan Toronto currently operates four WPCPs to treat human wastes and some industrial and other wastes, particularly biochemical oxygen demand, phosphorus, and bacteria. To improve treatment efficiency and effectiveness of its four WPCPs,

Metropolitan Toronto is working to upgrade treatment processes on a continuous basis. To this end, the Main WPCP is currently the subject of an Environmental Assessment to establish a preferred site(s) and method(s) to meet the sewage treatment needs in its service area to the year 2011. These “end of pipe” actions are encouraged.

Other shoreline management strategies proposed for the protection and restoration of physical shoreline features and habitats (discussed in later sections) will also provide for water and sediment quality improvements by minimizing erosion losses through shoreline stabilization and renaturalization.

### 6.3 Protection and Restoration of Natural Shoreline Features and Processes

#### 6.3.1 Overview

Since the arrival of early European settlers in the late 18th century, the study area shoreline has undergone many substantial changes. Not all of the changes are recent or readily evident along the shore, such as construction of a pier or a waterfront park. Much more subtle changes were likely caused by a practice called *stonehooking*. Although this practice was known and identified in the past, its significance to coastal processes and shoreline development was not fully appreciated. As part of the work undertaken in support of *Regeneration* (Royal Commission, 1992), the quantities of stone and gravel extracted from the shores were quantified (*Symmes, 1993*). Records provided by the Toronto Harbour Commission indicate that approximately 1,850,000 m<sup>3</sup> of stone and gravel were removed from the shore for construction and development purposes in Toronto between 1830 and 1930. Although details of locations where material was removed are lacking, there was a reported concentration of activity in Port Credit and along the Scarborough Bluffs. Materials removed from the beach out to

depths of 4 m ranged from gravel to boulders (Walker, 1973), with boulders of 450 mm to 600 mm preferred by trades (Symmes, 1993).

Although impossible to quantify with measured accuracy, there is no doubt that the practice has substantially altered the coastal processes along the Scarborough Bluffs shoreline. Although undergoing erosional processes prior to commencement of this practice, the bluffs were substantially more stable. A quick examination of profiles along the Scarborough Bluffs to a depth of 5 m below datum using recent field sheets supports this hypothesis (Canadian Hydrographic Service, 1993). This review suggests that over half of the shoreline consists of convex profiles, which are generally associated with self “protecting” nearshore shelves formed by cobbles and boulders from eroded material. These profiles exist despite the 60 to 160 years of potential downcutting during and since the recorded stonehooking practice.

Experimental restoration of this type of nearshore armouring is considered one of the key elements of the regeneration strategy. Not only will it lead to greater stability over the long term, it is likely to restore and benefit some of the open coast habitat features that, in the past, supported native fish species.

Historically, the littoral transport along the Scarborough Bluffs has been limited by supply. In this regard, the potential ability of waves to move material has exceeded the quantity of sediment available from erosion. If stonehooking altered the shoreline as described above, it then follows those sediment supply rates, just prior to European settlement, were below those calculated on the basis of more recent erosion rates. Therefore, reduced sediment supply now being experienced due to recent implementation of protection works and construction of Bluffers Park should not be viewed only in comparison to the recent supply rates, but also with the view that historical rates were likely lower. It is not clear whether further reduction of sediment supply will lead to an increase or reduction of erosion (Reinders, 1985).

It is likely that nearshore armouring played a much more important role in the stability of the shoreline than sand transport. Since the sand transport no longer reaches its original “destination” due to Tommy Thompson Park, its primary importance in the physical coastal regime of the study area is to the supply of Eastern Beaches. Within the context of maintaining Eastern Beaches at their present state, “recycling” of sand sediment may need to be considered.

Further details on segment-specific recommendations are discussed in Section 6.5.

### 6.3.2 Protection Techniques

Although standard techniques of shoreline protection are well documented, standard techniques such as basic revetments and seawall fall short of the objectives of the Shoreline Regeneration and Public Safety Strategy due to their single purpose approach of achieving stabilization over the design life of the structure at the least possible cost. They do not address any of the nine principles of *Regeneration*.

A discussion of various methods of shore stabilization specifically considered for the north shore of Lake Ontario was prepared for the WRT and entitled *The Shoreline Treatment and Construction Methods* (Shoreplan & Beak, 1994). A summary of the range of options is presented herein, and the reader is referred to that document for a more detailed discussion.

Seawalls and revetment can be utilized in areas of open coast, where site conditions or other constraints make alternative methods unviable. In such cases, consideration must be given to reduction of the slope of the revetment, which allows the use of smaller materials, or the use of stepped structures, which may provide better access to the waterline. Habitat enhancement features should be incorporated into these structures, such as cobble and boulder berms at the toe or reef structures. Where these structures must be utilized, consideration must be given to opportunities to provide diversity by introducing other

protection measures, such as small embayments or low-crested structures allowing overtopping. The spacial location of the structure should also be carefully assessed, retaining as much of an existing beach as possible.

Structures that create beach-type shorelines provide much better opportunity for shoreline regeneration. Beach-type shorelines include not only sandy beaches, but also cobble and boulder shores found along many sections of Lake Ontario. These types of shores are very dependent on the wave energy, both direction and magnitude, and often require some “hard” structures to stabilize the beach segments such as groynes, offshore headlands or breakwaters, for example. These structures can take many forms and sizes, and can include either shore connected or completely detached structures. Many opportunities exist to create fish habitat features and to provide connections between terrestrial and aquatic habitats.

Nearshore armouring, which is the placement of boulder size material on an existing lake bottom, is a seldom used method. Although this method alone is not likely to stabilize a shoreline, it can play an important part in enhancement of long-term stability and in reduction of erosion rates along cohesive shores. This treatment also presents an excellent opportunity to enhance fish habitat through variation of relief and incorporation of various features.

Structural protection of existing sandy shores should be considered only as a last resort for an existing development. In such instances, the plans must be carefully considered and designed to ensure their stability and mitigation of impacts.

Bio-engineering methods are not considered suitable for the open coast shoreline, unless incorporated as part of an intricate protection system. However, they are suitable and recommended for the sheltered reaches of the shoreline, such as the west shore of Tommy Thompson Park or Frenchman’s Bay. These methods include “live” cribs or cobble pavements with submergent or emergent vegetation.

Further details on segment-specific recommendations are discussed in Section 6.5.

## **6.4 Protection of Public Health and Safety**

### **6.4.1 Policy Areas**

As defined at the outset one of this strategy’s objectives is to prevent exposure of any person or land use to hazards or risks originating from natural processes such as flooding, erosion or dynamic beach hazards.

To ensure public safety in light of these potential hazards, the *Comprehensive Set of Policy Statements* issued under the *Planning Act* (Bill 163) included three regulatory standards, namely: the Regulatory Erosion Standard, Regulatory Flood Standard and Dynamic Beach Standard. With the proclamation of the new *Planning Act* (Bill 20) and its accompanying *Provincial Policy Statement* in May 1996, the *Comprehensive Set of Policy Statements* and with it the policies, definitions and associated implementation guidelines are no longer provincially binding. However, in the absence of new definitions and implementation guidelines, this report continues to use the Regulatory Shoreline Standard and Protection Works Standard as defined in the *Comprehensive Set of Policy Statements* and its accompanying *Implementation Guidelines* in developing management recommendations for shoreline regeneration and public safety. The definitions and schematics for these standards were provided in the *Phase I Interim Report* and are summarized in the following paragraphs.

The *Comprehensive Set of Policy Statements* uses Regulatory Shoreline Standards to identify areas of potential hazards along the shoreline and to control the development in areas of hazard. The Regulatory Shoreline is defined as the landward most extent of the three possible Regulatory Shoreline Standards. The Regulatory Shoreline Standards are identified as Regulatory Flood Standard, Regulatory Erosion

Standard and the Dynamic Beach Standard. Brief descriptions of the standards are provided below. Schematics describing these standards are shown in Figures 5.7 to 5.10 presented in the *Phase I Interim Report*. For further details, readers are referred to the aforementioned *Comprehensive Set of Policy Statements* and associated *Implementation Guidelines* as proclaimed under Bill 163 (1994).

The 100 year flood level for the study area is 75.7 m (GSC). It is an instantaneous water level with a return period of 100 years, combining still lake level and storm set up (OMNR, 1989).

The Allowance for Wave Uprush and Other Related Hazards is proposed to be 15 m, unless site-specific studies establish otherwise. Although preliminary estimates of actual run-up elevations for the designated reaches have been calculated for the reaches designated within the study area, these are based on assumed or approximated profiles and should not be considered to meet requirements of the *Comprehensive Set of Policy Statements*. The use of the default 15 m allowance should be continued, unless detailed, site-specific study is completed to provide a more accurate estimate.

The Erosion standard combines a stable slope allowance and erosion allowance. The default value for the stable slope allowance is 3:1 (H:V). The erosion allowance default is 0.3 m annual erosion rate applied over a planning period of 100 years. The *Implementation Guidelines* suggest that erosion data must be gathered over a period of 35 years in order to be used to calculate the erosion allowance. The Regulatory Dynamic Beach Standard applies in areas of sand and gravel deposits. The *Implementation Guidelines* propose three general criteria for identification of these areas:

- beach and dune deposits extent landward of the waterline;
- beach or dune deposits overlying bedrock or cohesive materials are equal to or greater than 0.3 m in thickness, 10 m in width or 100 m in length along the shoreline, or

- where the maximum fetch distance measured over an arc extending 60° on either side of a line perpendicular to the shoreline is greater than 5 km.

In addition to the three Regulatory Standards, the *Implementation Guidelines* also identify Floodproofing and Protection Works Standards. Detailed discussions of these two standards are not provided herein, and the reader is referred to the *Implementation Guidelines*. The protection works standards were identified for reaches where protection works presently exist, so that the erosion standard could be adjusted for the level of protection offered by the structures.

The Regulatory Shoreline designations calculated for the study areas on a reach by reach basis were presented in the *Phase I Interim Report*.

The *Comprehensive Set of Policy Statements* states that no development will be permitted within (as applicable to study area only):

- the regulatory dynamic beach standard;
- the regulatory shoreline where the area is to be used for institutional uses or essential emergency services or for disposal, manufacture, treatment or storage of hazardous substances and/or sewage;

and that development may be permitted in areas within the regulatory flood standard and regulatory erosion standard, where:

- the flooding and erosion standards can be safely addressed;
- new or existing hazards are not created or aggravated;
- no adverse impact will result;

- vehicles and people have a way of safely entering and exiting the area during times of flooding and erosion emergencies; and
- development is carried out in accordance with established standards and procedures.

These Regulatory Standards were defined for reaches identified in Phase I and summarized in Table 5.8 of the *Phase I Interim Report*. In Phase II, these standards were hand plotted on 1:2,000 scale maps to produce a linear line which was then transferred to digital maps produced by MTRCA staff. The purpose in identifying this line on the map was to provide a general understanding of the extent of the Regulatory Shoreline, for planning purposes. A more detailed study is required to provide an accurate line necessary to ensure management of the shoreline on a property-by-property basis.

The exact position of the Regulatory Shoreline can be determined on a case-by-case basis, using the erosion rates, stable slopes or uprush elevations provided in Phase I of the study for each reach. This should then be combined with the specific site elevation data and the Regulatory Shoreline determined. It should be noted that the position of the Regulatory Shoreline determined in this fashion may differ from the plotted on maps during the study, since backshore elevations within a given reach may vary. Because of the great height of the bluffs, variation of as much as 40 m can exist within a single reach. At the default slope of 3:1 (H:V), the Regulatory Erosion Standard can vary by as much as 120 m. An attempt was made to minimize this variation by calculating Regulatory Erosion setbacks for both limits in areas where a large vertical difference exists; however, this is not sufficient to accurately delineate this line along the entire reach.

#### 6.4.2 Planning and Design Principles/Definition of Protection Works Standard

The *Comprehensive Set of Policy Statements* define the Protection Works Standard as an installation of protection works coupled with an allowance for a stable slope and an allowance for flood or erosion. The

allowance for flood or erosion shall be determined preferably through a site-specific study. Where a site-specific study is not carried out, a default value of 30 m shall be applied. As for all studies defined in the policy, “accepted scientific and engineering principles shall be applied”.

Within the study area, the stability and performance of existing protection works was classified into several categories and this information was incorporated into Table 5.8 of the *Phase I Interim Report*. This categorization of the longevity and performance of the structures should be considered as a very preliminary assessment, completed within the scope and limitation of this study. A more detailed assessment of individual structures or protection systems should be carried out as part of the ongoing monitoring program. It is recognized that the initial assessment is, at best, based only on a limited site review, general knowledge of the design process used, construction method and present age of the structures in case of protection works completed by the Conservation Authority over the past 17 years. In case of other structures, the assessment is based only on casual periodic observations and limited site review during this study.

The monitoring program outlined in Section 6.4.4 provides details regarding the frequency, the type and format of information to be collected to assist with the assessment of the Protection Works Standard. The key to proper assessment of Protection Works Standard is the availability of accurate information over an extended period of time.

#### 6.4.3 Properties Desirable for Public Ownership

The listing of properties desirable for public ownership covers only the public safety aspect of ownership. Other properties may be desirable for public ownership for reasons other than public safety (i.e., public access, provision of green/open space, etc.). These are included in Table 10.3 of Chapter 10.



From a public safety perspective, properties desirable for public ownership are those that should remain without structural protection to enhance the health of the ecosystem and are located within the Regulatory Shoreline. This approach is consistent with the Conservation Authority's approach to date.

Starting at the west end of the study area, there are no such properties within Segments 1, 2 and 3. Within Segment 4, property or properties located immediately west of Bluffers Park should be acquired when erosion of the bluff in the unprotected Reach 62 - The Needles reaches a critical state. There may be other individual properties within this segment along the protected portions of the bluffs, where self stabilization of the bluff may encroach upon existing dwelling(s), rendering them a safety hazard. The same approach should be applied to properties along the protected shoreline within Segment 6. Any remaining private properties between Victoria Park Avenue and East Point that are not in public ownership should be purchased to ensure that a natural shoreline can be maintained in this segment.

Any remaining private properties south of the railway track in the Chesterton Shores area of Segment 9 should also be acquired for reasons noted above.

The shore and barrier beach of Frenchman's Bay along Beachpoint Promenade to the harbour entrance should be publicly owned in its entirety. This is the only way that a fully functioning dune system can be developed along the bar.

#### **6.4.4 Monitoring Requirements**

It is recommended that a monitoring program be established to assist with further refinement of the Regulatory Erosion Standard and the Protection Works Standard. Specific monitoring recommendations are made for each shoreline segment and are presented in the following section.

## **6.5 Summary of Recommendations and Priorities**

This section summarizes recommendations related to shoreline regeneration and public safety on a segment by segment basis. Where possible, priorities have been identified and defined. The recommendations have also been summarized in table format and presented in Tables 6.1 and 6.2. References to shoreline reaches are made by name and number. The reader is referred to Map 5-4 in the *Phase I Interim Report* for the location of these reaches.

### **Segment 1**

Segment 1 contains two distinctive shore types with respect to shoreline exposure to wave activity. The south and the east shore are exposed to major wave activity. The west shore and the shores of the inner embayments are exposed to minor wave activity, comprised of highly refracted waves or locally generated waves. There are no formal protection structures along this segment of the shoreline. Formalizing of shore protection is not considered to be a high priority; however, monitoring of the south and east shores should be considered a high priority (see below).

The west and the inner shores can be stabilized, where required, using bio-engineering approaches, such as "live cribs" and thereby allowing for the introduction and enhancement of aquatic and terrestrial habitat. The south and the east shore treatments should be developed only after monitoring provides sufficient information to allow the assessment of the existing informal works. We suggest that monitoring should be undertaken over a period of at least 10 years. The objective of the monitoring would be to maximize the use of the existing informal protection along the lower parts of the underwater slopes and provide more formalized protection along the upper parts of the slope, where required. This approach can produce substantial savings, considering that the water depth at the end of the spit is approximately 15 m.

Monitoring:

The primary purpose of the monitoring should be to determine the development of the self armoring profile on the exposed shores of Tommy Thompson Park (south and east). The monitoring program should include collection of profiles, both for the headlands and rubble beaches in between the headlands and sampling of material sizes along the profiles. An accurate record of placement of any additional material must be kept, including both quantity and quality (size, type of material) as well as dates of placement. This information can be used to better determine any future need for formal protection, if any.

Sheltered west shore and inner embayments should be monitored on an annual basis. Photographic records of any areas of concern should be kept.

Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

**Segment 2**

This segment provides an opportunity for shore enhancement that would resolve a number of issues. Previously completed assessment of lakefilling and shore protection at the Main WPCP (Philpott, 1991) outlines alternatives for creation of lands, wetlands and waterfront access between Ashbridge's Bay and Tommy Thompson Park. The additional benefit of this proposal is to minimize the long-term dredging requirements for the Ashbridge's Bay and marina entrance.

Monitoring:

The monitoring within this segment should concentrate on annual reviews of the protection works constructed/located at the Ashbridge's Bay Park headland. The review should be conducted in the spring so

that sufficient time is available to complete repairs before the stormy periods in the fall. The review should be conducted both from land and from water and a photographic record made to allow for a qualitative form of comparison. Priority is considered moderate, except for known problem areas, which should be considered a high priority.

Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

**Segment 3**

Segment 3 contains sand and gravel beach shores, except for a section of hardened shore near the Leuty lifeguard station. No structural works are recommended west of this hardened section. There are no structural works recommended east of the Leuty lifeguard station either, however, the long-term stability of this section, in light of the declining sediment supply, is uncertain. Possible options for increasing the beach stability include the enlargement of the hardened area (i.e., extension of the hardened area at the lifeguard station in the offshore direction) and/or construction of additional headlands/groynes in the east end of the segment near the R.C. Harris WFP or "recycling" of sand from the deposits on the east side of Tommy Thompson Park. No action should be taken, until more profile data are collected in the eastern half of this segment.

Monitoring:

The primary purpose of monitoring within this segment is to determine the stability of the beach profiles. Although the entire segment should be monitored, it is of utmost importance to monitor the eastern half of the segment (east of Leuty lifeguard station). Despite a number of detailed studies in the area, it is our opinion that the sediment transport processes along this part of the beach are not fully understood. The monitoring should include profile measurements to a depth of not less

than 6 metres below datum and collection of materials along the profile for gradation analysis.

#### Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

#### **Segment 4**

The shoreline is protected with groyne systems or revetments. Reaches 63 (Fishleigh Drive) and 64 (Rossetta McClain Memorial Gardens) are formal armour stone revetment. Reaches 64 and 65 are informal concrete rubble revetments.

Improvements are recommended in the areas of the groyne systems. Given the low sediment transport and the gradation of sediment, the groyne systems, on balance, appear to be starved for sediment. Given the length of the groynes and wave climate exposure, the groyne systems are well suited to retain coarse gravel to cobble size materials. The actual sizes of materials most suitable must be determined following completion of a site-specific study. Placement of additional gravel and cobble material would substantially increase the level of protection offered by the groyne systems and provide a better opportunity for shore access. The described beach modifications are considered to be a high priority, since some multiple benefits will be derived, including a higher level of protection, better shore access and additional experience with a more natural shore protection system.

In addition to the proposed groyne systems improvements, it is recommended that placement of boulder size material in the nearshore zone to create a boulder pavement be undertaken on an experimental basis. Boulders ranging in size from 200 mm to 600 mm are likely most suitable, based on site observations. Boulders should be placed in clusters or patches, the optimum size of which remains to be determined. Site observations during this study suggest that even areas

as small as 500 m<sup>2</sup> within the 5 m depth (approximate elevation of 70.0 m) have notable impact on the conditions along the shoreline. The boulder pavement improvements are considered to be a high priority to allow monitoring and provide information to assess the benefits in a more qualitative manner. The boulder pavement may provide additional benefits, such as an enhanced fish habitat. Although it is intended to provide a relatively thin layer of boulders, it is possible to provide additional relief. To this end, the boulders must not be placed so as to create a navigational hazard. The proposed boulder pavement would attempt to restore near shore conditions which very likely existed in the area in the early 1800s.

The existing rubble revetments are effective in providing protection of the shoreline with some maintenance. Upgrading these structure to more formal structures, which would incorporate habitat features and be generally more in line with the nine principles outlined earlier is recommended. This is considered to be a low to moderate priority.

#### Monitoring:

The monitoring program should concentrate on collection of data to assess the performance of the groyne system and the structural integrity of the revetments and groyne structures. Detailed monitoring of these areas is considered important, since residential development is located well within the Regulatory Shoreline and in some cases in close proximity to the crest bluffs. The monitoring of a revetment should be completed both from the land and from the water and a photographic record of the structures made. A baseline should be established along the revetment and temporarily transferred to the face of the revetment for the inspection. This “formal” monitoring is suggested to take place every three to five years, with more casual reviews recommended on an annual basis. Should the annual reviews identify any deficiencies or problem areas, more frequent and detailed monitoring of affected areas is recommended. The same monitoring program should be applied to the groyne structures within this segment.

Monitoring of nearshore profiles within this segment is also recommended. Profiles should be established in front of the revetment structures to a depth of approximately 5 m below datum. In the groyne field areas, the monitoring of the profile should include profiles to a depth of approximately 6 m below datum (same as proposed for the revetment shores) and, in addition to more detailed monitoring of the beach profile and plan shape within the groynes. Although ideally a number of cells would be monitored in this detailed fashion, it is suggested that selecting one cell within each of the two groyne fields within this segment is acceptable. Cells at the mid-point of the fields may be most appropriate. Special attention should be paid to the nearshore lowering at the head of the groynes. The survey should also collect information on the spacial distribution of various material sizes within the cells.

Locating and monitoring of cobble and boulder pavement patches should be undertaken in this area. This information can be used in assessing the impact of a boulder pavement on shoreline stability and value of these features as fish habitat. This monitoring is likely to be best achieved by new methods, such as differential Global Positioning System (GPS) in combination with scanning devices capable of distinguishing bottom material.

#### Property Acquisition:

From a public safety perspective, properties located immediately west of Bluffers Park should be acquired once erosion of the bluff in unprotected Reach 62 - The Needles reaches a critical state. There may be other individual properties within this segment along the protected portions of the bluffs, where self stabilization of the bluff may reach too close to existing dwelling(s). In such instances, these properties should be acquired.

#### **Segment 5**

No new structural works are recommended at this time.

#### Monitoring:

Monitoring should be similar to that proposed for Segment 2, particularly the Ashbridge's Bay Park headland.

#### Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

#### **Segment 6**

There are similarities between this segment and Segment 4. Four types of shoreline conditions exist in this segment, including natural shore (Reach 38), an armour stone revetment, rubble protected shore (Reach 33, Guild Inn) and a naturalized armoured shore (Sylvan Drive). Although protected with an armour stone revetment, Reach 37 (Bellamy Ravine) is said to be temporary protection (D. Parkinson, pers. comm.).

Completion of the protection works between the Guild Inn (west side) and the Bellamy Ravine is considered to be a high priority. These protection works are about to be completed. As a low priority, future modifications that would lead to water line access improvements and habitat creation may be considered.

The shoreline of Reach 38, Meadowcliff Drive, should remain in a natural state. This shoreline represents one of the few unprotected and natural shores of the bluff. However, it is recommended that near-shore armouring using a boulder pavement be considered on an experimental basis. This will likely restore the conditions of the shore prior to the 1800s, improve informal access along the shore and reduce the rate of erosion along this shore and improve fish habitat. The change to the shoreline would be a very gradual one and would not eliminate erosion. Existing area of boulder pavement was observed in the central part of this reach, where a small headland appears to be

developing. Enhancement of this boulder pavement and other areas is suggested. The boulder pavement should not extend into the sand beach area on the east side of Bluffers Park.

The shore of the Guild Inn is protected with rubble. Over the years, this rubble has been broken down and small pockets of coarse gravel beach have formed among the rubble. Although relatively stable, the shore is unsightly and the exposed rubble and reinforcing steel may be considered a safety hazard to the general public. More formal treatment of the shore is recommended. In order to introduce better access to the water and to break up the long stretch of revetment, the use of cobble beaches stabilized with headlands or groynes is proposed for this reach. This shoreline treatment is consistent with previous recommendations for this segment (Reinders, 1981).

Completion of the revetment to Morningside Avenue is proposed. This is required in order to maintain residences at the top of the bluff and the road (Guildwood Parkway) connection to Morningside Avenue. Although plans for a revetment structure exist, it is recommended that these be modified to provide a more gradual transition and increase habitat function.

Monitoring:

This segment should be monitored in a manner similar to that described for the revetment works in Segment 4. This includes both monitoring of the structures and nearshore profiles. Profiles in front of the revetments and in front of unprotected shores should be monitored, as well as all cobble/boulder pavement patches. This will provide valuable information regarding the effect of wave reflection on down cutting of the nearshore profile.

Property Acquisition:

From a public safety perspective any remaining private properties between Morningside Avenue and East Point that are not in public

ownership should be purchased to ensure that a natural shoreline can be maintained in this sector.

**Segment 7**

Segment 7 represents the longest unprotected shoreline along the Scarborough Bluffs. No structural works are proposed for this segment for shoreline regeneration purposes (i.e., the shoreline should remain in a natural state). There has been a consideration of a boating facility within this segment for a number of years. Although not necessary from a shore protection point of view, it is worth noting that such structures can be placed in a manner that would not have a significant impact on sediment transport (i.e., located at the diverging point of littoral transport).

Monitoring:

This segment is substantially unprotected and monitoring of the nearshore profile is suggested. However, the erosion rate in the area is relatively low and only long-term and accurate monitoring is likely to provide any meaningful information.

Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

**Segment 8**

This segment contains a natural beach accreted at the mouth of Highland Creek. No structural protection works are proposed and the beach is to remain in its present state. A waterfront trail may be accommodated along the back side of the beach, as close to the railway embankment as practical without affecting the dynamic nature of this important shore feature.

Monitoring:

This segment is substantially unprotected and monitoring of the nearshore profile is suggested. However, the erosion rate in the area is relatively low and only long-term and accurate monitoring is likely to provide any meaningful information.

Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

**Segment 9**

This segment has been identified as a possible site for shoreline modifications. Works under consideration include a headland and a pier at the foot of Port Union Road, a boating facility at Chesterton Shores, lakefill associated with headland/bay shore protection to accommodate waterfront trail development and recreational opportunity associated with the proposed Port Union Village Common.

Modifications of the shore provide two benefits. First, the existing shore, which is for the most part protected with an armour stone revetment, may be altered to a state which is more compatible with natural shore processes and habitat enhancement. Second, as part of this modification, a waterfront trail can be incorporated along the south side of the railway embankment, providing recreational opportunities to the public.

The proposed shore modifications include the construction of a cobble beach stabilized with a series of off-shore headlands or groynes. Small sections of the shore may use other methods, such as revetments, to accommodate local conditions. Although subject to final design, such shoreline treatment is feasible along an open coast. Particular attention will need to be focused on the transition to the two existing beaches at

both ends of this segment, namely the existing beaches at Highland Creek and at the Rouge River.

Although a boat launching facility can be located within the middle third of this segment, the facility should not extend beyond the -3.5 m contour (or about 300 m offshore). An area just west of Lawrence Avenue is an ideal candidate for this development, as the offshore profile drops more rapidly, allowing for the safe passage of boats.

A pier at the foot of Port Union Road has been determined to have no effect on regional coastal processes, as it is anticipated that the structure would be supported by piles and allow for wave and sediment movement or remain within the parameters outlined above for the launching facility.

Monitoring:

Monitoring of the nearshore profile within this segment should be undertaken to provide baseline information regarding nearshore strata in this area considered for potential development. The monitoring should also include collection of information on bottom materials and boulder pavement locations.

Property Acquisition:

From a public safety perspective, any remaining private properties south of the railway track in the Chesterton Shores area of this segment should be acquired.

### Segment 10

Maintenance of a natural beach in this area is recommended. Reinforcement of the headland on the east side of the Rouge River may be considered in the future, as the erosion of this part of the shore will influence the stability and planform of the Rouge River beach. This work is considered to have low priority.

#### Monitoring:

It is suggested to collect general information regarding nearshore profile development. However, collection of information in this area is considered to be a lower priority, since the development in close proximity to the shore is limited.

#### Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

### Segment 11

Much of this segment consists of eroding natural shoreline. The exception to this is in Reach 19 (Rouge River Mouth), where a number of private residences are located along the shore and various forms of partially effective shore structures exist.

No protection works are recommended for the shores within the Conservation Area. Further reinforcement of the existing boulder pavement in front of the existing headland in Reach 17 (Fairport Beach Headland) could be considered on an experimental basis. This is considered to be a low priority.

The private residences along the shore can be protected with a revetment type structure with fish habitat enhancement features. However, the decision to protect must be weighed against the option

of acquisition. Acquisition is a preferred option, as it would provide another long segment of natural and public shore, extending from the Rouge River to the east limit of the study area at Pickering Nuclear Plant.

#### Monitoring:

It is suggested to collect general information regarding nearshore profile development. However, collection of information in this area is considered to be a lower priority, since the development in close proximity to the shore is limited.

#### Property Acquisition:

From a public safety perspective, there are no properties desirable for public ownership in this segment.

### Segment 12

No structural protection is recommended along the beach bar of this segment. The stability of the bars should be increased with dune development using natural methods, such as dune grass planting. Such measures will serve two functions. Firstly, it will minimize windblown sand from being deposited in the Bay and add to the already critical sedimentation problem. Secondly, it will protect and enhance this important geological and natural feature. Public access to these dunes should be controlled to allow for revegetation.

Shore modifications within Frenchman's Bay should be minimized. Where required to accommodate suitable site development, bio-engineering methods should be employed as much as possible.

The entrance to the Bay requires modifications to provide a safe passage for boats and to minimize the amount of ongoing maintenance dredging. Subject to detailed design, such improvement could include the extension in the southerly direction of two breakwaters along the

sides of the existing channel, maximizing the use of the cribs from the original entrance structures.

Monitoring:

Monitoring of the nearshore profiles of the beach is strongly recommended. The profile of the beach should be monitored on both sides of the barrier beach and material samples for gradation analysis collected along the profile.

Property Acquisition:

From a public safety perspective, the shore and barrier beach of Frenchman's Bay along Beachpoint Promenade should be publicly owned in its entirety.



**Table 6.1: Summary of Regeneration Recommendations**

Segment	Proposed Shoreline Regeneration	Priority	Cost Range	Rationale
1 Tommy Thompson Park	Exposed east and south shores: - formalize monitoring procedures - develop long-term stabilization plan based on detailed monitoring	high	not available, subject to monitoring	- additional information regarding profile adjustment needed to minimize long term costs
	Sheltered west shores and embayments: - employ bioengineering methods and incorporate habitat enhancement	low	typically \$200 to \$1,000/ m	- a unique sheltered location suitable for bioengineering approach
2 Ashbridge's Bay	Lakefill in area south of Main Treatment plant	low	\$24,000,000 for lakefill, shore protection & wetland *1	- opportunity for restoration of wetlands, provision of waterfront access and reduction of maintenance dredging
3 Eastern Beaches	Enhancement/Enlargement of Hardened area at Leuty Lifeguard Station	low	\$1,000,000 to \$4,000,000, depending on methods and features	- opportunity for providing increased sand beach stability in the east half of the segment
4 Scarborough Bluffs West	Nourishment of groyne system with pebble and cobble material	high	\$600/m (\$1,320,00 for 2200 m)	- existing deposition does not supply sufficient source
	Provide nearshore armouring in selected areas	high	\$2,500/m *2 (\$1,250,000 for 500 m)	- level of protection and accessibility will be enhanced
	Formalize rubble protection works incorporating regeneration principles	low	\$2,400/m (\$1,440,00 for 600 m)	- restores former conditions and provides increased long-term stability and habitat - minimizes long term maintenance costs
5 Bluffers Park	No proposals made			- continue monitoring of shore works
6 Scarborough Bluffs East	Nearshore armouring in Meadowcliff Drive area	high	\$2,500/m *2 (\$1,250,000 for 500 m)	- restoration of former conditions and reduction of erosion rate
	Completion of existing projects in the Bellamy/Sylvan avenue area	high	N.A.	- habitat enhancement can be added to existing works
	Provision of cobble/pebble beach system along Guild Inn area	moderate	\$3,300,000	- diversity of treatments and better provision of access required
	Complete protection works to Morningside Avenue	moderate	\$3,000/m (\$450,000 for 150 m)	- long-term protection for access road
7 East Point Park	No proposals made			- shoreline to remain in natural state
8 Highland Creek	No proposals made			- retain beach shore - waterfront trail to be located as close to railway embankment as feasible

Segment	Proposed Shoreline Regeneration	Priority	Cost Range	Rationale
9 Port Union	Shoreline modifications to cobble/pebble beach system	moderate	\$3,500/m (\$10,500,000 for 3,000 m)	- provides opportunity to extend waterfront trail on south side of the railway - provides more natural shore treatment
10 Rouge River Beach	Reinforcement of natural headland on east side of Rouge River	low	\$250,000	- assist with long-term stability of beach - may utilize nearshore armouring
11 Petticoat Creek Park	Protection of exiting dwellings in reach 19	high	\$3,000/m ((\$600,000 for 200 m)	- homes are located in close proximity to shore
	Reinforce natural headland in Petticoat Creek Conservation Area with nearshore armouring	low	\$250,000	- increases shoreline stability and provides habitat enhancement
12 Frenchman's Bay	Allow dune formation on west bar	high	N.A.	- sediment is being lost to the Bay and stability of the bar is reduced
	Restore proper entrance channel to the Bay	high	\$2,650,000 *3	- minimizes maintenance dredging requirements - increases safety of navigation

\*1 Cost based on 1991 estimate by Philpott Associates Coastal Engineers Limited  
 \*2 Cost based on 1993 estimate by Shoreplan Engineering Limited. Concept cost only.  
 \*3 Cost based on 1993 estimate by Shoreplan Engineering Limited.

**Table 6.2: Summary of Erosion (WRT) Monitoring Program**

Segment	Feature / Structure	Priority	Monitoring Program
1 Tommy Thompson Park	Exposed east and south shore	High	Profile and material gradation to establish underwater profile development
	Embayments and sheltered shores	Low	Photographic record
2 Ashbridge's Bay	Revetment and cobble beaches of Ashbridge's Bay park	Moderate* 1	Profile and material gradation of beaches Photographic and topographic record of structures
3 Eastern Beaches	Beach profile, west half	Moderate	Profile and gradation to - 6.0 metre
	Beach profile, east half	High	Profile and gradation to - 6.0 metre
4 Scarborough Bluffs West	Beach profiles in groynes areas	High	Profile and gradation to - 3.0 metre
	Monitoring of nearshore profile	High	Profiles and material description to - 6.0 metres
	Revetment	Moderate	Photographic and topographic survey of structures
	Groynes	Moderate	Photographic and topographic record of structures
	Boulder pavement areas	High	Location, material size and depth profile
	Top of bank	High *2	Location of top of bank
	Buff profile	Low	Measure profile
5 Bluffers Park	Bluffers Park headland and cobble beaches	Moderate	Profile and material gradation of beaches Photographic and topographic record of structures
	Sand beach, east side of park		Profile and material gradation to - 6.0 metres
6 Scarborough Bluffs East	Nearshore profiles	High	Profiles and material description to - 6.0 metres
	Revetment	Moderate	Photographic and topographic survey of structures
	Boulder pavement areas	High	Location, material size and depth profile
	Top of bank	High	Location of top of bank
	Bluff profile	Low	Measure profile
7 East Point Park	Nearshore profiles	High	Profiles and gradation to - 6.0 metres
	Boulder pavement areas	Moderate	Location, material size and depth profile

Segment	Feature / Structure	Priority	Monitoring Program
8 Highland Creek	Nearshore profiles	Moderate	Survey profiles and gradation to -6.0 metres
9 Port Union	Nearshore profiles	High	Survey profiles and gradation to - 6.0 metres Photographic record
	Revetment and other protection works	Low	
10 Rouge River	Nearshore profiles	Moderate	Survey profiles and gradation to -6.0 metres
11 Petticoat Creek	Nearshore profiles	Low	Survey profiles and gradation of materials to -6.0 metres
	Protection works	Low	Photographic record
12 Frenchman's Bay	Nearshore profiles	High	Survey profiles and gradation of material to - 6.0 metres

\*1 Moderate priority except for known problem areas, where priority is high.

\*2 Priority may vary depending of bank activity in the area. High priority active areas and low priority in inactive areas.

Natural  
Heritage  
Strategy

chapter 7

## 7.0 NATURAL HERITAGE STRATEGY

### 7.1 Introduction

The purpose of this Natural Heritage Strategy is to provide direction for the management of existing and future waterfront *natural* areas.

### 7.2 General Goals And Objectives

The Natural Heritage Strategy for the ISMP is an elaboration of the Natural Heritage Strategy formulated by the WRT in its *Lake Ontario Greenway Strategy* (WRT, 1995). As such it shares its overall goal, which is

**To ensure an adequate supply of habitats to restore and sustain in the long term a wide range of biodiversity along the waterfront.**

Based on input from the ISMP Steering Committee, Technical Advisory Committee and the public, it is evident that the number one priority is that the natural features and processes within the ISMP area are not only to be protected but developed towards a biologically diverse and sustainable system. This high priority is based on the recognition of the ecological functions and the recreational, spiritual and aesthetic values associated with the shoreline's natural heritage.

A fundamental value of the Plan is that the management of the natural environment cannot be seen in isolation. Public safety, economics and recreation issues need to be balanced in managing our natural heritage. In response, this Natural Heritage Strategy encourages public use and enjoyment of the natural features of the waterfront, recognizing that resource conservation and recreation can successfully coexist with effective management. In fact, the success of conservation measures depends largely on the "buy-in" of the people through education and

familiarity. Thus careful routing of trails, opportunities for nature interpretation, and provision of water access and other visitor management is complementary to the management of the natural heritage.

The specific objectives of the Natural Heritage Strategy are:

- to develop and maintain a **natural heritage system** (i.e., a mosaic of core habitat areas interconnected by natural habitat corridors);
- to protect and restore a wide range of **lakeshore landforms**;
- to protect and restore a wide range of lakeshore **biotic communities** and replication of representative sites, wherever possible.:
- to protect, enhance and restore **habitats of particular seasonal significance** for wildlife (i.e., fish migration and spawning habitat, waterfowl winter habitat);
- to prevent the expiration or decline of **native species** within the plan area;
- to **promote target/indicator species** formerly and/or currently native to the area; and
- to make the natural heritage **accessible** as a resource for nature interpretation, recreational and spiritual experiences.

### 7.3 Specific Strategy Objectives

#### 7.3.1 Natural Heritage System

An overriding objective of the ISMP is to develop and maintain a viable and sustainable natural heritage system, i.e., a system of large

and small green open spaces (for the most part natural areas) and aquatic shoreline habitats interconnected by green corridors (natural and semi natural green spaces), and aquatic migration routes.

Habitat fragmentation and isolation has been identified as a major threat to the health and sustainability of natural plant and animal communities. The purpose of the natural heritage system, therefore, is twofold:

- to protect the significant natural sites; and
- to integrate significant natural areas and proposed habitat restoration areas with other green spaces to form a protected network of habitats.

This allows for exchange between otherwise isolated animal and plant communities. It can also support the colonization of less diverse habitat by species from more diverse locations.

The establishment of the natural heritage system represents the main implementation tool for the other objectives of this natural heritage strategy which are discussed in the following sections. Because the natural heritage system plays a key role in the implementation of the strategy's objectives, it is further discussed separately in Section 7.4 of this report.

### 7.3.2 Lakeshore Landforms

It is an objective of the ISMP to protect the full range of landforms along the lakeshore between Tommy Thompson Park and Frenchman's Bay. Particular emphasis should be placed on the protection, enhancement, and restoration of landforms that are typical for the shoreline and that cannot be found elsewhere in the landscape. These landforms include:

- river mouths;
- embayments;

- concave shoreline profiles;
- convex shoreline profiles;
- submerged reefs and escarpments;
- sand and gravel bars and beaches;
- shore cliffs;
- ravines; and
- undulating tableland.

Plant and animal communities can be identified which are typical to these various features. By preserving and enhancing these landforms, we also preserve the natural plant and animal communities. Together, the mix of these different landforms and habitats defines the waterfront landscape and provides visitors and residents with a special "sense of place".

While each landform is considered important to the lakeshore environment, this strategy places particular importance on the protection, enhancement and restoration of land-water interface, i.e., river mouths, submerged reefs and escarpments, sand and gravel bars and beaches, and shore cliffs.

- There are only three river mouth habitats within the Plan area, each with exceptional diversity of plants and animals and each representing a significant "gateway" for migration. They must be protected, as it is unrealistic to re-create new river mouth habitats.
- Sand and gravel bars and beaches are normally a common feature along natural lakeshores. However, they are extremely rare within the ISMP study area and, until recently, have been declining as a result of shore protection projects. These features are:
  - naturally rare habitats (i.e., aside from lake and sea shores they occur only in association with natural stream corridors);
  - part of the natural habitat of a number of highly specialized species (e.g., shorebirds) and they provide natural shore protection against erosion.

- Shore cliffs are special for similar reasons that sand and gravel bars and beaches are special, as:
  - they are a characteristic component of the natural lakeshore environment within the Plan area;
  - the Scarborough Bluffs are a regional landmark and a provincially significant geological feature; continuously eroding shore cliffs have been disappearing along the shoreline as the shoreline has been increasingly stabilized by engineered structures;
  - they are also naturally rare habitats and represent very dynamic environments attracting highly specialized plant and animal life.
- The submerged reefs and escarpments of the study area historically provided significant spawning habitat for indigenous coldwater fish species; in addition, offshore reefs and boulder pavement contribute to shoreline stability; due to over 100 years of “stone-hooking”, only remnant reef areas remain which has contributed in declining populations of native coldwater species.

### 7.3.3 Biotic Communities

Terrestrial biotic communities, based on dominant vegetation and associated wildlife components identified within the ISMP study area and promoted by this Strategy are:

- **Wetlands** including treed swamps and thicket swamps. Of primary concern for restoration within the Plan area are **coastal marshes**. While historically covering large areas, today only two significant coastal marsh habitats can be found within the study area; i.e., the mouth of the Rouge River and in the Frenchman’s Bay/Hydro marsh area. A number of small, relatively isolated wetlands are found at other locations such as East Point and at various sheltered locations at the base of the bluffs.
- **Sand Beach/Barrier Beach** communities which are scattered along the shoreline. The best two examples of barrier beaches are at Frenchman’s Bay and the mouth of the Rouge River. These communities with essentially unstable substrates are vegetated by pioneer (early successional) herbs and shrubs and are frequently utilized by shorebirds. The lack of stability results in the pioneer nature of the community and the somewhat unique species composition of these communities. About 20% of the plant species-of-concern in the study area are in the relatively unstable shoreline communities. The presence of species now considered rare can be expected to increase in these areas, especially if human impact is minimized.
- **Unvegetated communities** (this is a relative term) include:
  - eroding cliffs and banks where occasional trees, shrubs, and pioneer herbs may gain a tenuous foothold; bank swallows nest here, and the holes which signify entrance to their nests are quite visible;
  - mud flats occurring at the base of Bellamy Ravine; these are somewhat artificial in that they are formed when eroding soils are captured by the curved revetment and build up.
  - cobble beaches, with larger than gravel-sized particles, provide sparse habitat for some plants and wildlife.
- **Carolinian Forest** which, in this case, is a somewhat artificial designation in that Carolinian forest species are at the northern limit of their range (e.g., white sassafras) in and near the study area, but forests essentially Carolinian in composition exist only farther south. White sassafras is found in Glen Stewart Ravine and Fallingbrook Woods.
- **Mature Forests** which are found on tablelands and on the slopes and bottomlands of ravines. For example, a white ash-sugar maple-beech forest is found on the tableland in Guildwood; various forest mixes such as sugar maple-beech-red oak-white



cedar-white pine in the lower Rouge Valley occur on the slopes of ravine, and a white cedar-tamarack bottomland forest is also found in the lower Rouge River system.

- **Successional Forests** which colonize open areas, eventually becoming mature forests. Balsam poplar and trembling aspen communities at East Point, and the white birch-willow-poplar-cherry-hawthorn communities in the gullies and at the bases of bluffs in various places are examples of successional forest communities. Cottonwood forests at Tommy Thompson Park are successional, and the pioneer conditions there result in an ever-present instability, effectively precluding transition to typically mature forest types.
- **Shrub thicket** communities dominated by shrub species and which range in type from the alder thicket swamp in the lower Rouge River system to willow thickets in Tommy Thompson Park, to successional shrubland with red-osier dogwood, willow, birch, cherry, and hawthorn at East Point.
- **Old-field (meadow)** communities with a predominance of pioneer herbaceous species and scattered shrubs which are represented by wet meadows, prairie-like communities, and moist and dry fields. The entire range of old-field communities can be found at East Point and several other extensive old-field areas occur in various locations in the study area.

Three aquatic community types are represented in the study area, differentiated by water temperature and the types of fish which have adapted to these conditions:

- **Coldwater fish communities** which are widespread along the open coast of the study area. These unsheltered habitats are characterized by high wave exposure, limited physical structure, and upwellings of cold water. Convex shoreline profiles and submerged reefs and escarpments are the most important coldwater

habitats as they provide important physical characteristics required for spawning by indigenous coldwater species such as lake trout and lake whitefish.

- **Warmwater fish communities** which are limited to the sheltered embayments (i.e., lakefill parks and Frenchman's Bay) and river mouths of the shoreline. Protection from wave action and isolation from thermal upwellings has favoured the development of warmwater conditions which support higher species diversity and production than coldwater habitats. These areas are also characterized by more complex physical elements which provide food, cover and other habitat for juvenile and adult fish. While these communities are not common along the Toronto waterfront, they are typically the easiest to create and of lesser value to rehabilitation of the Lake Ontario coldwater fish community. Fish species typical of warmwater habitats are basses and sunfishes (Family: Centrarchidae).
- **Coolwater fish communities** which may also occur in some sheltered embayments of the study area. Isolation of these areas from the cold lake water may not be as complete as other embayments where warmwater conditions persist. Coolwater communities are represented by only a few locations in the study area (e.g., the more exposed embayments at the south end of Tommy Thompson Park). Species which could be considered typical of coolwater habitats are northern pike and walleye.

This Natural Heritage Strategy aims to protect and enhance the entire spectrum of biotic communities identified within the Plan area. Where possible, the total amount of natural biotic communities is to be increased through habitat enhancement and restoration measures. Highest priority for protection and restoration must be placed on:

- wetlands (coastal marshes);
- sand beach/barrier beach communities;
- unvegetated communities; and

- cool and coldwater fish communities.

These communities are naturally rare and confined to lakeshore and natural stream corridor environments and have declined significantly over the years within the ISMP area.

In Southern Ontario, habitat restoration opportunities for these communities are limited due to their limited natural occurrence. In contrast, opportunities for establishing new forest communities or warmwater/coolwater fish communities are much greater as suitable environments are far more frequent, or habitat characteristics are more easily reproduced.

#### 7.3.4 Habitats of Seasonal Significance

Habitats for seasonal concentrations of wildlife are related mainly to seasonal migration. Shorelines are of particular significance as migratory habitat. They function, for example, as staging and resting areas as well as winter habitat for a number of migratory birds, and represent gateways to stream-spawning habitats for several fish species widely distributed throughout Lake Ontario. This indicates that the significance of the lakeshore environment reaches well beyond the Plan area.

All natural habitat along the lakeshore between Tommy Thompson Park and Frenchman's Bay has some importance for spring and fall songbird migration and provides some wintering habitat for waterfowl. In general, the better developed core areas and corridors confer seasonal benefit to wildlife. The Natural Heritage Strategy promotes the protection of these seasonal habitat functions through the establishment of the natural heritage system (see Chapter 3).

Habitat management should focus on areas of particular significance listed in Table 7.1.

**Table 7.1: Habitat Areas of Particular Seasonal Significance**

Segment	Area	Seasonal Habitat Significance
1	Tommy Thompson Park	waterfowl staging habitat; songbird migration habitat; warm/coolwater fish spawning and nursery habitat
3	Fallingbrook Woods	Saw-whet owl spring migration habitat
7	East Point	songbird migration habitat
8	Highland Creek	songbird migration habitat
10	Rouge River	trout and salmon spawning and migration habitat in spring and fall; songbird migration habitat
12	Frenchman's Bay	winter habitat for black crowned night heron; warm/coolwater fish spawning and nursery habitat

#### 7.3.5 Species of Special Importance (Native Species, Target Species, Indicator Species)

An overall objective of the Natural Heritage Strategy is the conservation and promotion of individual native species or groups of native species. The reasons for this is that these species:

- are part of our natural heritage;
- reflect the health of ecosystems;
- may be of aesthetic interest;
- are of intrinsic biological interest;
- play a role in ecosystem dynamics.

Three general categories of species recognized for special consideration in the ISMP are:

- species-of-concern;
- indicator species; and
- target species.

These categories are not mutually exclusive and it is quite possible that some species may be in two or three categories, with others in only one.

#### 7.3.5.1 Species of Concern

Species of concern are defined as those vascular plants considered nationally, provincially, and regionally rare by Riley (1989), and wildlife and fish species considered Provincially Significant by the OMNR (1992).

While other jurisdictions (e.g., MTRCA, Metropolitan Toronto) may have lists of rare and otherwise significant species, Riley (1989) and the OMNR (1992) are comprehensive, thorough and consistent in their approach to rarity and significance, i.e., species-of-concern, as defined.

In general, rare and provincially significant species are indicative of rare habitats. The objective must be to maintain and increase the specific habitat qualities that can sustain the presence of species-of-concern within the plan area. Crowning achievements in this regard would be to reduce the number of rare species by reducing the rarity of habitats.

Those locations with the highest number of rare vascular plants are presented in the *Phase I Report* (MTRCA, 1995), with the greatest number occurring at Rouge River, Tommy Thompson Park, Frenchman's Bay/Hydro Marsh, and East Point. The recorded range of individual rare plant species is distributed with approximately 70% recorded from only one location, approximately 25% from two

locations, and 5% from three locations. This pattern is expected with respect to rare plants. The greatest number of rare plants occurs in the lower Rouge River system, with 32 regionally rare and three provincially rare plant species.

Thirty-nine vascular plant species known from the ISMP, meeting the criteria for "species-of-concern", are found in Brownell (1993) and MTRCA (1989, 1984). The general habitat types where they are found are presented in Table 7.2.

As indicated in Phase I, twelve fish species are considered to be poorly represented on the Toronto waterfront due to current and historical habitat alteration and/or loss, exploitation through recreational and commercial fishing, and competition from exotic species, among others. None of these species are listed by the OMNR (1992) as provincially significant. The natural heritage strategy aims at restoring these historically represented fish communities (see Section 7.3.5.3 Target Species).

**Table 7.2: General Habitat Types and Distribution of Species-of-Concern**

Habitat Type	Number of Species (%)	Examples of Species-of-Concern
Open-shore habitats	14 (36%)	Lower Great Lakes Cinquefoil ( <i>Potentilla paradoxica</i> ) Seaside Spurge ( <i>Euphorbia polygonifolia</i> ) Sea Rocket ( <i>Cakile edentula</i> )
Prairie/Old-Field/Meadow	8 (20.5%)	Blazing Star ( <i>Liatris spicata</i> ) Little Blue-stem ( <i>Andropogon scoparius</i> ) Closed Gentian ( <i>Gentiana andrewsii</i> )
Aquatic or Near-aquatic	8 (20.5%)	Water Willow ( <i>Decodon verticillatas</i> ) Wapato ( <i>Sagittaria cuneata</i> ) Wild Rice ( <i>Zizania palustris</i> )
Woods/Stream Banks	8 (20.5%)	Riverbank Wild Rye ( <i>Elymus riparius</i> ) Vetchling ( <i>Lathyrus ochroleucus</i> )
Upland Woods	1 (2.5%)	Shagbark Hickory ( <i>Carya ovata</i> )

No amphibian, reptilian, or mammalian species listed by OMNR (1992) as provincially significant are recorded from the study area, but provincially and regionally significant birds (OMNR, 1992) have been known to breed in the study area in recent times (say, the past 15 years) and their locations are:

- |                     |   |                           |
|---------------------|---|---------------------------|
| Tommy Thompson Park | - | Double-crested Cormorant  |
|                     | - | Black-crowned Night Heron |
|                     | - | Caspian Tern              |
|                     | - | Great Black-backed Gull   |

- |                             |   |                           |
|-----------------------------|---|---------------------------|
| Scarborough Bluffs          | - | Orchard Oriole            |
|                             | - | Black-crowned Night Heron |
| Lower Rouge River           | - | Least Bittern             |
|                             | - | Black-crowned Night Heron |
|                             | - | Black Tern                |
| Frenchman's Bay/Hydro Marsh | - | Least Bittern             |
|                             | - | American Coot             |
|                             | - | Black Tern                |

The shoreline habitats, especially marshes, are critical habitat for most of the birds species-of-concern in the study area.

### 7.3.5.2 Indicator Species

Indicator species can (IJC, 1991):

- reflect current environmental conditions;
- show trends in ecosystem structure and dynamics;
- serve as “early-warning” signals of anticipated environmental degradation; and
- help in the identification of causative agents of environmental change, thereby contributing to appropriate management action.

Habitat protection, enhancement and restoration is key to wildlife conservation. Indicator species can be very useful in defining the objectives for these efforts and to monitor success.

Two types of species are particularly suitable and indicators:

- species with very specific needs relative to their physical environment; and
- species in ecological “key positions” such as the top of the food chain.

Species with a wide ecological tolerance are “generalists” and are characteristic of early successional and disturbed habitats. Many weed and pest species, for example, are generalists. Species with narrow ecological tolerances are “specialists” and are characteristic of more mature and complex habitats.

The presence of species in the ecological “key positions” such as the top of the food chain provides a good indication of the entire biotic community. If a species positioned at the top of the food chain can be sustained in an area, habitat conditions will also be favourable for subordinate plant and animal species. Indicator species are often the wildlife species considered significant by OMNR (1992) and recorded within the ISMP study area. Also, other indigenous species may be of interest because they are indicators of habitat quality which presently does not exist, but could exist with protection and restoration, especially in core areas and corridors. For example, smoky shrew and other species of the shrew family, *Soricidae*, could reasonably be expected with increase in habitat quality in the Rouge River valley system.

In general, an increase in wildlife representing a comprehensive range of trophic levels is an indication of increasing ecosystem health. For example, deer and coyotes are in the study areas in relatively low numbers, but as habitat becomes more robust, they and the species they feed on can be expected to increase.

Indicator species of the aquatic environment are native, naturally-reproducing piscivorous (fish-eating) fish. The presence of these species can be used as an indication of relatively healthy and trophically diverse fish communities (Karr, 1981). The success of the natural heritage strategy can therefore be measured through the abundance, distribution and reproductive-success of these fish populations. For river mouths and sheltered embayment, indicator species include northern pike, largemouth and smallmouth bass, muskellunge and walleye. For open coast habitats of the study area, indicator species include lake trout and atlantic salmon.

The presence of species in ecological “key positions” such as the top of the food chain provides a good indication of the entire biotic community. If a species positioned at the top of the food chain can be sustained in an area, habitat conditions will also be favourable for subordinate plant and animal species.

Some plants which are also species-of-concern are of interest as indicator species. For example, Lower Great Lakes cinquefoil (*Potentilla paradoxica*), found in a few places in the study area, and marram grass (*Ammophila breviligulata*), not known in the study area but occurring nearby, are indicators of pioneer sand beach and dune conditions, and likely would increase with an increase in beach and associated dune habitats.

Algae may reflect changes in water quality, for example, *Cladophora* and phosphorus loading.

The objective of the Natural Heritage Strategy is to direct habitat protection, management, and restoration measures toward a general maturity and complexity within habitats and towards a greater diversity of habitats overall. The measure of success in achieving this objective will be reflected by the presence and abundance of indicator species.

#### 7.3.5.3 Target Species

Target species are basically those species we specifically wish to see in the study area, and to which restoration and enhancement efforts are directed. Target species are often species-of-concern, as defined, and indicator species, but sometimes fall into neither category. Target species reflect the direct objectives of restoration, whereas indicator species can tell us how successful or unsuccessful habitat management has been.

Some of the reasons for focusing on target species are that they may be of aesthetic interest, or of intrinsic biological interest. Others may occupy an ecological “key position” in biotic communities. In this

case, the assumption is that by providing habitat qualities necessary for the target species, environmental qualities for a great number of other species will also be met.

To promote target species successfully, their habitat requirements need to be well understood. For the purpose of this ISMP, a tentative list of target species is provided. It is assumed that the proposed habitat restoration and enhancement measures in Section 7.3.5 generally address the requirements of these species. It is recommended that MTRCA in consultation with the OMNR and other interested parties develop a more complete list of target species and associated detailed habitat requirements. These species specific habitat management measures will then have to be addressed in the site-specific habitat restoration planning (Section 7.5.3).

Four groups of birds are targets for restoration. These are migratory birds, waterfowl, shorebirds, and colonial nesting birds. Populations of birds in these categories would be increased by general habitat enhancement, with colonial nesting birds having size requirements for nesting habitat.

Recommended individual target species for shoreline management within the ISMP study area listed below. Again, it should be noted that this can only be a draft list. Further input and consultation is required from the OMNR and other interested parties.

**Black tern**, also a species-of-concern which requires stable water levels and a narrow density range of cattails in the marshes it inhabits.

**Bank swallow**, normally a colonial nester, is particularly evident in the eroded cliffs of the high bluffs, immediately west of Bluffers Park. Bank swallow is not a species-of-concern and its value as a target species is mainly aesthetic.

**Orchard oriole**, also a species-of-concern, has been recorded from the Scarborough Bluffs. Enhancement of favourable habitat may extend its present reproductive range within and beyond the ISMP study area.

**Lake trout** are species of coldwater fish communities. Lake trout populations along the Toronto waterfront were severely depleted through the 1800s and early 1900s due to habitation destruction (i.e., stone-hooking), overfishing, and predation by sea lamprey (OMNR, 1989). While dispersed throughout Lake Ontario for much of the year, they continue to concentrate at spawning shoals along the Toronto waterfront during the fall. Enhancement of the extent and quality of offshore reefs and shoals would be expected to assist in the rehabilitation of this indicator species.

**Northern pike** populations were abundant in the coastal marshes which historically comprised an important component of available shoreline habitats. Northern pike are considered as representative species of coolwater fish communities. Within the study area, small populations are now restricted to the remnant coastal wetlands of Tommy Thompson Park, the Rouge River, Frenchman's Bay/Hydro Marsh, and several of the sheltered embayments of the lakefill parks. Restoration and enhancement measures intended to re-establish coastal wetlands will provide habitat requirements for self-sustaining populations of northern pike.

**Smallmouth and largemouth bass** are typical for warmwater fish communities. As such, their distribution along the shoreline of the study area is limited to habitat which are thermally isolated from Lake Ontario (e.g., the mouth of the Rouge River). Populations of these bass species can be enhanced by increasing the amount of complex in-water structures such as boulders, organic debris and macrophytes. Smallmouth and largemouth bass are desired species for recreational anglers, and thus are target species.

**Flowering dogwood**, a species-of-concern, and other Carolinian species may be re-introduced in the ISMP study area. Some remnant populations of Carolinian species (e.g., sassafras) persists in the area suggesting that climatic requirements can be met.

**Orchids** of several species could be an aesthetic component of woodland and wetland restoration.

#### 7.4 Natural Heritage System

The Natural Heritage System of the ISMP study area comprises natural core areas, corridors and restoration areas, and their associated ecological functions and processes. The Natural Heritage System includes the regionally and locally significant areas and functions of the waterfront including existing **natural core areas, natural corridors and linkages**, as well as **supplementary habitat areas**. Also part of the heritage system are **habitat restoration areas**, i.e. focal points for specific habitat development measures. Although these often overlap, they can be defined as unique entities. The proposed Natural Heritage System is depicted in Map 7-1.

##### 7.4.1 Natural Core Areas

Natural Core Areas are the most important ecological sites within the study area. They are relatively self-sustaining areas which provide representation of a range of landforms and biological communities, and which serve as source areas for nearby locations. All ANSIs, ESAs, significant wetlands and significant forests identified by the ISMP in Phase I are in Natural Core Areas. Aquatic core areas have not been formally designated by provincial or municipal agencies in a manner comparable to ANSIs or ESAs. Based on criteria such as fish-spawning and nursery habitat, high species diversity, and high quality habitats and communities, aquatic core areas in the study area were

identified in Phase I. Core areas, both terrestrial and aquatic, require permanent protection with minimal habitat management intervention.

##### 7.4.2 Natural Corridors

Natural corridors are significant habitat areas, somewhat linear in shape, that usually provide connections between larger areas of biological importance. In some situations, a corridor may not connect two larger areas, such as the case with Bellamy Ravine where a corridor extends from the shoreline north to the head of the ravine; nonetheless, in this case valuable functions are provided by the corridor. These connections may provide dispersal corridors, but it is likely that the main function is in providing additional contiguous habitat, effectively increasing the size of habitat area, especially for larger mammals. On the other hand, corridors may have adverse effects such as providing conduits for undesirable species such as invasive non-native plant species. On balance, corridors are deemed to be positive features, in general, and are encouraged in restoration strategies.

Natural aquatic corridors are provided by the shoreline itself and tributaries which flow into the lake. The shoreline provides a continuous linkage between embayments and river mouths, while study area tributaries link shoreline and inland habitats which may provide critical spawning and nursery habitat.

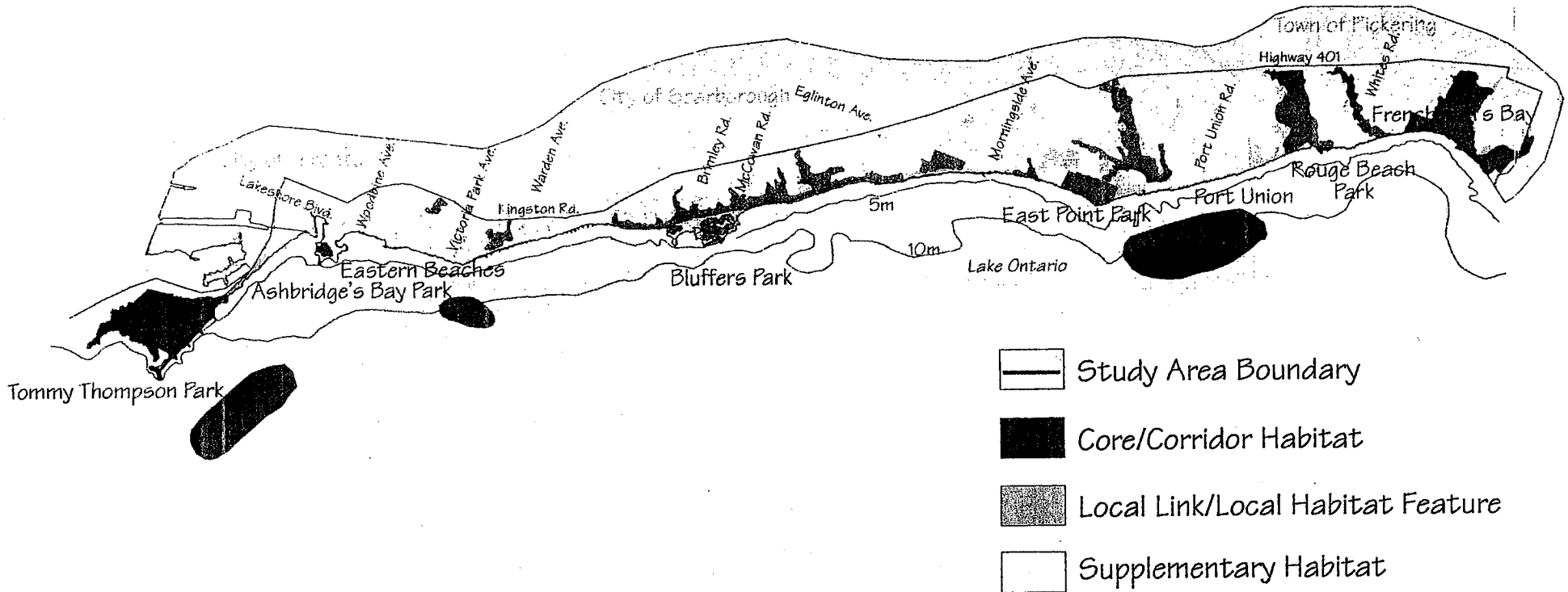
##### 7.4.3 Local Linkages and Local Core Areas

Local small areas of habitat in close proximity to urban and suburban activity provide local linkages or local core habitat functions. They generally can augment the qualities of Natural Core Areas and Corridors and may include small woodlots, derelict lands, old fields, abandoned gardens, small ponds etc.

Map 7-1

# Integrated Shoreline Management Plan Tommy Thompson Park to Frenchman's Bay

## Natural Heritage System





#### 7.4.4 Supplementary Habitat Areas

Existing green spaces such as parks, cemeteries, sports grounds, rail and utility corridors, public works grounds and industrial facilities etc. are areas that can supplement the system of regionally and locally significant core areas, corridors and linkages discussed above. In many cases, these areas represent manicured green spaces with high potential for improving habitat values. Enhancement measures might range from altering mowing regimes to planting of native tree and shrub species. Some areas may even be suitable for more extensive habitat restoration measures such as establishment of new features such as small ponds or wetlands.

#### 7.4.5 Habitat Restoration Areas

If the objectives of the Natural Heritage Strategy are to be met within a reasonable time span, restoration of the quality and magnitude of habitats is needed. Habitat restoration areas occur where habitats have been disturbed, degraded or destroyed, most often by human intervention. Specific restoration targets and techniques are further discussed in Chapter 7.5.

#### 7.4.6 Buffer Areas

Buffer areas represent defined zones around terrestrial Natural Core and Corridor Areas. Buffer areas may lack specific natural features but represent zones within which use restrictions such as set-back regulations and use restrictions apply. The restrictions are aimed at minimizing adverse impact on important habitat areas by keeping non-compatible uses apart.

Aquatic environment buffer areas have not been established due to the absence of distinct boundaries of aquatic core areas. While specific buffer areas may not apply to aquatic habitats, broad management guidelines must be applied to the shoreline and its contributing watersheds to minimize adverse effects on important aquatic habitats

adjacent, and potentially far-removed from the impact source. These guidelines must address physical shoreline and stream channel modifications, and water and sediment quality impairments (see Sections 6.2 and Section 10.2).

#### 7.5 Habitat Management

The Natural Heritage Strategy for the lakeshore environment between Tommy Thompson Park and Frenchman's Bay has been developed to include measures which promote active habitat management. To simply designate natural heritage features as protected areas is not sufficient to achieve the objectives of this Strategy.

The entire lakeshore is subject to recreational uses in various degrees of intensity which need to be managed to minimize adverse impacts on sensitive features. Many habitat areas have deteriorated as a result of overuse, while others in the early successional stages depend on a certain level of natural or human disruption if they are to be kept from developing into similar communities. A number of typical historic shoreline habitat types have been significantly reduced or deteriorated over time. To expand their presence within the plan area and to enhance their habitat qualities is an explicit objective of this strategy through active creation of new habitat and habitat management.

**Habitat Management** involves various degrees of human intervention ranging from minimal habitat management (i.e., protection) to intense habitat management in the form of enhancement or restoration.

**Minimal habitat management (protection)**, i.e., precluding intervention in an area, serves in aquatic systems to maintain the productive capacity of native fish habitat, including the capacity for natural reproduction (Strus et al 1993). In terrestrial systems, also, protection maintains the productive and reproductive capacity of its component species by allowing succession to proceed more or less naturally. Ideally, it is expected that terrestrial habitats, except mature

forests, will change perceptibly over time, both with respect to species composition and increase in biomass. Protected terrestrial systems generally can be expected to provide a greater quality and complexity of habitats over time.

For the purpose of this strategy **enhancement**, in the general sense, is defined as all activities intended to improve habitat qualities without changing the habitat type or introducing a new habitat. Examples for enhancement measures are additional plantings within a wooded area, the naturalization of "hardened" shorelines, a change in the mowing regime on grasslands, or the coppicing (frequent cutting) of a woodgrove.

Ecological **restoration** involves returning a level of integrity, resilience, and biological diversity to ecological systems that have been seriously disturbed or destroyed, usually by human intervention (WRT, 1995). In brief, restoration is the re-establishment of pre-disturbance habitat functions (Strus *et al.* 1993), and could include measures such as:

- rehabilitation of a deteriorated wetland through establishment of pre-disturbance water levels;
- elimination of invasive species;
- planting of wetland plants;
- introduction of new habitat (such as the establishment of a new cobble or sand beach in association with a lakefill project or boat launch facility).

The difference between habitat enhancement and habitat restoration is not well defined. In general, habitat enhancement is of a smaller scale, closer related to habitat maintenance, and often of an ongoing nature. In contrast, habitat restoration represents a fairly extensive undertaking and, once completed, is replaced by less intensive enhancement or maintenance measures.

In most situations along the ISMP shoreline, no one management technique alone will be sufficient. In large natural areas all three

management techniques may have to be applied within various portions of the area.

### 7.5.1 Minimal Habitat Management (habitat protection)

Minimal habitat management or protection (as a management approach) involves simply leaving an area alone and actively preventing or reducing human intervention. In some cases, preventing natural disturbance. For most parts of the Core Areas and Corridors in the ISMP study area this low intensity management is appropriate. For the aquatic habitats of the ISMP shoreline, habitat protection is primarily recommended for remnant habitats. These remnants can function as "centres of organization" (Strus *et al.* 1993) which may colonize other sites via waterfront corridors and linkages. The main benefit of protection in terrestrial systems is that succession is allowed to proceed with the anticipated result that overall biodiversity and total biomass increase.

As mentioned earlier habitat protection, in many cases, will have to be employed in concert with restoration and/or enhancement initiatives. East Point provides an excellent example of this for the terrestrial. A filtration plant, a sewage treatment plant, a railway, sports grounds, parking lots, and natural habitat, are all at East Point. The natural habitat contains dry old-fields, wet meadows, wetlands, shrublands, successional forest, and some small areas of mature forest dominated by native species. The wide spectrum of successional habitats is mainly responsible for the high diversity of plants and wildlife at East Point, in spite of the presence of much human activity nearby.

Conceivably, the main body of natural areas at East Point could be managed, perhaps by simply allowing natural succession to take its course (i.e., habitat protection). The major natural heritage value of East Point is related to the diversity of habitats. If successful protection were applied alone, this diversity would ultimately be lost as succession proceeded. To preserve diversity, some management such as prescribed burning, small-scale mowing, and tree and shrub

cutting will help to maintain habitat/successional diversity over the long term (i.e., habitat enhancement). In heavily disturbed portions of the site, restoration techniques such as excavating some wetlands and creating small "hills" with the excavated material, would help to maintain or even increase the value of this area.

### **7.5.2 Habitat Enhancement Measures**

Habitat enhancement measures are very much site specific and habitat specific tasks. Potential measures can be discussed only briefly in this section. Although most of the listed measures represent fairly simple activities, any implementation scheme should be based on an analysis of specific site conditions. Despite all the best intentions, these measures could fail and result in loss of credibility if not developed appropriately. It should also be noted that the enhancement schemes aim at increasing diversity and choice, and not at eliminating certain types of landscape, or reducing the quality of maintenance.

#### **Vegetation Management**

Vegetation management measures which increase or maintain ecological habitat value include:

- increasing the proportion of native species within vegetation communities (tree and shrub plantings);
- increasing the structural diversity of the vegetation communities (promotion of herb, shrub and tree components into integrated strata of a vegetation community);
- mowing of grassland communities;
- prescribed burning;
- promotion of perennials as opposed to turf grass in strategic areas;
- promotion of trees and shrubs as food and shelter sources for birds and insects; and
- management of invasive 'exotic' species (eg. Manitoba maple, common buckthorn, purple loosestrife).

#### **Physical Habitat Diversity**

In addition to vegetation management techniques, habitat values can be further improved by introducing additional habitat structural complexity such as dead tree trunks, branches, rock piles, wood piles, and leaf piles. These features are essential for a variety of organisms including invertebrates, small mammals, and birds, all of which contribute to a more complex food web. Since these features are easily interpreted as signs of slack maintenance, they should be integrated with wooded portions of the area and, in some cases, explanatory signs may help. Also, the technique of accentuating topographic differences by excavating low areas and placing this fill on higher grounds, resulting in a more heterogeneous environment (see Section 4.2) could be employed in some areas as an enhancement of the physical site diversity.

#### **Enhancement of Aquatic Habitat**

The objective of aquatic habitat enhancement is the improvement of fish habitat in areas where habitat limitations (i.e., area and/or quality) have been identified as limiting to fish production. The Great Lakes Fishery Commission (GLFC) defines aquatic habitat enhancement as the "improvement of current environmental status by suppressing unwanted features or impacts and by contributing man-made structures to maximize desired functions" (GLFC 1978). Enhancement, therefore, includes both remedial and proactive intervention which concentrates on the revitalization of essential habitat elements required for spawning, rearing and feeding.

Examples where habitat enhancement measures would be appropriately implemented in the ISMP study area are the existing lakefill parks (e.g., Bluffer's Park). Habitat enhancement achieved through the naturalization and "softening" of existing sheltered shorelines would encourage growth of vegetation which could be used for spawning and cover functions for several target native species.

## Enhancement of Urban Green Spaces

As discussed in the context of the natural heritage system, urban green spaces such as parks, sport fields, cemeteries etc. can provide valuable ecological functions within the urban environment. In many situations, these functions can easily be enhanced without compromising the primary function of the green space. General objectives are to increase natural ecological functions (e.g., water infiltration, evaporation) and biodiversity (plant, animal, habitat diversity). Neither of these two general objectives should be achieved through high energy input (e.g., intensive watering, fertilizer application). Instead, the vegetation management should be directed at plant and animal communities that are adapted to the specific site conditions and use levels, and which are able to thrive with little management intervention.

Appropriate settings for enhancement by manipulation of existing vegetation and/or by introduction of new plantings can be found in most green spaces and typically include:

- **tree plantings** with turf in between which are time consuming and costly to mow; at the same time these areas are favourable locations for resting and play during hot summer days; depending on size and use intensity, portions of these areas may be transformed into near natural woodland communities with defined herb, shrub and tree layers;
- **woodland edges** with abrupt transitions between intensively mowed lawns and tree communities; an extension of the mowing line could result in the development of a gradual transition from trees to shrubs to herb/tall grass communities;
- **fence lines** or property lines along which use intensity is very low; these areas are often included in an undifferentiated intense mowing regime; due to the low use intensity these areas lend themselves to the establishment of diverse vegetative borders;

- **steep slopes** of 25 % and higher; these areas are difficult to mow, produce poor turf due to slippage and erosion and usually do not experience intensive use levels; these sites may be planted with self sustaining native trees, shrubs or herbaceous ground cover, or any combination of these; southerly exposed slopes may be suitable for development of flower intensive dry grass communities; and
- **periodically or permanently wet areas**; these areas are usually difficult to mow and experience low intensity use levels and therefore could be transformed into true wetlands (maybe even open ponds) with appropriate herbaceous and woody vegetation.

In the following opportunities for habitat enhancement in specific categories of green open spaces are discussed.

### Parks and Cemeteries

Parks and cemeteries are predominantly manicured, horticultural open spaces; which present many opportunities for small-scale naturalization. Naturalization schemes should be developed on a site specific basis to confirm the potential and to define the extent of park areas that can appropriately contain such initiatives.

Naturalization concepts should be developed and implemented in close consultation with the public. To be successful the new management schemes and enhancement measures need to be accepted and supported by the park/cemetery users and by the neighbourhood. Educational programs and opportunities for active involvement of the users/neighbourhood, therefore, become essential in the implementation of these schemes. Examples of parks, which appear to be suitable for habitat enhancement measures include:

- Ashbridge's Bay Park (Segment 2);
- Kew Beach Garden (Segment 3);

- Scarborough Heights Park (Segment 4); and
- Alex Robertson Community Park (Segment 12).

### **Sportsgrounds**

Sportsgrounds such as football fields and baseball diamonds generally provide fewer opportunities for habitat enhancement than parks and cemeteries because of the nature and intensity of their use. Habitat enhancement measures in most of these areas may be possible only within the periphery, at entrance points and in association with parking areas. Habitat enhancement measures would include the entire range of measures listed for parks and cemeteries. Specific opportunities and measures have to be identified and specified on a case by case basis. Again, public consultation and education is essential for the success of the program. Examples for sport fields that appear to be suitable for habitat enhancement measures include:

- Sport fields at Coxwell Ave and Lakeshore Blvd. (Segment 2);
- Kew Beach Crescent Sport field (Segment 3); and
- Sport fields south of Alex Robertson Community Park (Segment 12).

### **Grounds Around Public Works Facilities**

Large areas of the green open spaces within the study area represent numerous opportunities for habitat enhancement measures. In their present state these areas can be characterized collectively as landscape components with high energy/high fertilizer/high biocide inputs, low habitat value and generally mediocre hydrological characteristics. In most cases these areas do not receive any recreational uses and serve aesthetic functions only. Examples of areas considered suitable for extensive habitat enhancement measures include green spaces associated with:

- Main WPCP including Public Works facilities (pumping station) north of Main plant (Segment 2);

- East Point WFP (Segment 7); and
- Highland Creek WPCP (Segment 7).

The Municipality, with the cooperation of the Public Works Department could assess in detail actual spatial requirements and landscape programs. Due to the absence of recreational uses, constraints will relate primarily to the public works features and technical functions. In the case of the R.C. Harris WFP, aesthetic considerations (i.e., preservation of architectural integrity of the site) are additional considerations.

### **Golf Courses**

The Hunt Club is the only golf course within the ISMP study area. Due to the specific use requirements, golf courses are associated with a high intensity care including biocide and fertilizer applications and intensive mowing. Depending on the size and management of the area outside of the greens, fairways, and adjacent “rough”, a considerable amount of space is available to provide habitat functions. Both, the Municipality and the Conservation Authority may want to enter into discussions with the golf course owner to inventory and review the opportunities to enhance the ecological characteristics of the entire course. Objectives should be to reduce biocide and fertilizer applications and to increase native vegetation stands (e.g., narrower fairways; more naturalized roughs).

### **Gardens, Street Trees**

Street trees and garden vegetation in residential areas can contribute to the ecological functions of the natural habitat system. In many neighbourhoods within the plan area street trees provide an almost closed canopy and gardens represent a large portion of the actual land use. These features should be considered valuable complementary habitat to the natural heritage system. For example, immediately east of where Warden Avenue meets the lakeshore, backyard vegetation

contains mature trees with a relatively closed canopy representing an extension of the natural woodland matrix into the residential area.

Most street trees grow on public property and are managed by the Municipal Parks Department. Funds for maintenance and (re)planting should be continued or expanded where possible. Large trees on private property can be protected through municipal tree by-laws.

Gardens are maintained by private land owners or tenants. They are as diverse as people's homes and are an expression of our personal taste, lifestyle or preferences. Regulations should be minimized. Instead, general awareness should be raised with respect to the ecological functions of gardens and ways and means for low energy (i.e., low in use of water, fertilizer, biocides) and wildlife gardening. Also, the ecological consequences of the continuing trend to transform green front yards into paved parking spaces should be addressed.

### 7.5.3 Habitat Restoration Measures

#### Habitat Restoration Objectives

The natural heritage strategy goes beyond the mere protection and enhancement of existing natural areas. To achieve the objectives of this strategy related to landforms, biotic communities, and species (see Sections 7.3.2, 7.3.3, 7.3.5) active landscape development in the form of habitat restoration is proposed for the plan area. Habitat restoration aims at actively restoring severely deteriorated habitats and to increase the representation of certain habitat types within the plan area through the creation of new habitat.

Following the discussion of landforms, habitat, communities and species (Sections 7.3.2, 7.3.3, 7.3.5), the following habitat types/habitat elements have been identified as being of particular significance. The objective of habitat restoration activities within the plan area is to expand the current extent of nine general habitat types/habitat features:

- sand/cobble beaches and bars (SCB);
- offshore shoals (OS);
- forest cover;
- coastal marshes (CM);
- wetlands (WL);
- valley corridors (VC);
- early successional vegetation communities (old-fields, meadows), (ESO);
- early successional woody communities; and
- sheltered embayments (SE).

#### Habitat Restoration Concept

Historically, native forest cover was the most common vegetation type among the **terrestrial habitats** in the plan area. Forests in an ecological sense are the most stable communities and, conversely, unforested communities are inherently unstable (WRT, 1994). Ideally, in the long term without intervention, successional processes result in unforested communities eventually becoming forests, or sustained disturbances keep communities such as those directly on the shoreline in a perpetual state of early succession. An overriding goal, then, is to work toward the restorative development of a **woodland matrix** on the tableland, ravine slopes and bottomlands, and on certain areas near the shore (e.g., the slopes immediately east of the R.C. Harris WFP presently have reasonably mature forest communities). All other non-woodland habitat types would be "woven" into this system of woodland habitat.

The essential elements of the woodland matrix exist, but restoration and enhancement are required to fill in the present gaps and, in general, to develop more robustness. A healthy connected woodland matrix would provide the backbone of the ISMP terrestrial "system", around and within which, unforested communities, including wetlands, grasslands, and shrublands, could be restored and enhanced as deemed appropriate. The specialized shoreline communities, for all practical

purposes, are subjected to and moulded by a different set of ecological forces and should be considered accordingly.

Habitat restoration for **aquatic habitat** is more difficult as the control of outside influences is difficult. Water quality is a prime parameter determining aquatic habitat quality and is often determined by land use many miles upstream/upcoast of the restoration site. The primary objective of aquatic habitat restoration, therefore, must be the remediation of pollution contaminant and their sources. This can only be undertaken in concert with regional efforts aiming at healthy watersheds and hydrologic processes (see Strus *et al.* (1993). Efforts which are going into this direction and are about to provide benefits to the plan area include the Metro Toronto and Region Remedial Action Plan (MTRRAP.ND) and Comprehensive Basin Management (Strategy for the Rouge River Watershed, 1990). Once the water quality is satisfactory, restoration measures must target the existing but degraded fish habitat and the (re)creation of new fish habitat. This strategy has identified a number of fish habitat restoration measures within areas where the physical environmental characteristics are considered the limiting factor restricting fish species diversity and population size.

### **General Considerations for Restoration Strategies**

Several general strategies for restoration are recommended. These are not necessarily site-specific and they may involve elements of protection and enhancement. Also, while these appear mainly concerned with plant communities, it is understood that plants provide most wildlife habitat.

**Naturalization** or natural regeneration occurs when an area is protected from human intervention and natural successional processes are allowed to occur. This has the advantage of being the least costly approach and, over time one would expect the plant communities/habitats that develop to be more or less optimal for that site. A disadvantage is that naturalization by itself may take more time than some techniques involving intervention.

**Enlargement** of desired habitats in core areas and corridors generally improves wildlife habitat functions. This applies to all stages of terrestrial succession, and enlargement may be accomplished by restricted access and naturalization, and by planting.

**Corridor development** is essential in the development of a woodland matrix. This can be accomplished by planting and associated naturalization. Corridors should be as wide as possible. In some cases, somewhat isolated blocks with the lowest feasible edge-to-interior ratio may effectively form a corridor.

**Residential features** can sometimes be incorporated into the woodland matrix, or may provide important associated habitats. For example, immediately east of where Warden Avenue meets the lakeshore, backyard vegetation contains mature trees with a relatively closed canopy that could become part of the woodland matrix. Education and communication with the homeowner are important in gaining trust and cooperation.

**Increase in topographical relief** is very desirable in those areas where habitat diversity is desired. This can very effectively be accomplished by taking advantage of more subtle highs and lows in the existing small-scale landscapes. By deepening depressions and putting the excavated material on nearby higher elevations, relief is accentuated. Additional environmental heterogeneity results from increased differences in drainage exposure to light, temperature, and moisture patterns, and, in many cases, new isolated wetlands can be created. This technique, in conjunction with others, would be very effective at East Point, for example, and in a number of areas at the foot of the bluffs.

**An increase in the species mix and the structural complexity** of plant communities is encouraged. Multi-species plantings at herbaceous, shrub and tree levels, if well planned, increase aesthetic attractiveness and provide habitat for a greater diversity of wildlife.

An especially important concept in this regard is maintaining a spectrum of successional communities. This requires some management intervention and may involve burning, mowing and/or tree and shrub cutting, depending on what local objectives are. Deliberately preventing succession from occurring is unethical to the notion of a **woodland matrix**, but this should be done in the context of the woodland matrix while attempting to achieve a desirable measure of habitat diversity. Reference is made to Section 4.1 regarding the potential at East Point for maintaining a **successional spectrum**.

**Size and shape of habitats** is important in providing food and shelter for wildlife, in providing corridor function, and as a rule, circular and square blocks provide a greater proportion of interior woodland habitat plant species (e.g., interior woodland species vs. only edge species).

Consider the **appropriateness** of a restoration project. An old-field restoration project is not particularly “appropriate” at the southern, now manicured, end of Glen Stewart Ravine.

**Segment Specific Restoration Objectives**

The overall objective for habitat restoration has been translated into segment specific habitat restoration targets. Rationale for the recommended individual restoration objectives is based on:

- existing natural environment;
- opportunities resulting from other shoreline management recommendations; and
- practical considerations (e.g., Land ownership, on-going/ planned restoration measures).

Table 7.3 summarizes the objectives. A list of proposed restoration areas is presented in Appendix A on a segment-by-segment basis. The locations of these sites are on Map 7.2. This is not an exhaustive list of potential restoration projects, but should provide a starting point for detailed local site-specific planning.

**Table 7.3: Habitat Restoration Objectives for Individual Shoreline Segments**

#	Shoreline Segment	Targeted Habitat Types								
		SCB	OS	FC	CM	WL	VC	ESO	ESW	SE
1	Tommy Thompson Park	✓	✓					✓		✓
2	Ashbridge’s Bay	✓	✓		✓					✓
3	Eastern Beaches	✓						✓	✓	
4	Scarborough West			✓		✓	✓	✓	✓	
5	Bluffers Park			✓			✓	✓	✓	✓
6	Scarborough East	✓	✓	✓	✓	✓	✓	✓	✓	
7	East Point	✓	✓	✓		✓	✓	✓	✓	
8	Highland Creek			✓		✓	✓			✓
9	Port Union	✓	✓	✓			✓			✓
10	Rouge River	✓		✓	✓	✓				✓
11	Petticoat Creek	✓		✓						✓
12	Frenchman’s Bay	✓		✓	✓	✓		✓	✓	

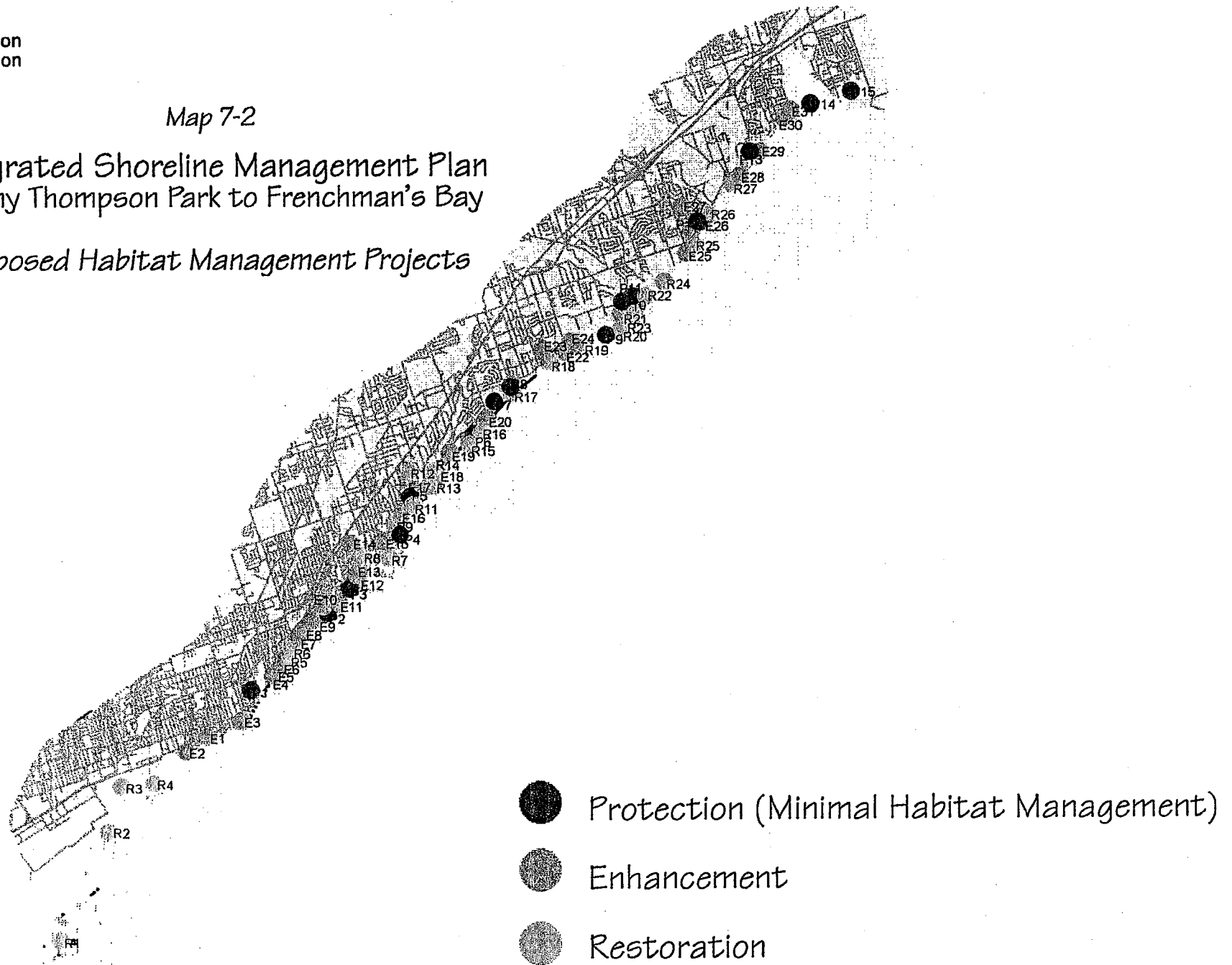
Legend:  
 SCB= sand/cobble beaches and bars OS= offshore shoals  
 FC= forest cover CM= coastal marshes  
 WL= wetlands VC= valley corridors  
 ESO= early successional vegetation communities :old fields, meadows  
 ESW= early successional woody vegetation communities  
 SE= sheltered embayments



Map 7-2

Integrated Shoreline Management Plan  
Tommy Thompson Park to Frenchman's Bay

Proposed Habitat Management Projects



## “How - To” Considerations for Restoration

Steps following the identification of restoration objectives for the segments will have to be site specific and should be carried out within the context of a restoration plan. The main purpose of this plan is to refine the restoration objective and to develop a concrete site layout and habitat design based on the local site characteristics and community input (see Table 7.4).

This Strategy does not provide specific restoration strategies and techniques/designs. Instead, the reader is referred to the literature on this subject which is plentiful (see bibliography). A thorough overview on techniques and design considerations for **woodlands, wetlands, old-fields and meadows, and riparian zones** is presented in “*Ecological Restoration Opportunities for the Lakeshore Greenway*” (WRT, 1994d) and “*Restoring Natural Habitats*” (WRT, 1995e). These four general habitat types are all found in direct association with the woodland matrix. Restoration measures should enhance the relationships between habitat types, and should have as a goal maintenance of a spectrum of habitat types and successional stages.

Specialized natural shoreline communities include beaches, dunes, forested barrier beaches, and shore cliffs (WRT, 1994). There are no dunes in the ISMP study area, but there are sand beaches. Beaches are relatively unstable environments, and the plants that grow there are generally pioneer species; some such as marram grass (*Ammophila breviligulata*), are reported from adjacent areas, but not in the ISMP study area, are especially adapted to unstable environments. Several techniques exist for stabilizing beach and dune communities (e.g., planting plugs of marram grass), but the risk of stabilization results in a habitat no longer being suitable for the unique assemblage of plants that one now finds.

In general, the best strategy for maintaining a level of shoreline systems overall (individually the very nature of their instability may mean loss or considerable alteration) would be to leave them alone,

including restricting access in key areas such as the western barrier beach at Frenchman’s Bay.

Wetland restoration provides an excellent example of an aquatic habitat restoration measure which could be implemented in the ISMP study area. Wetlands provide essential habitat characteristics for indigenous fish and wildlife communities which have declined dramatically on the Toronto waterfront. Coastal marshes are also the most productive of nearshore fish habitats (e.g., Rouge River).

**Table 7.4: Check List for Site Specific Habitat Restoration Planning**

---

<b>Inventory</b>
ownership of site and of neighbouring lands
site boundaries
access
existence of easements, etc.
site-specific environmental characteristics:
soils, groundwater levels
existing vegetation/wildlife
existing/potential disturbances

---

<b>Restoration Objectives/Layout</b>
refine/define habitat restoration objectives
site layout, design

---

<b>Restoration Measures/Construction</b>
earthwork
plantings/seeding
other structures (e.g., Bioengineering for slope stabilization)
visitor management (parking, trails, viewpoints, etc.)
signage/interpretive trails
fencing

---

<b>Public Involvement</b>
public involvement
volunteer help
stewardship

---

<b>Site Management and Monitoring</b>
on going requirements for vegetation/wildlife management
monitoring plan
stewardship

---

**7.5.4 Natural Heritage Strategy Monitoring**

Monitoring should occur at two levels: the first should relate to the overall objectives of the Natural Heritage Strategy, and the second is the monitoring of particular restoration projects.

Monitoring is discussed in Chapter 11 as part of the State of the Environment Strategy.

In monitoring specific restoration projects, there are three broad questions to be answered (WRT, 1995a):

- Were the restoration techniques successful?
- Did the restoration achieve the desired objectives?
- Is there need for remedial works or wholesale change?

Monitoring should include biological parameters (plants and wildlife), physical parameters (e.g., water quality) and parameters to measure the effectiveness of visitor management initiatives (e.g., trails to reduce human impact).

Baseline information should be gathered prior to study implementation. Ideally, baseline information should be gathered from a similar area (control) at the same time. The same sort of information should be gathered periodically after the beginning of implementation of restoration until such time that the three questions can be answered. An ongoing photographic record is essential. Monitoring issues specific to each general habitat type is presented in “Restoring Natural Habitats”(WRT, 1995a).

Public  
Use

Strategy

chapter 8

## 8.0 PUBLIC USE STRATEGY

The Lake Ontario shoreline currently offers a wide variety of public use opportunities, as well as a high degree of user satisfaction. The need to manage competing opportunities in the future is of critical importance to achieve a balance between the natural environment, shoreline protection and public use.

This approach to the Public Use Strategy was developed based on careful consideration of the many previous planning processes undertaken by others including: the WRT's *Greenway Strategy*, the Metro Waterfront Plan, together with the valuable input from the ISMP Steering Committee and public forums. Based on these inputs to the planning process, it is clear that more opportunities for public access to and enjoyment of the Lake Ontario waterfront is needed within the study area. While this is an overall goal, it cannot and should not be sought everywhere, equally. Rather, the approach is to **manage public use** in concert with the other strategies to create the appropriate balance among the competing needs.

The other fundamental value of the Plan is that planned recreational activities and facilities must be waterfront-related or dependent. The Steering Committee and community members identified this premise as a strategy to avoid the placement of non-waterfront oriented recreational facilities that could be located in other areas.

Consistent with the WRT's *Lake Ontario Greenway Strategy* and Metro's Official and Waterfront Plans, the ISMP Public Use Strategy encourages public access and the management or development of appropriate recreational uses and levels of intensity where it is in balance with the natural and cultural resources and shoreline protection issues. An overall concept of focused development nodes at strategic locations rather than distributed everywhere along the shoreline is considered most appropriate.

## 8.1 Goals and Objectives for Public Use

Based on this approach three goals have been developed which aim at achieving the fundamental values discussed above:

**Goal 1: Identify, develop and promote existing and new regional, community, and local access and uses (nodes) compatible with the Natural Heritage and Shoreline Regeneration and Public Safety Strategies:**

### **Objectives:**

- Improve regional access to the shoreline with pedestrian and cycling access, public transit and management of vehicular access and parking;
- Integrate regional nodes into the local community to create positive social and economic benefits where possible;
- Connect regional nodes with the continuous Waterfront Trail;
- Consider the provision of additional shoreline recreational spaces through rehabilitation of existing parking areas and/or lake-filling and grading where these provide significant public benefits and improvements to the overall habitat system; and
- Provide improved amenities, convenience, safety and emergency facilities for waterfront visitors.

**Goal 2: Protect and maintain existing local community access and discourage regional access outside of regional nodes:**

**Objectives:**

- Improve local access with signage and pedestrian links while strictly limiting vehicular access and parking;
- Protect and maintain local access points to top of bluffs providing desirable experiences related to views, weather watching, etc.;
- Connect local nodes with local community and mitigate impacts where possible; and
- Connect local nodes with portions of the Waterfront Trail where appropriate and mitigate impacts.

**Goal 3: Establish continuous waterfront trail access compatible with the Natural Heritage and Shoreline Regeneration and Public Safety Strategies:**

**Objectives:**

- Maximize access along the water's edge (at top or toes of bluffs) where it is compatible with the other strategies and economically sustainable;
- Provide Waterfront Trail access, trail head identity and facilities at all regional nodes; establish interpretive themes and signage to educate trail users on the natural and cultural history of the shoreline; and

- Control connections with local residential communities and mitigate adverse social impacts.

## **8.2 Strategy Concept for Public Use**

The overall concept for the Public Use Strategy is based on the above goals and objectives. At a general level, the shoreline within the study area represents a finite resource which currently serves a growing population base in the GTA and beyond. If this important resource is to continue to serve the public for recreational uses, it must be wisely managed in the context of its natural and cultural resources, public safety and protection of the shoreline itself.

Increases in public use of the shoreline must be accommodated. However, this increase in use is only practical at certain locations along the shoreline that are able to sustain specific types and levels of use without negatively affecting significant natural resources, community stability and safety to the user. To this end, certain sites have been designated as regional nodes, representing areas of more active and intense use, some existing and some proposed, while other sites are designated community or local nodes representing areas where the intensity and level of use is controlled/restricted to enhance higher priority natural and community objectives.

The waterfront Public Use Strategy is defined in terms of its open space system, gateways, recreational nodes and the Waterfront Trail.

## **8.3 Open Space System**

Public recreational uses outlined in this strategy are accommodated within the continuous open space system along the shoreline. While continuous, the quality, width, topography, vegetation, adjacent development type and character of this open space system varies from area to area reflecting the local context (Map 8-1).

The open space system shares the land and resource base with the Natural Heritage System. The Public Use Strategy therefore must respond to a set of use restrictions consistent with the Natural Heritage System. Table 8.1 summarizes the relationships between these systems.

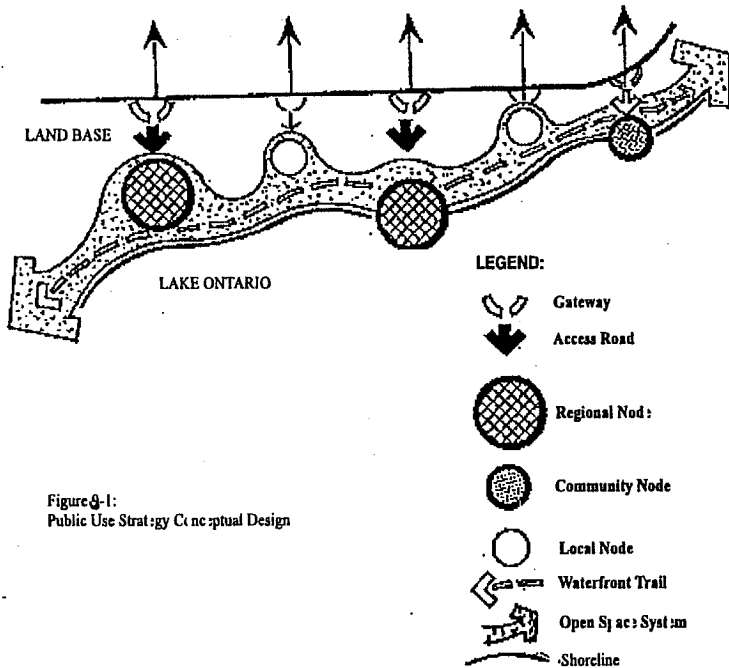


Figure 8-1:  
Public Use Strategy Conceptual Design

Table 8.1: Open Space System - Compatible Uses

Potential Recreational and Tourism Uses	Natural Heritage System					
	Core Habitat	Corridor	Local Core Habitat	Local Link	Enhance- ment Area	Restoration Area <sup>1)</sup>
Low Intensity Passive						
Hiking	•	•	•	•	•	(•)
Viewing	•	•	•	•	•	•
Bird Watching	•	•	•	•	•	•
Interpretation	•	•	•	•	•	•
Photography	•	•	•	•	•	•
Canoeing	•	•	•	•	•	•
Moderate Intensity Passive/ Active						
Cycling			•	•	•	(•)
picnicking			•	•	•	(•)
Gardens					•	(•)
Kite Flying/ Frisbee				•	•	(•)
Bathing				•	•	(•)
Wind Surfing				•	•	(•)
Fishing			•	•	•	(•)
Intensive/ Active						
In-Line Skating			•	•	•	
Boat Launch				•	•	
Marina				•	•	
Restaurant						
Commercial						

<sup>1)</sup> Compatibility with uses dependent on restoration objective.

The intent of Table 8.1 is to indicate broad compatibilities. These will have to be adjusted on a site by site basis to suit specific conditions. The specific habitat requirements may demand local differentiations. Habitat and wildlife management may also require temporary use restrictions during critical times of the year such as migration season.

Site-specific visitor management and use regulations should be developed in the context of habitat management plans (Natural Heritage Strategy, Section 7.5).

### 8.4 Gateways

Gateways to the waterfront form the link between the surrounding community and/or region and the shoreline. In general, gateways are located at strategic points along roads leading to the shoreline. They provide access, orientation features and signage.

Regional gateways are required where regional access is to be encouraged. Community gateways are located to encourage community wide access and local gateways are required where only neighbourhood access is contemplated. The level of service for the gateways is purposefully shaped by the target market users, scale and type of facilities provided.

Gateway types are described in Table 8.2 and their location is presented in Map 8-1.

**Table 8.2: Proposed Gateway Types**

Gateway Types	Access			Parking			Target Market	
	Transit	Major Road-way	Local Road-way	Major > 50 cars	Minor < 50 cars	GTA/Metro	City	Local
Regional Gateway	•	•		•		•		
Community Gateway	•	•	•	•			•	
Local Gateway			•		•			•

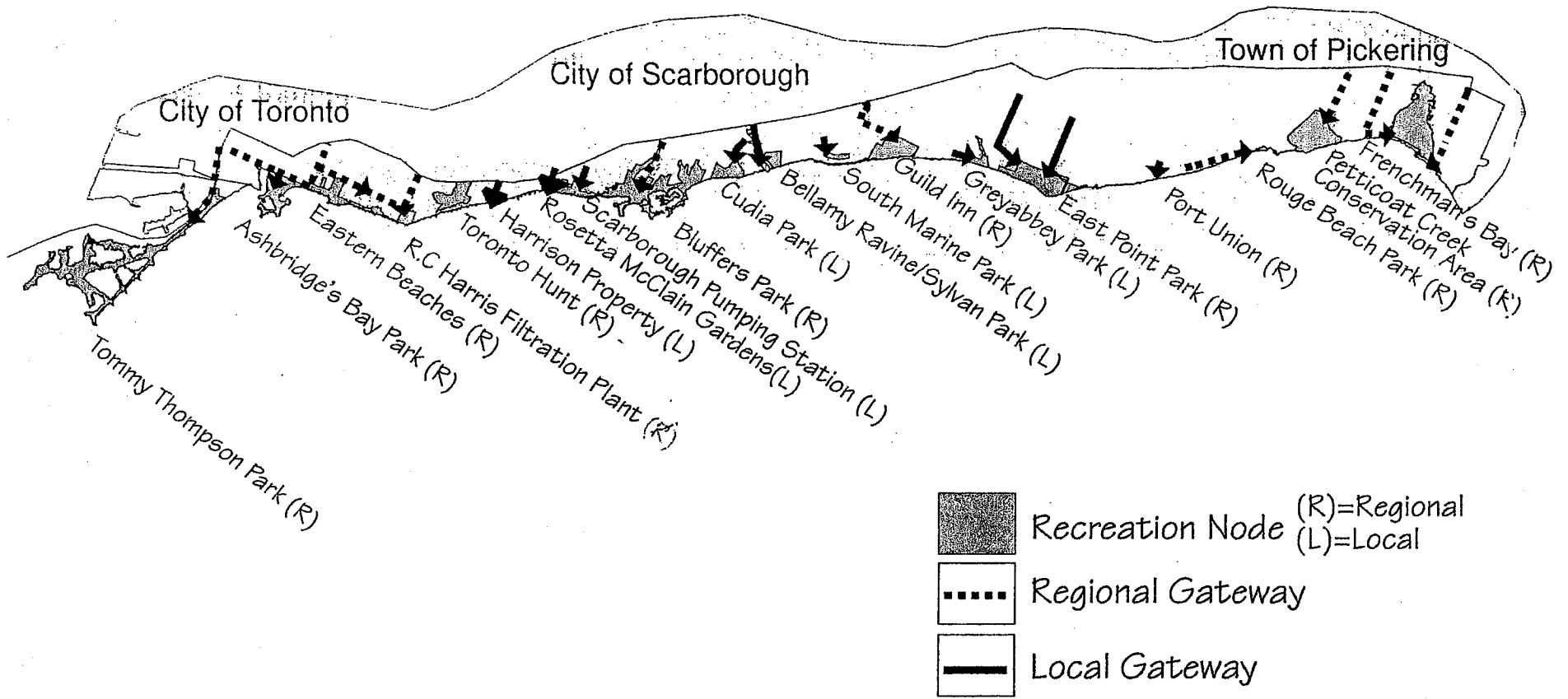
Based on this classification, the gateways and associated nodes throughout the study area are summarized in Table 8.3, below.



Map 8-1

Integrated Shoreline Management Plan  
Tommy Thompson Park to Frenchman's Bay

Open Space System Recreation Nodes and Gateways



**Table 8.3: Proposed Gateway Classification**

Gateway to:	Regional	Community	Local	Gateway Route
Tommy Thompson Park	•			Leslie St./Unwin Ave.
Ashbridge's Bay Park	•			Lake shore Blvd.
Eastern Beaches	•			Woodbine/ Queen St.
R.C. Harris WFP	•			Queen St./ Victoria Park Avenue
Harrison Property			•	Kingston Road
Rosetta McClain Gardens		•		Kingston Road
Scarborough Heights Park			•	Fishleigh Road
Bluffers Park	•			Brimley Road/ Kingston Road
Cudia Park			•	Pine Ridge - Meadowcliff Dr.
Bellamy Ravine/ Sylvan Park			•	Bellamy Road/ Kingston Road
South Marine Drive Park			•	South Marine Drive
Guild Inn	•			Guildwood Parkway
Greyabbey Park			•	Grey Abbey Trail
F.J. Horgan WFP Filtration Plant		•		Manse Road/ Copperfield Road

Gateway to:	Regional	Community	Local	Gateway Route
East Point Park	•			Beechgrove Drive/ Copperfield Road
Highland Creek Park	•			Lawrence Avenue East
Lakefront at Port Union Road	•			Port Union Road
Rouge Beach Park	•			Lawrence Avenue East
Petticoat Creek Conservation Area	•			Whites Road
Frenchmen's Bay	•			Liverpool Road

## 8.5 Recreational Nodes

Recreational activity nodes are located within the open space system where they are most compatible with natural and cultural resources and shoreline protection issues. Recreational nodes are located at the shoreline and are intended to be waterfront dependent. Recreational activities which are not waterfront dependent are not encouraged within the Plan, at least not at water's edge.

**Regional nodes** are designated to service the wider community and region. Generally, accessible via regional gateways they provide large scale infrastructure such as public transit, parking, information, comfort stations and weather shelters. They may include large scale active and/or passive recreational facilities such as marinas, boat launches, bathing areas, picnicking, restaurant/snack bar, or any combination of these or others.

**Community nodes** are accessible via community gateways and are intended to service the general community by providing a limited range of medium scale active and passive facilities such as bathing, picnicking, etc. **Local nodes** may only be accessible for pedestrians and cyclists with no provisions for parking. As a minimum, they will provide simple trail head infrastructure including trail information and signage. They are designated to service primarily local neighbourhoods but may also be occasionally frequented by smaller numbers of broader community and regional visitors. Generally, they include small scale passive recreational facilities such as lookouts, gardens, trail heads, etc.

Increased demands for shoreline access and recreational opportunities create the need for additional larger scale regional access points and nodes. These increases are carefully focused at points where they are most sustainable from a natural heritage, shoreline protection and community stand point.

In general, most nodes remain unchanged, however, there are three major sites which are proposed to be upgraded from local to regional nodes:

1. **East Point Park** - based on the need to improve links between the community and the waterfront, its identification as a trail head and as an alternative boat launch site.
2. **Highland Creek Trail** - based on the completion of the trail to the shoreline and its link with the proposed waterfront trail.
3. **Port Union** - based on the proposed major urban development taking place and the need to provide access to the shoreline in this area of Scarborough.

While the Guild Inn is already considered a regional node, its overall attractiveness is expected to be substantially enhanced with development of the proposed recreational node and completion of the trail along the shoreline.

The existing and proposed recreational nodes within the study area are characterized in Table 8.4.

**Table 8.4: Node Classification**

Recreation Node Site	Theme		Intensity Use			Links		Node Class	
	Natural	Cultural	Rec'n	Low	Mod	High	Water-front Trail		Other Trails
Tommy Thompson Park	•			•			•	•	R
Ashbridge's Bay Park			•			•	•		R
Eastern Beaches		•	•			•	•		R
R.C. Harris WFP		•	•	•			•		L
Toronto Hunt							Beach walk	•	R
Harrison Property		•		•					L
Rosetta McClain Gardens		•		•				•	L
Fishleigh Drive			•	•			Trail on redevelopments		L
Bluffers Park			•			•	•	•	R
Cudia Park									L
Bellamy Ravine/Sylvan Park			•				•		L
South Marine Park									L
Guild Inn		•	•		•		•	•	R
Greyabbey Park							•		L
F.J. Horgan WFP			•	•					L

Recreation Node Site	Theme		Intensity Use			Links		Node Class	
	Natural	Cultural	Rec'n	Low	Mod	High	Water-front Trail		Other Trails
East Point Park*	•		•		•		•	•	R*
Highland Creek Trail*	•		•		•		•	•	R*
Port Union*			•			•	•		R*
Rouge Beach Park	•		•	•		•	•	•	R
Petticoat Creek Conservation Area	•		•		•		•	•	R
Frenchman's Bay	•		•	•	•		•	•	R

**Nodes** (R) Regional  
 (L) Local  
 \* Proposed node class is higher than current status

## 8.6 Waterfront Trail System

The key public use element along the entire shoreline is the Waterfront Trail. As elsewhere along the Waterfront Trail, the location of the trail varies. It is at the water's edge as much as possible, but often it is located further inland to include cultural heritage sites, to avoid sensitive natural areas, and to respect private uses of the shoreline. The routing proposed by this ISMP represents a practical continuous route and maximizes its "at-shore" presence where possible given the objectives contained in other strategies.

Where it is not possible or desirable to locate a paved trail consistently at the water's edge due to natural heritage, shore or protection concerns, lack of adequate surface area, ownership or safety concerns, other types of trails are contemplated at or near the water's edge in certain locations. In these cases, trail connections are located along specified roads or natural ravine systems or other natural areas or parks to link with in-land portions of the trail while minimizing social impacts on local neighbourhoods and natural heritage sites.

In keeping with the varying character of the shoreline, the trail itself is conceived to reflect this "sense of site". As such, the design standards for the trail should reflect the local environmental conditions to the maximum extent possible. As well, these standards should consider the intended level of use by pedestrians, cyclists, in-line skaters and wheel chair users.

The recommended trail typology for these trail types are consistent with the Waterfront Trail Guidelines prepared by the Waterfront Regeneration Trust. The trail types appropriate for use within the ISMP study area are outlined below:

1. Trail Type A: Multiple Use Path
2. Trail Type B: Walking Path
3. Trail Type C: Beachwalk/Hiking Trail
4. Trail Type D: Sidewalk/Streetwalk

These trail types are described as to their recommended minimum design standards in Table 8.5.

The overall trail system is proposed as a series of interconnected segments each having specific characteristics, facilities and needs. The segments are described in Table 8.6 and Map 8-2. A conceptual design for a Waterfront Trail between Highland Creek (Segment 7) and Rouge Beach Park (Segment 8) is shown in Map 8-3 in context with conceptual shoreline improvements proposed for these segments. The map is presented in Section 8.8 as part of the discussion on potential locations for new boating facilities in the study area.

A series of trail heads are identified in the system. These provide the necessary infrastructure for users at the regional, community and local levels at each gateway or recreational node. At a minimum at the "local" level they provide basic introductory signage and information. At the "community" level, parking, benches, waste receptacles and small scale washroom and a weather shelter may also be considered. "Regional" trail heads would provide major parking facilities and benches, waste receptacles and bicycle lock-ups' identification, directional and interpretive signage or information. Washrooms and shelters may also be considered.

## 8.7 Public Access and Ownership

The Strategy components outlined above indicate the need for continuous public access to the shoreline where possible. While public ownership represents the highest degree of access and control, it is not possible everywhere. Certain links in the Waterfront Trail System require some form of additional public access. This access may involve public ownership or perpetual public use easements.

**Table 8.5: Trail Type Classifications**

Trail Characteristics	Trail Type A: Multiple Use Path	Trail Type B: Walking Path	Trail Type C: Hiking Trail/Beach Walk	Trail Type D: Sidewalk/ Streetwalk
general description	Primary trail: formal trail for urban and / or high use areas; barrier free access	Primary trail: formal trail for urban settings, manicured parks; moderate to high intensity use; barrier free access	Secondary trail: simple trail for natural settings; providing opportunity for average person to experience the natural environment	Trail connector (link between trail types A, B, and C)
tread width	3.0-4.5 metres, preferred 2.7 minimum	1.5 metre minimum, 2-3 metres is preferred	0.5 metres minimum, 1.25m preferred	<b>DESIGN IS DEPENDANT ON EXISTING MUNICIPAL STANDARDS</b>
tread surface	asphalt	ranges from wood chip to compacted granular to asphalt	natural terrain/wood deck	
clearing width	3.3-5.1 metre minimum	2.1 metres minimum	1.0 metre minimum	
clearing height	3.0 metre minimum	2.5 metres minimum	2.5 metres minimum	
minimum length	2 km	No minimum length	1 km	
desirable grades	0-3% with maximum of 5%	0-3% with maximum of 5%	0-20%, with maximum 25% sustained grade	
desirable duration	1 hour	as required, generally less than 30 minutes	1-2 hours	

(Source: WRT; 1993; Waterfront Trail Guidelines)

**Table 8.6: Waterfront Trail System**  
(Options Proposed by ISMP)

Shoreline Segment	Trail Segment	Type	Links	Existing/ Proposed	Priority	Comments
Tommy Thompson Park		A	Martin Goodman local trails	E	low	<ul style="list-style-type: none"> <li>maintain status quo.</li> </ul>
Ashbridge's Bay	Main Treatment Plant	A	Martin Goodman	P	medium	<ul style="list-style-type: none"> <li>shoreline trail recommended with plant expansion;</li> <li>relocate trail well south of Lakeshore and provide buffering.</li> </ul>
	Ashbridge's Bay	A	Martin Goodman	P		
Eastern Beaches	Boardwalk	A		E	low	<ul style="list-style-type: none"> <li>maintain status quo;</li> <li>upgrade to Type A or B subject to shore protection works;</li> <li>Queen St. to function as inland trail link.</li> </ul>
	Balmy Beach	C		P	high	
Scarborough Bluffs West	R.C. Harris WFP	C+D		P	high	<ul style="list-style-type: none"> <li>trail head recommended;</li> <li>beach walk recommended if no additional hardening of shore is required;</li> <li>further studies -local elevations/topography/liability;</li> <li>trail link along Kingston Road.</li> </ul>
	Hunt Club Beach Walk	C		E	medium	
	Kingston Road	D		P	high	
Bluffers Park	Fishleigh	C		E	high	<ul style="list-style-type: none"> <li>minor trail head;</li> </ul>
	Brimley	A		E	high	<ul style="list-style-type: none"> <li>improved trail access to Bluffers recommended.</li> </ul>

**Table 5: Waterfront Trail System (cont'd)**  
 (Options Proposed by ISMP)

Shoreline Segment	Trail Segment	Type	Links	Existing/ Proposed	Priority	Comments
Scarborough Bluffs East	Local Road Link	D		E	high	<ul style="list-style-type: none"> <li>designate trail along roads on table lands as primary trail link</li> <li>beach walk recommended to Sylvan Park (seasonal use).</li> </ul>
	Beach Walk Loop	C		P	high	
Scarborough Bluffs East	Guildwood Loop	B	Guildwood	P	high	<ul style="list-style-type: none"> <li>shorewalk to Guildwood Park;</li> <li>link to Greyabbey and East Point.</li> </ul>
	Guildwood Parkway	D		P	high	
East Point	Park Trail	B	local	P	high	<ul style="list-style-type: none"> <li>top of bank trail</li> </ul>
Highland Creek	East Point to Port Union	A	Highland Creek Trail	P	high	<ul style="list-style-type: none"> <li>link to shoreline trail south of RR tracks;</li> <li>link to new Highland Creek Trail;</li> <li>link to East Point.</li> </ul>
Port Union	Chesterton Shores	A	local	P	high	<ul style="list-style-type: none"> <li>shoreline trail recommended to coincide with development and additional shore protection;</li> <li>trail link to Rouge Beach;</li> <li>link to GO station.</li> </ul>
Rouge River	Rouge Beach Park to Petticoat Creek Park	A D	Rouge Park South Trails	E	medium	<ul style="list-style-type: none"> <li>improve beach walk to pedestrian bridge;</li> <li>improve on-road trail link to Petticoat Park.</li> </ul>
Petticoat Creek	Top of Bank Trail	B	park trails beach trails	E	low	<ul style="list-style-type: none"> <li>maintain status quo.</li> </ul>



**Table 8.6: Waterfront Trail System (cont'd)**  
 (Options Proposed by ISMP)

Shoreline Segment	Trail Segment	Type	Links	Existing/ Proposed	Priority	Comments
Frenchman's Bay	West Trail Boardwalk	D		E	high	<ul style="list-style-type: none"> <li>• direct trail to west shore street;</li> <li>• major boardwalk link recommended;</li> <li>• direct trail to east shore streets;</li> <li>• control access with trail head/boardwalk;</li> <li>• rehabilitate dune/beach ecosystem.</li> </ul>
	East Trail	C		P	medium	
	Beach Path	D		P	high	
			C		E	

Trail Types: A - Multiple Use Trail

Trail Types: B - Walking Path

Trail Types: C - Beachwalk/Boardwalk

Trail Types: D - Sidewalk/Streetwalk

Priorities for implementation of the Waterfront Trail are based on the following criteria:

Highest Priority: Complete existing projects and/or high use areas.

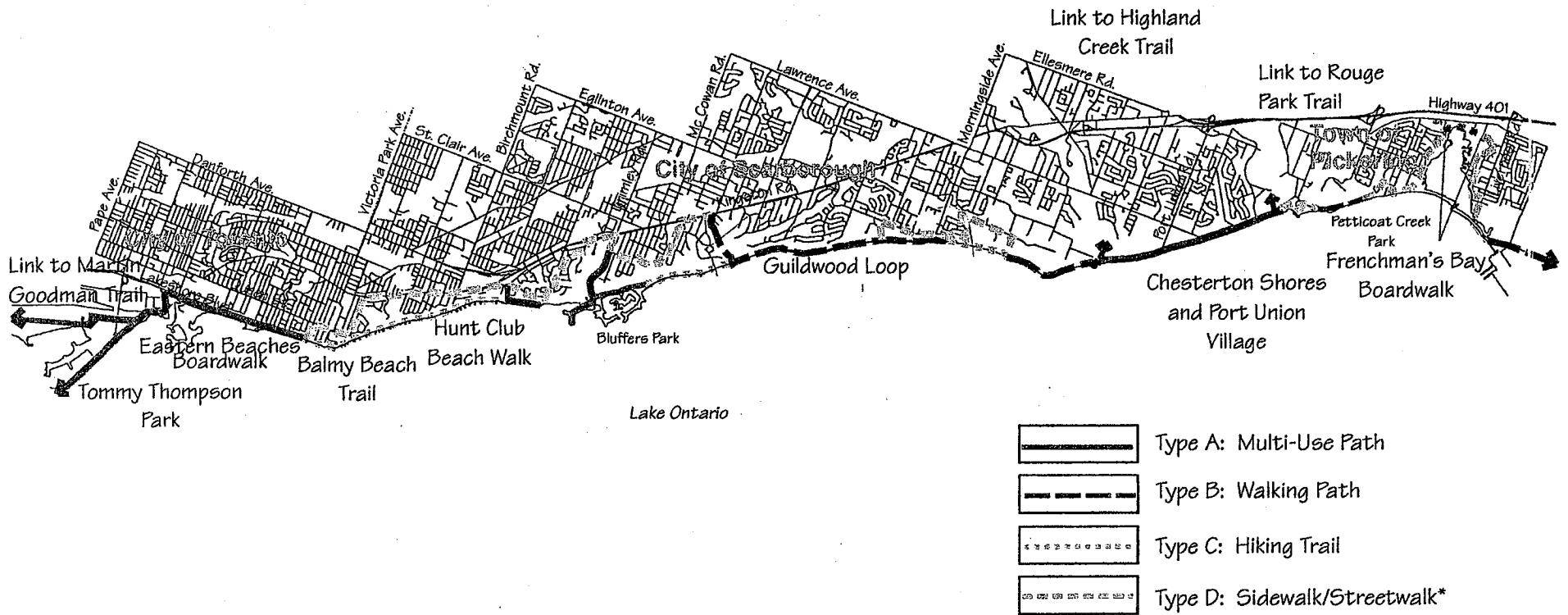
Medium Priority: Addition to another project to enhance attractiveness.

Lowest Priority: Major cost, stand alone projects or suitable trail exists already

Map 8-2

Integrated Shoreline Management Plan  
Tommy Thompson Park to Frenchman's Bay

Proposed Waterfront Trail Alignment



Implementation of the Waterfront Trail as proposed in this Strategy will involve additional public access at the following locations and trail segments:

1. **Main WPCP**

While the plant is a publicly owned facility, continuous public access to the shoreline is not currently possible. A perpetual public use easement along the shoreline itself is required to complete the link from Ashbridge's Bay Park to Tommy Thompson Park. This could be accomplished as part of the planned plant expansion to integrate the trail easement at the shoreline.

2. **Toronto Hunt Club Waterlot**

The Toronto Hunt Club property includes a waterlot which potentially could limit shoreline access. A perpetual public use easement across the lot at the shoreline is required to facilitate public access along the water's edge.

3. **Greyabbey Trail to Copperfield Road**

A short trail link between the on-road trail at Greyabbey to Copperfield Road is proposed along the southern boundary of the rail road right-of-way. A perpetual public use easement is required at this location to provide pedestrian access near the lake shore. This should be discussed with CN Rail.

4. **East Point to Rouge Beach**

This segment of the trail involves two different access/ownership situations. The westerly portion, from the west side of Highland Creek to just east of Port Union Road involves the need for location of a trail bridge adjacent to existing rail bridge to cross Highland Creek and a perpetual public use easement along the southern edge of the CN Rail line at the shoreline.

The Chesterton Shores area, farther to the east is partially in individual private ownership. The long-term purchase of

remaining properties is required to facilitate completion of the proposed Waterfront Trail through this segment, as well as the opportunity to locate a new recreational boat launch facility and other small scale passive day-use facilities.

In addition to the ownership and easement recommendations above, certain recreational nodes are identified for expansion and or creation of additional public use lands in Lake Ontario through selective lake filling and shoreline improvements. The following sites are identified:

1. **Main WPCP** - as part of the planned plant expansion to facilitate continuing the Waterfront Trail at the water's edge.
2. **Guildwood Park** - expanded day use node for passive recreation at trail head access points.
3. **East Point Park Boat Launch** - alternative site to be evaluated.
4. **Point Union Road** - created day use node for passive recreation and trail head access. Point with access under or across CN Rail line to Port Union Village, GO Station and parking lot.
5. **Chesterton Shores Boat Launch** - alternative site to be evaluated.

8.8 **Boating Facilities**

As a sub-element of the ISMP planning process, the need for additional boating facilities within the study area was examined at a preliminary planning level of detail.

**Facilities Currently Available Within the ISMP Plan Area**

There are many types of boating facilities currently available for public use within the ISMP study area, ranging from day-use canoe rental facilities (located at the mouth of the Rouge River), through more

localized sailing and yacht clubs with facilities sufficient to service the needs of members (such as the Ashbridge's Bay Yacht Club) to full service marinas (located at Bluffers Park and Frenchman's Bay). Boat launching facilities open to the general public (ie. those who do not belong to a Club) are located at the Outer Harbour, Bluffers Park and Frenchman's Bay.

### **Recent Studies of Boating Facility Supply and Demand**

There are two recent studies available which provide some background as to the demand for and supply of various types of boating facilities within the ISMP area.

#### *Randolph Group Report (Waterfront Regeneration Trust (WRT), 1994)*

The Randolph Group report was prepared for the WRT in 1994, with the purpose of providing a better understanding of the current level of marina and yacht club infrastructure, boating demand, business conditions, etc. within the Lake Ontario Greenway area (Burlington to Trenton).

One conclusion of this study is that there is currently an over-supply of marina capacity over the short-term (1994 to 2000). The report states "*There is considerable excess capacity in the marketplace at present. ... It will be difficult to justify any capacity additions over the next several years in close proximity to a proliferation of existing facilities.*" (WRT, 1994).

The study also indicates that as a result of depressed economic conditions, there are vacancies available at local yacht clubs (sensitive to membership costs), and a shift in boating use to smaller, and increasingly, power boats.

Boat launch facilities were examined by the Randolph Group (referred to as 'public wharfs' assumed to have no services). Although no

specific recommendations are provided as to the need for boat launch facilities, the study did identify two key factors:

1. 70% to 90% of seasonal boaters live within a one-hour drive of the boating facility.
2. The demand for transient boating facilities varies by location; recognizing that the demand for this type of facility "can be intense", especially in combination with out-of-town day-users.

The Randolph study was conducted as an overview of facilities along the Lake Ontario shoreline, and as such does not provide direction specific to the ISMP plan area.

#### *East Point Boat Launch Environmental Assessment (EA)*

An EA was prepared by the MTRCA in 1989, proposing a boat launch facility at East Point. The study provides rationale for a boat launch based on informal studies conducted at Bluffers Park which provided evidence that there is insufficient supply of boat launching facilities within the City of Scarborough to support local demand plus an assessment of demand and available capacity. The EA projected a deficit of boat facilities estimated in the East Point area between 1988 and 2011.

Although the East Point boat launch facility was never approved under EA process, there remains a public perception that the availability of this type of facility within the City of Scarborough is poor. Congestion continues at Bluffers Park on peak summer days, and frustration has been building among the boating populace of Scarborough that a new facility is still not in place anywhere along the Scarborough shoreline.

### **ISMP Context for Boating Facilities**

Because the ISMP is a regional planning study, it is not able to provide the full support needed to develop a rationale for a specific facility.

However, given the degree of interest in a new boating facility demonstrated by members of the public, local politicians, and MTRCA staff through the ISMP process, it was considered important to examine such a proposal within the broader regional planning context provided by the ISMP.

In response, a review of boating facilities has been conducted. The following was examined:

- identification of need for a boating facility;
- identification of appropriate scale for a boating facility (if needed);
- identification of an appropriate location for a boating facility (if needed).

#### *Need for a Boating Facility*

Relying on the studies discussed above as sources of information, there is reasonable support for an additional boat launch facility and perhaps day-mooring facilities within the ISMP area, in particular within the City of Scarborough. However, there is not sufficient support for a larger scale marina facility. While up-to-date detailed supply/ demand estimates are not available, continued public support for such a facility is a strong indication that there is sufficient demand.

The specific need for an additional boating facility should be confirmed through up-to-date studies of boater use and demand in the Greater Toronto Area, specifically within the City of Scarborough in support of any applications for approval.

#### *Appropriate Scale for a Boating Facility*

Available studies provide little direction as to the appropriate scale for a new boating facility to be located within the ISMP area, other than to suggest that a marina would be too much.

For the purposes of this ISMP review, it was assumed that sufficient demand exists to support, at minimum, a sheltered boat launching facility, perhaps including facilities for day-mooring. The appropriate scale for such a facility depends somewhat on the characteristics of the specific location(s) under consideration and should be subject of future studies.

As a starting point for examining the appropriateness of a boating facility within the context of this ISMP, a facility which provides boat launching capacity equal to that available at Bluffers Park, plus limited day-mooring facilities was assumed.

#### *Choosing an Appropriate Location*

There are a number of factors which must be considered in choosing an appropriate location for a boating facility, including:

- proximity to boat users and other similar facilities;
- suitability of harbour conditions (physical and navigational);
- environmental considerations;
- compatibility with existing and potential land uses;
- compatibility with local and regional planning objectives.

The review of appropriate locations was undertaken in two steps.

#### *Step 1 (Coarse Screening to Identify a Short List of Sites)*

All lands within the ISMP plan area were first examined at a primary level of appropriateness (coarse screening). Three screening factors were applied:

- remove all sites within the City of Toronto, recognizing the demand for this type of facility is being generated by City of Scarborough residents;

- remove from consideration all sites within 5 km of an existing boat launch or marina facility; and
- identify those sites with existing vehicular access and proposed for designation as regional or community gateway and recreation node by the Public Use Strategy of the ISMP.

As a result of the Step 1 screening exercise, two sites (East Point and the Port Union Road area) remained for more detailed consideration in Step 2 Comparative Analysis.

#### *Step 2 (Comparative Analysis of Short Listed Sites)*

To select the preferred location, sites identified following Step 1 were compared using criteria which reflect the 10 criteria of ecosystem health discussed in Chapter 4.0, including technical, environmental, social and financial considerations:

- harbour characteristics (physical/navigational);
- quantity of lakefill required;
- effect on coastal currents (sediment transport and wave action);
- effect on river outflow;
- effect on aquatic habitat (species diversity, rare species, biological connectedness);
- effect on terrestrial habitat (species diversity, rare species, biological connectedness);
- effect on natural landscapes/shoreline profile;
- effect on local communities/neighbourhoods (during both construction and operation) including neighbourhood integrity/cohesion;
- effect on future land use;
- effect on water quality;
- accessibility; and
- financial considerations/affordability.

Site characteristics prepared in Phase I of the ISMP planning process were used in the comparison of suitable locations. This level of study detail is considered appropriate for a regional planning exercise such as the ISMP. It cannot replace a more detailed facility-specific comparison or Environmental Impact Study (EIS) for developments within the Waterfront Management Zone, or an Environmental Assessment consistent with the requirements of the *Environmental Assessment Act*.

Details of the comparison are provided in Table 8.7.

#### *Results of Step 2 Locational Analysis*

Two sites remained for more detailed consideration after Step 1 -- East Point and the Port Union Road area. As a result of the more detailed comparative analysis of these two sites, both sites were identified as suitable for a small boat launch facility of local significance.

#### *Design Concepts*

As part of the discussion of potential locations for a new boat launch facility, conceptual facility designs were developed. Figures 8-2 and 8-3 represent sketches of two alternative design concepts. Although presented for specific locations (Concept A at East Point and Concept B at Port Union/ Chesterton Shores), each concept could be realized at either one location. The context of the potential candidate boat launch areas is illustrated in Map 8-3 together with a conceptual alignment of the Waterfront Trail and shoreline improvements in the area. Both the figures and the map are included for illustrative purposes and are indicative of the type of studies that will have to be undertaken in the context of the above referenced detailed Environmental Assessment and design studies. The alternative facility concepts shown on Figures 8-2 and 8-3 can be characterized as follows:

### Concept A:

- created landform - 4.8 ha
- traditional design, one opening
- water depth - 1.8 m or greater at entrance and 3.0 m in basin
- gravel beaches
- three double launching ramps (each 10 m wide)
- fishing centre/shelter
- boat basin docks - 14 boats
- additional docking 5 boats on east side
- parking: 30 car/trailers and 20 cars
- upper parking: 70 car/trailers
- fish habitat structures

### Concept B:

- created landform - 4.3 ha
- flow through nature - three openings to the lake
- water depth - 1.8 m or greater at entrance and 3.0 m in basin
- gravel beaches
- three double launching ramps (each 10 m wide)
- fishing centre/shelter
- boat basin docks - 18 boats
- additional docking 5 boats on east side
- parking: 30 car/trailers and 20 cars
- upper parking: 70 car/trailers
- fish habitat structures

The main difference between the two concepts is the open or “flow through” nature of the launching basin of Concept B. The Concept A launch basin is a more traditional design with only one opening. In both concepts the shore has been left as natural as possible, incorporating gravel beaches along a substantial part of the landform. Hard surfaces such as armour stone revetments, are restricted to the launch basin breakwaters or anchoring headlands.

Defining the appropriate facility scale, detailed design, impact mitigation, and regulatory approvals should be subject of a site specific environmental assessment and design study.

**Table 8.7: Comparison Of Potential Boating Facility Locations**

Comparative Criterion	East Point	Port Union Rd.
Harbour characteristics (physical/navigational)	- suitable; structures extend to ~3.5 m depth to achieve appropriate harbour (350 m off-shore)	- suitable; structures extend to ~3.5 m depth to achieve appropriate harbour (350 m off-shore)
Quantity of lakefill required	- 300,000 gm earth fill - 200,000 gm concrete rubble	- not yet available
effect on coastal currents - sediment transport - wave action	- at head of littoral divide; no effect on sediment transport - high exposure to wave action	- near to littoral divide; no significant effect on sediment transport (although greater than East Point) - high exposure to wave action
effect on river outflow	- potential positive benefit -- sediment contribution to beach at mouth of Highland Creek	- no effect on outflow of Highland Creek (upstream) or Rouge River (no change to sediment transport)
effect on aquatic habitat - species diversity - rare species - biological connectedness	- aquatic core habitat located immediately off-shore (mitigation may be effective) - no significant effect on biological connectedness (less than 2.6 km of connected shoreline interrupted) - effects dependent on facility size; effective mitigation measures are available for small scale facility	- no effect on species diversity - no effect on rare species - no significant effect on biological connectedness (less than 2.7 km of shoreline connection interrupted)
effect on terrestrial habitat - species diversity - rare species - biological connectedness	- potential to disturb high quality highly diverse ESA/ANSI - some potential to cause disturbance to 1 rare plant species - some potential to cause disturbance to wildlife corridors - effects dependent on facility size effective mitigation measures are available for small scale facility	- no effect on rare species - potential to interrupt one inland corridor with total length of 842 m
effect on natural landscapes/shoreline profile	- no significant views removed (facility may enhance view potential) - no effect on 1 visual landmark - sweeping coast of shore profile interrupted	- no significant views removed (facility may enhance view potential) - no effect on significant landmarks; none in the area - uninterrupted open coast affected



Table 3.7: Comparison Of Potential Boating Facility Locations (cont'd)

Comparative Criterion	East Point	Port Union Rd.
effect on local communities/neighbourhoods - during construction - during operation	<ul style="list-style-type: none"> <li>- truck traffic through established neighborhood during construction</li> <li>- potential for high traffic volumes during limited days of the year; no congestion of local streets</li> <li>- no effect from facility operations (eg. noise, litter, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- no truck traffic through an established neighborhood during construction</li> <li>- no effect from traffic during operation (would access via Chesterton Shore; access design can be incorporated into new community design to enhance compatibility)</li> <li>- no effect from operations; waterfront oriented community enhanced by boating facility</li> </ul>
effect on future land use	<ul style="list-style-type: none"> <li>- potential to positively affect development of adjacent industrial area</li> </ul>	<ul style="list-style-type: none"> <li>- positive enhancement to entire Port Union Rd. Development; may enhance commercial viability of Village Common</li> </ul>
effect on water quality	<ul style="list-style-type: none"> <li>- approx. 900,000 m<sup>3</sup> of lakefill required; adding to effluent from one existing sewer outfall (Highland Creek WPCP)</li> </ul>	<ul style="list-style-type: none"> <li>- volume of tonnes of lakefill required similar to East Point; adding to effluent from 9 sewer outfalls</li> </ul>
accessibility	<ul style="list-style-type: none"> <li>- visitors would access via Copperfield Road (on appropriately designed road through established community) requiring level crossing at CNR tracks</li> </ul>	<ul style="list-style-type: none"> <li>- visitors would access via Chesterton Shore requiring level crossing at CNR tracks</li> <li>- link to GO transit</li> </ul>
financial considerations/affordability	<ul style="list-style-type: none"> <li>- much of the lakefill is already at the site</li> </ul>	<ul style="list-style-type: none"> <li>- to be comparable with East Point, facility would extend further into lake (more lakefill required)</li> <li>- potential for private/public partnership in conjunction with other activities at waterfront</li> </ul>



- Highland Creek Sewage Treatment Plant
- Futura Waterfront Trail
- Lookout Parking
- Overflow Car/Trailer Parking
- Launch Ramp/General Parking
- Launch Ramps (3)
- Fishing Centre
- Mooring Basin
- Drainage Channel

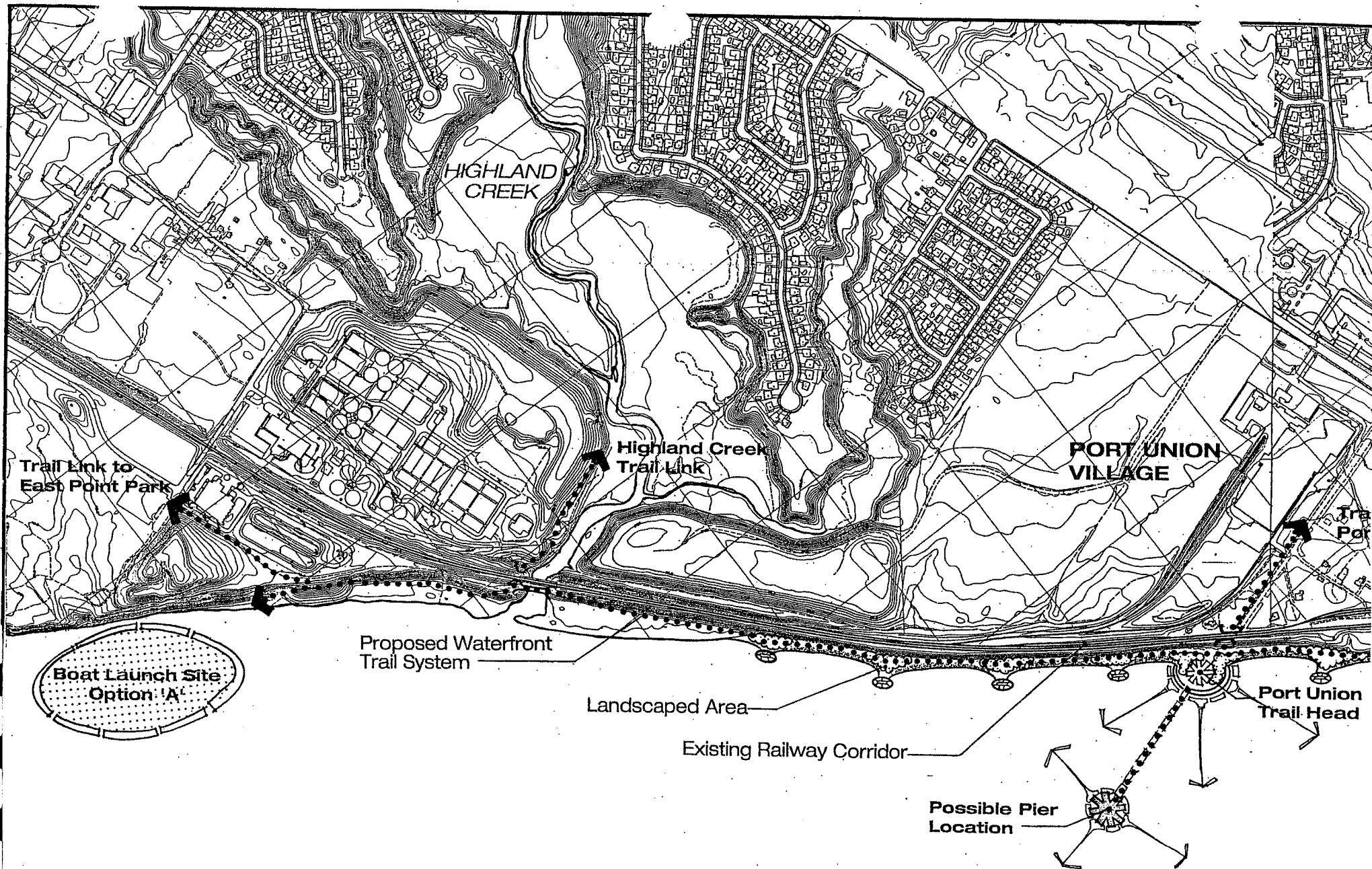


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August 1996

# East Point Park

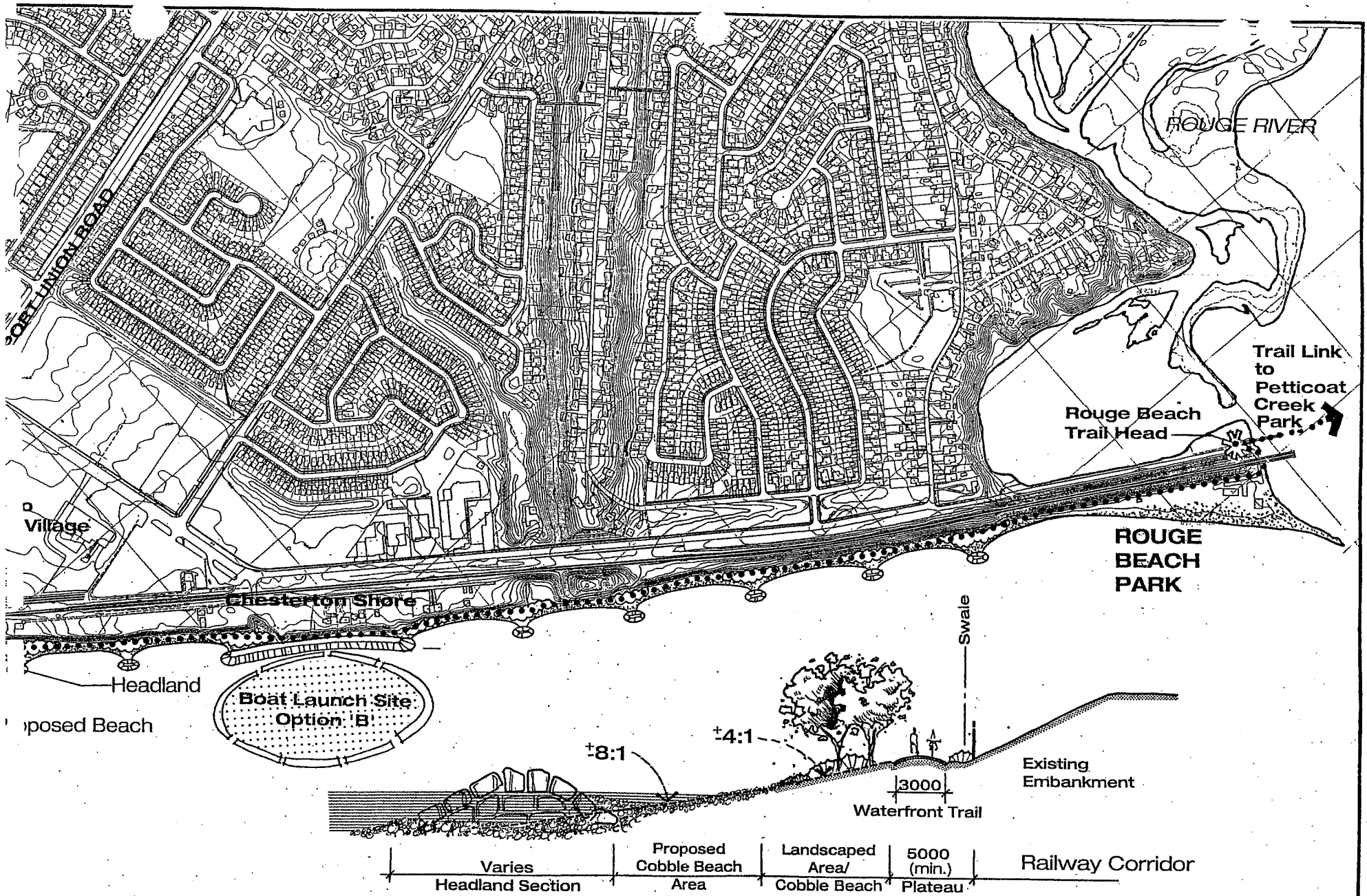
## Boat Launch Concept Plan 'A'



# INTEGRATED SHORELINE MANAGEMENT PLAN

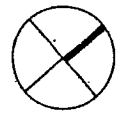
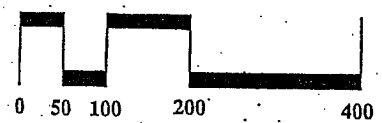
MAP 8-3

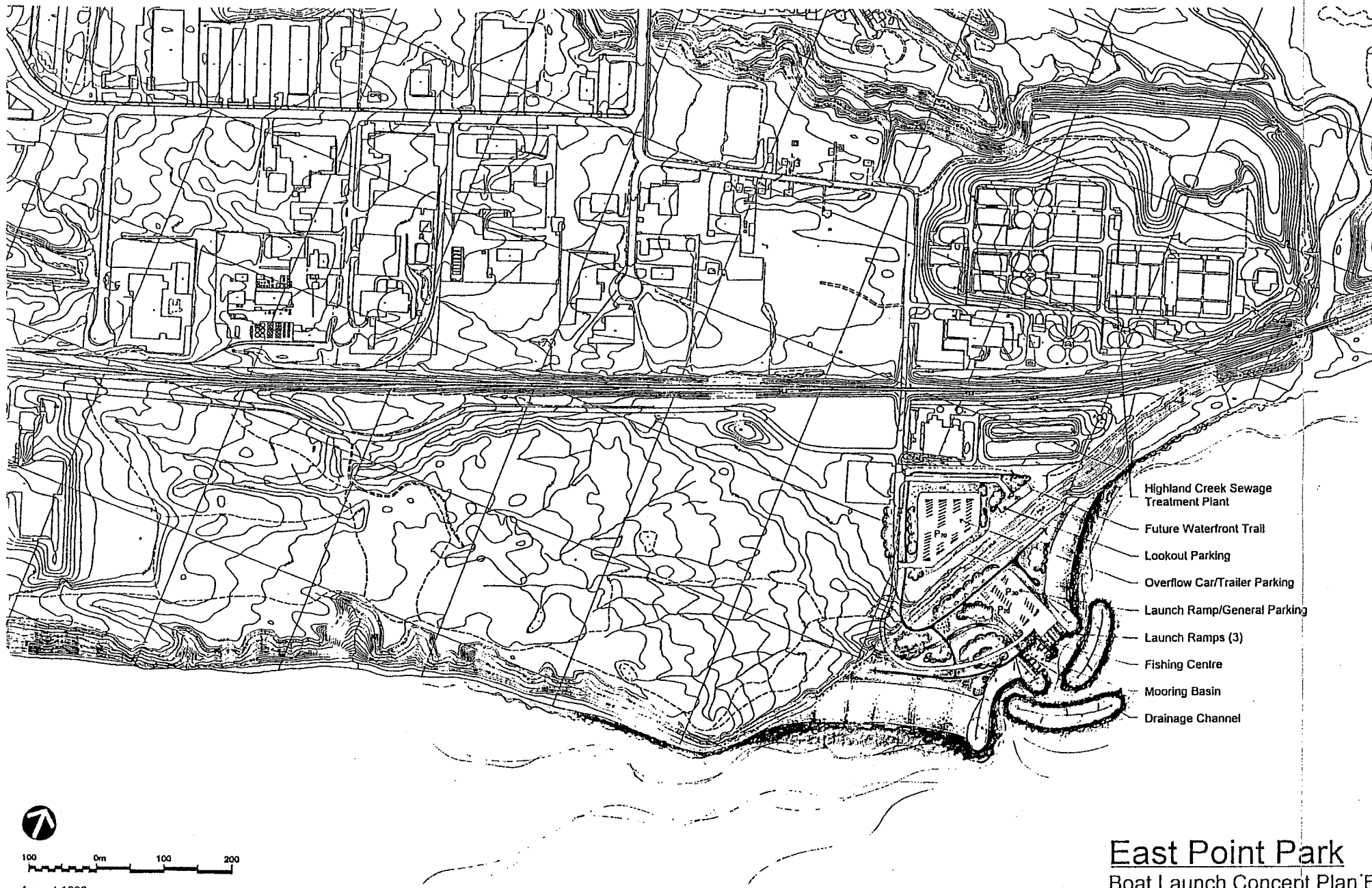
## Conceptual Waterfront Trail and Shoreline Improvements



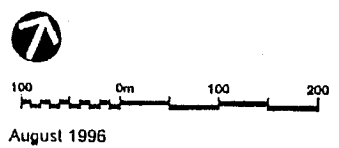
**Typical Section** N.T.S.

Chland Creek to Rouge Beach Park





- Highland Creek Sewage Treatment Plant
- Future Waterfront Trail
- Lookout Parking
- Overflow Car/Trailer Parking
- Launch Ramp/General Parking
- Launch Ramps (3)
- Fishing Centre
- Mooring Basin
- Drainage Channel



**East Point Park**  
Boat Launch Concept Plan 'B'

August 1996

Key  
Management  
Recommendations  
for Individual  
Shoreline Segments  
chapter9

## 9.0 KEY MANAGEMENT RECOMMENDATIONS FOR INDIVIDUAL SHORELINE SEGMENTS

This chapter discusses each one of the twelve segments with respect to:

- general characteristics;
- challenges and opportunities (taking into consideration segment characteristics and public input); and
- recommendations for future actions which aim to meet the challenges and opportunities identified and leads us towards the shoreline vision.

The description of the general characteristics addresses only key attributes of the segment. For further details refer to the Phase 1 report or to Chapter 3 of this report.

A table has been provided for each segment which provides three columns.

Column 1 lists the ecosystem health criteria.

Column 2 presents “Challenges and Opportunities” for each segment. These have been derived from a review of:

- the vision for the shoreline;
- characteristics of each segment; and
- objectives defined based on an integration of technical analyses conducted by the ISMP study team together with input received from those who participated in the development of this ISMP (see Chapter 12 for a discussion of public participation).

It is implied that if all of the relevant challenges and opportunities are addressed for each segment, a balanced or healthy ecosystem would be achieved and within our vision established for the ISMP shoreline.

Column 3 provides a summary of the degree to which the recommendations of this ISMP advance the health or balanced nature of the ecosystem for each segment.

Having completed this exercise, it is assumed that some or all of the recommendations of this ISMP will be implemented., and having done so, the shoreline will move closer towards a balance which is perceived by the community to represent a desirable future.

Having achieved these objectives, the planning is not complete. It will be important to monitor the effectiveness of the actions taken, and perhaps to redefine the vision for the shoreline and objectives for each segment as physical characteristics, community values and community expectations change. A discussion of monitoring using the same 10 ecosystem health criteria is provided in Chapter 11.

Notes: Recommended management measures that have no or little geographic reference, but apply globally to the whole shoreline have not been included in this segment specific discussions (e.g., the establishment of a Waterfront Management Zone for the protection and enhancement of natural heritage). These can be found in the individual strategy discussions in Chapters 6 to 8, as well as in the discussion of implementation measures in Chapter 10.

### Legend:

#### Column A - Challenges and Opportunities (revised from Phase I):

- \* a key challenge or opportunity is presented for future shoreline management; actions necessary to address the challenge must go beyond routine maintenance and enhancement measures;

- ✓ no key challenge or opportunity for shoreline management; objectives for the future can be met through routine maintenance or enhancement of the current condition.

**Column B** - Effect of Phase II Recommendations:

- ✓ objectives met; no further management/actions required beyond routine maintenance/enhancement;
- ✦ objectives are exceeded largely in response to high priorities placed by study;
- ? challenge / opportunity cannot be addressed without further study;
- issue is largely outside of jurisdiction/ mandate of ISMP



# Segment 1 Tommy Thompson Park

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Tommy Thompson Park has been planned primarily for passive recreation purposes (ie. walkers, bicyclists, bird watchers, etc.), nature study and wildlife habitats. A Master Plan for Tommy Thompson Park is being implemented, and the ISMP recommendations are in keeping with the Master Plan. Lakefill activities continue on the southeast side.

## ■ Segment Characteristics:

- excellent pedestrian and vehicular access to segment/waterfront
- very high biological diversity
- provides a blend of natural habitat and low intensity recreation
- very severe wave climate on east side
- attractive regional recreation node

## ■ Challenges and Opportunities:

- enhancement of water and sediment quality
- Maintain and enhance the natural characteristics of the park
- sustainable shore stabilization (east side)
- establish appropriate public information and education features

## ■ Key Management Recommendations

- Foster biodiversity through the implementation of the Tommy Thompson Park Master Plan, in particular:
  - maintain natural plant diversity by maintaining a wide spectrum of successional stages;
  - establish core preservation areas which are closed to public access.

- Maintain the potential of the eastern edge (“Toronto Scarp”) as coldwater fish habitat (lake trout).
- Establish only those uses consistent with the Master Plan document including:
  - Park Visitor Centre, shelters, washrooms; and
  - Trail network (primary and secondary trails, and bicycle path) and lookouts.
- Provide interpretive signs that are complementary to the urban wilderness park concept;
- Develop link with water’s edge trail (see Segment 2) proposed to run along southern property boundary of Main Sewage Treatment Plant.
- Formalize/upgrade Leslie Street between Lakeshore Blvd and the park entrance as a regional gateway and provide an adequate trailhead facility at the park entrance, and public transit.
- Monitor erosion along east and south shorelines.
- Establish a structure (revetment/breakwater) along the east side to reduce the need for continuous filling. This will enhance coldwater fish habitat qualities.
- Support all measures to improve water quality including improvement of discharge water quality from the Main Sewage Treatment Plant and Don River water quality.

**SEGMENT 1 -- Tommy Thompson Park**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	+
Biological connectedness	✓	✓
Water and sediment quality	*	→
Recreation opportunities	✓	✓
Water's edge accessibility	✓	✓
Inland trail connection	✓	✓
Link with adjacent segments	*	?
Safety from coastal hazards	✓	?
Economic activities and opportunities	N/A	N/A
Connection with the past	*	✓
Neighborhood integrity/cohesion	N/A	N/A
Aesthetics	✓	✓

A= Challenges and Opportunities (revised from Phase 1)

B= Effect of Phase II Recommendations

## Segment 2 Ashbridge's Bay

Developments at Ashbridge's Bay (e.g., Main Sewage Treatment Plant and Ashbridge's Bay Marina) have resulted in intense pressure on, and change to, local natural systems while enhancing active recreation opportunities.

### ■ Characteristics:

- excellent pedestrian and vehicular access
- regional recreation node provides a variety of active and passive recreation opportunities
- current efforts are underway to enhance aquatic habitat diversity
- major residential development in progress at Greenwood lands
- high sediment deposition zone
- major sewage treatment plant outfall; several combined sewer outfalls

### ■ Challenges and Opportunities:

- improve water quality and sediment quality
- enhance terrestrial and aquatic habitat diversity
- establish natural links with Segments 1 and 3 and inland green spaces
- enhance opportunities for experiencing landscape history
- establish water's edge trail link with Segments 1 (Tommy Thompson Park) and 3 (Eastern Beaches)
- minimize dredging requirements
- establish pedestrian links with new residential development at Greenwood lands

■ **Key Management Recommendations:**

- Support all measures aimed at improving water and sediment quality (ie. improving treatment plant effluent quality and elimination of combined sewer overflows).
- Improve habitat diversity and the natural system:
  - create aquatic habitat within Coatsworth Cut;
  - naturalize sections of Ashbridge’s Bay Park and grounds around Metro’s Main Sewage Treatment Plant (could include developing wetland and woodlot habitat within Ashbridge’s Bay Park);
  - establish a continuous natural water’s edge corridor between Tommy Thompson Park and the Eastern Beaches;
  - include construction of a wetland on sheltered shorelines and provide a naturalized water’s edge; and
  - provide a natural habitat corridor between Ashbridge’s Bay Park and the Greenwood lands; integrate stormwater pond with park design.
- Improve recreational quality of Ashbridge’s Bay Park as a regional recreation node:
  - construct a water’s edge trail along the southern edge of Main Sewage Treatment Plant; widen trail corridor over Coatsworth Cut with buffer plantings between the trail and Lakeshore Blvd; provide dedicated pedestrian link between the shoreline and new residential development; and
  - maintain Woodbine Avenue/Lakeshore Blvd. as regional gateway.
- Provide interpretive signs describing the history of Ashbridge’s Bay and development of Toronto Waterfront.
- Provide lakefill at southern edge of Main Sewage Treatment Plant property to reduce maintenance dredging and improve navigation.

**SEGMENT 2 -- ASHBRIDGE'S BAY**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	+
Biological connectedness	*	✓
Water and sediment quality	*	?
Recreation opportunities	✓	+
Water's edge accessibility	✓	✓
Inland trail connection	✓	✓
Link with adjacent segments	*	✓
Safety from coastal hazards	✓	✓
Economic activities and opportunities	✓	✓
Connection with the past	*	✓
Neighborhood integrity/cohesion	N/A	✓
Aesthetics	✓	✓

A= Challenges and Opportunities (revised from Phase 1)  
 B= Effect of Phase II Recommendations

# Segment 3

## Eastern Beaches

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The Eastern Beaches are perhaps the best known and most visited segment of the ISMP shoreline. This segment is culturally and commercially diverse and has an active community link to the shoreline.

### ■ Characteristics:

- provides an array of recreation opportunities
- easy pedestrian access to water's edge
- boardwalk along water's edge
- stable mix of residential, commercial and open space land uses; stable communities
- commercial focal point at Queen St. East with links to waterfront
- public parking limited
- large park lands

### ■ Challenges and Opportunities:

- increase habitat and species diversity without compromising recreational qualities
- improve natural inland linkages, and natural waterfront corridor functions
- extension of waterfront trail (boardwalk) to R.C. Harris Filtration Plant
- establish trail links with neighbouring segments
- long-term shore stability uncertain
- improve public parking

### ■ Key Management Recommendations:

- Develop a vegetation management plan for the upper section of Glen Stewart Ravine; investigate restoration of the middle and lower sections of ravine.
- Naturalize parklands in selected locations, providing natural corridors.
- Continue monitoring efficiency of in-ground detention tank.
- Continue Waterfront Trail as "beachwalk" from Silver Birch Avenue on to R.C. Harris Filtration Plant.
- Provide stairs at eastern end of R.C. Harris Filtration Plant property for access to beach at west end of Segment 4.
- Develop regional visitor management scheme, in particular, aim to improve public parking within segment.
- Develop/upgrade Victoria Park Avenue/R.C. Harris Filtration Plant as a regional gateway within the constraint of the site (i.e. trailhead facilities, interpretive display, etc.).
- Maintain non-commercial, informal recreational use along water's edge.
- Monitor beach profile and sediment size.
- Develop long-term self-sustaining shoreline stabilization program; options include: a) lakefill in the central area around Leuty Lifeguard Station, or b) extension of local headlands at eastern end of boardwalk between Silver Birch Avenue and Nursewood Avenue (lower priority).

- Designate primary multi-use trail along sidewalk or streets between Victoria Park Avenue and Bluffer's Park. The exact alignment to be determined through public consultation.
- Designate a seasonal secondary trail (beachwalk) at water's edge between Victoria Park Avenue and Fishleigh Drive (feasibility to be confirmed ie. beach width and elevation, access and liability issues).
- Investigate links between the Fishleigh Drive revetment and Bluffers Park that do not conflict with the objective to maintain the Needles features (options include ferry, fixed or removable bridge/ causeway).
- Develop Fishleigh Drive access as a local gateway with appropriate trailhead infrastructure.
- In the long term, upgrade groyne structures to meet provincial policy for design storm protection (i.e. fill with gravel; moderate priority).
- Monitor effectiveness of revetment structures and establish nearshore armouring to enhance slope stability in unprotected sections (high priority).

**SEGMENT 4 -- Scarborough Bluffs West**

<b>Shoreline Ecosystem Health Criteria</b>	<b>A</b>	<b>B</b>
Habitat and species diversity, Rare species	*	✓
Biological connectedness	✓	✓
Water and sediment quality	✓	✓
Recreation opportunities	✓	✓
Water's edge accessibility	*	?
Inland trail connection	*	?
Link with adjacent segments	*	?
Safety from coastal hazards	✓	✓
Economic activities and opportunities	✓	✓
Connection with the past	✓	✓
Neighborhood integrity/cohesion	✓	+
Aesthetics	✓	✓

A= Challenges and Opportunities (revised from Phase I)  
 B= Effect of Phase II Recommendations

**SEGMENT 3 -- Eastern Beaches**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	*	✓
Biological connectedness	*	✓
Water and sediment quality	✓	→
Recreation opportunities	✓	+
Water's edge accessibility	✓	+
Inland trail connection	✓	✓
Link with adjacent segments	*	✓
Safety from coastal hazards	✓	+
Economic activities and opportunities	✓	✓
Connection with the past	✓	✓
Neighborhood integrity/cohesion	✓	+
Aesthetics	✓	✓

A= Challenges and Opportunities (revised from Phase I)

B= Effect of Phase II Recommendations

# Segment 4 Scarborough Bluffs West

This segment is best recognized for the aesthetic quality of the Scarborough Bluffs geologic formation.

## ■ Characteristics:

- unique and provincially significant bluff features
- difficult pedestrian access along water's edge through much of the segment
- steep slopes divide the shoreline from inland areas
- shore protection by revetments and groynes throughout much of the segment
- tableland characterized by medium density residential development and stable communities

## ■ Challenges and Opportunities:

- maintenance of bluff feature
- provision of water's edge trail and/or pedestrian access to the water's edge
- trail links with neighbouring segments
- long-term slope stability

## ■ Key Management Recommendations:

- Preserve the Needles formation as an eroding geological feature.
- Improve aquatic habitat along existing revetments by introducing additional rubble fill at toe of revetments; develop wetland habitat inland of existing revetments.

# Segment 5

## Bluffers Park

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Bluffer's Park is a focal point of regional significance for boating and recreation, with tremendous aesthetic and location advantages.

### ■ Characteristics:

- substantial boat mooring facilities
- passive parkland area located in proximity to the Needles geologic formation
- a small beach area located on the east side of the segment
- excellent vehicular access (although overused on peak summer days)

### ■ Challenges and Opportunities:

- pedestrian and cyclist safety along Brimley Road
- seasonal vehicular congestion on Brimley Road
- water's edge trail connection to neighbouring shoreline segments
- links with economic activity along Kingston Road corridor
- water quality within embayments
- tableland management

### ■ Key Management Recommendations:

- Improve water quality within the embayments through information/education of boaters and enforcement of marina use regulations.
- Improve aquatic habitat by "softening" the water's edge in less exposed sections by introduction of features such as root wads or log tangles. Target species: smallmouth bass, largemouth bass.

- Maintain good open coast habitat at outside edge of facility and improve through introduction of subsurface features (ie. underwater groynes). Target species: coldwater fish such as whitefish.
- Establish primary trail between Brimley Road and Gates Gully (Bellamy Ravine) along local streets; exact alignment to be determined.
- Establish secondary trail (beachwalk) at eastern end of Bluffers Park to link with Segment 6 (feasibility to be determined).
- Conduct concept study to resolve traffic issues and improved links between Bluffers Park and Kingston Road (ie. provide parking on tablelands and shuttle bus connection between Kingston Road and Bluffers Park, or provision of TTC bus loop). Consider closing general vehicle access to Brimley Road from Kingston Road (ie. limit access to boat launch users, delivery/drop-off and service vehicles) during peak summer months.
- Construct sidewalk pedestrian access and bicycle lanes down Brimley Road to avoid conflicts with vehicular traffic.
- Depending on outcome of conceptual plan/traffic study, transform portions of parking lots into multi-functional areas (ie. green surfaces instead of asphalt) and/or mixed commercial activity to increase visitor attractions.
- Monitor beach profiles on east side to determine extent of sediment by-passing and continue the monitoring of lakefill structures.

**SEGMENT 5 -- Bluffers Park**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	+
Biological connectedness	✓	✓
Water and sediment quality	*	+
Recreation opportunities	✓	+
Water's edge accessibility	*	?
Inland trail connection	*	✓
Link with adjacent segments	*	?
Safety from coastal hazards	✓	✓
Economic activities and opportunities	✓	+
Connection with the past	✓	✓
Neighborhood integrity/cohesion	✓	+
Aesthetics	✓	✓

A= Challenges and Opportunities (revised from Phase 1)

B= Effect of Phase II Recommendations

# Segment 6

Scarborough Bluffs East

This is a long stretch of shoreline with many important park features throughout.

**■ Characteristics:**

- steep slopes divide the shoreline from inland areas; opportunities to walk down to water's edge limited
- water's edge access through much of the segment on recently constructed revetments
- many park areas of various size on top of bluffs
- shoreline abuts largely residential communities
- aquatic habitat is open coast

**■ Challenges and Opportunities:**

- inland trail connections
- link waterfront trail with neighbouring segments
- enhancement of terrestrial habitat and corridors in parklands and along revetments
- enhance aquatic habitat along revetments
- increase recreational use of park locations such as the Guild Inn
- develop self sustaining shoreline stabilization program; preserve untreated "natural" reaches
- improve parking for regional users

**■ Key Management Recommendations:**

- Improve aquatic habitat along existing revetments by introducing additional rubble fill at toe of revetments; promote wetland development, inland of existing revetments.



- Develop Gates Gully (Bellamy Ravine) as a local gateway with appropriate trailhead infrastructure (provide public parking at Kingston Road).
- Develop the Guild Inn lands in accordance with the recommendations of the Guildwood Park Advisory Committee, and promote the Guild Inn as a local gateway (Guildwood Parkway) with appropriate trailhead infrastructure (ie. expanded parking facility at Guild Inn, signage) to link the public use of the Guild Inn lands with the public uses of the shoreline below.
- Develop headland at base of Guildwood Ravine to provide for water's edge destination point (ie. formal viewing, sitting).
- In addition to headland development at Guildwood Ravine, develop spawning beds and pebble/cobble/sand beach habitat.
- Establish primary waterfront trail (on revetment) loop between Gates Gully and Guildwood Ravine.
- Continue primary trail from Guildwood Inn east along local roads (potentially Guildwood Pkwy, Greyabbey Trail to Greyabbey Ravine); obtain easement along south side of CN tracks to link with Copperfield Road (Segment 7).
- Develop secondary trail/beachwalk between Bluffers Park and Gates Gully (feasibility to be determined).
- Complete the Sylvan Avenue erosion control project and provide a connection (beachwalk) to the Gates Gully.

**SEGMENT 6 -- Scarborough Bluffs East**

<b>Shoreline Ecosystem Health Criteria</b>	<b>A</b>	<b>B</b>
Habitat and species diversity, Rare species	*	✓
Biological connectedness	✓	✓
Water and sediment quality	✓	✓
Recreation opportunities	✓	+
Water's edge accessibility	*	?
Inland trail connection	✓	+
Link with adjacent segments	*	✓
Safety from coastal hazards	*	✓
Economic activities and opportunities	✓	✓
Connection with the past	✓	✓
Neighborhood integrity/cohesion	✓	+
Aesthetics	✓	+

A= Challenges and Opportunities (revised from Phase I)

B= Effect of Phase II Recommendations

# Segment 7 East Point Park

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This segment includes a large residential and commercial area between the shoreline and Kingston Road; a significant natural area and a regional sports field complex.

## ■ Characteristics:

- good vehicular access; no formal pedestrian access along water's edge
- presence of a large ANSI and ESA on top of the bluffs
- dividing point between east and west littoral transport
- location has been under review as potential location for boating facility
- open coast environment, significant fish habitat in the form of offshore boulder pavement and shoreline profile
- portion of the near shore open space has playing fields; the larger land area is used for informal passive recreation
- informal trails throughout natural area
- historic illegal dumping of garbage
- spectacular vista of the lake from the shoreline

## ■ Challenges and Opportunities:

- enhance connection with the community
- provide trail links with neighbouring segments
- increase opportunities for experiencing landscape and cultural history
- increase and diversify recreational opportunities without compromising terrestrial habitat quality
- maintain and enhance the function of aquatic and terrestrial habitats
- formalize access to the water's edge
- location suitable for recreation facility such as boat launch

## ■ Key Management Recommendations:

- Develop a management plan for natural areas with emphasis on:
  - habitat restoration/enhancement;
  - vegetation management (maintain wide spectrum of successional stages);
  - visitor management (trails, interpretive signage, core preservation areas).
- Establish primary waterfront trail along the shoreline (on the tablelands) with formal link to Highland Creek Trail.
- Potential location for a boat launch facility in the area, subject to an Environmental Assessment and review of specific local factors.
- Construction of any "in-lake" structure to take existing high quality coldwater fish habitat into consideration (i.e. maintain open coast habitat).
- Develop access corridors and community gateways into the area and provide appropriate trailhead infrastructure (parking, information, signage, comfort station).

**SEGMENT 7 - East Point Park**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	+
Biological connectedness	✓	✓
Water and sediment quality	*	→
Recreation opportunities	✓	✓
Water's edge accessibility	*	✓
Inland trail connection	*	✓
Link with neighborhood segment	*	✓
Safety from coastal hazards	✓	✓
Economic activities and opportunities	N/A	N/A
Connection with the past	*	✓
Neighbourhood integrity/cohesion	N/A	N/A
Aesthetics	✓	✓

A= Challenges and Opportunities (revised from Phase I)

B= Effect of Phase II Recommendations

# Segment 8 Highland Creek

Natural corridor with a remnant coastal wetland and significant creek valley containing diverse animal and plant communities.

■ **Characteristics:**

- segment primarily in natural state providing for diverse plant and animal life
- some informal recreational activity occurs in the form of hiking, nature viewing and canoeing
- Highland Creek Trail and waterfront linkage are under construction

■ **Challenges and Opportunities:**

- improve water quality of Highland Creek
- establish access to inland areas (along Highland and Centennial Creek)
- provide pedestrian link to Segment 7
- provide pedestrian link over Highland Creek to Segment 9
- preserve natural river mouth and beach habitat, in as natural a state as possible

■ **Key Management Recommendations:**

- Focal point for habitat restoration: implement habitat restoration/enhancement program for Stephenson's Swamp.
- Complete formal trail link to inland areas along west side of Highland Creek, include interpretive signage on landscape history.
- Establish trail connections between Highland Creek and East Point under CN Rail bridge on west side of creek and Port Union crossing south of railway tracks (agreement with CN Rail required).

- Support all measures designed to improve water quality in watershed (ie. best management practises to improve surface run-off quality; municipal sewer separation programs; end of pipe actions; improved waste water treatment efficiency at Highland WPCP; and effective RAP initiatives).
- Support removal of upstream fish barriers.
- Rail line will require additional protection over long-term; Waterfront Trail structures should be against the railway embankment to protect the beach, were possible.

**SEGMENT 8 - Highland Creek**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	+
Biological connectedness	✓	✓
Water and sediment quality	*	→
Recreation opportunities	✓	✓
Water's edge accessibility	*	✓
Inland trail connection	*	✓
Link with neighborhood segment	*	✓
Safety from coastal hazards	✓	✓
Economic activities and opportunities	N/A	N/A
Connection with the past	*	✓
Neighborhood integrity/cohesion	N/A	N/A
Aesthetics	✓	✓

A= Challenges and Opportunities

B= Objectives of Management Recommendations

# Segment 9 Port Union Road

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Large residential communities and extensive former industrial area currently undergoing redevelopment.

## ■ Characteristics:

- excellent regional road access; excellent access via public transit (GO Station)
- access to the shore blocked by CN rail line
- development/planning of major residential areas and mixed use “village common” in progress
- Waste Disposal Facility near waterfront north of the CNR line.

## ■ Challenges and Opportunities:

- potential location for high quality regional gateway with regionally significant recreation/tourist destination point
- development of viable commercial/residential community
- provision of pedestrian access to and along the water’s edge
- resolution of rail use conflicts including pedestrian and vehicle crossing of the CN rail line
- enhancement of natural habitat along shoreline
- establishment of natural inland linkages and integration with new residential developments
- development of self sustaining shoreline stabilization program
- Review with the community the possibility of integrating the Waste Disposal Facility into the public use/green space system.
- enhance trail linkages with neighbouring segments
- enhance visual quality and visual access to waterfront

## ■ Key Management Recommendations:

- Develop site-specific concept plan for waterfront, integrating urban development, tourism and recreation, trail alignment, local traffic conditions, and habitat restoration.
- Establish natural linkages between lake and green spaces within new residential development (ie. extend open space around proposed school site and Port Union Community Centre south to lake front).
- Potential location for a boat launch facility in the area, subject to an Environmental Assessment and review of specific local factors.
- Develop Port Union Road as regional gateway and provide destination oriented activities at waterfront (ie. at-shore recreational facilities, such as pier, viewing platform).
- Improve open coast aquatic habitat diversity in context of developing water’s edge trail/pier structure/launching facility.
- Provide primary waterfront trail along the entire water’s edge, south of the train tracks.
- Provide pedestrian access to waterfront trail from proposed village common (i.e. provide access across CN Rail).
- Consider purchase of private homes on south side of rail line for purpose of establishing commercial-recreational use at Chesterton Shores.
- Support continued monitoring of the Waste Disposal Facility and when conditions permit, investigate in consultation with the community the appropriateness of public use of this site as part of the open space system.

- Improve pedestrian access to the waterfront from the Go Station parking lot with a link to the planned village common, Chesterton Shores and Waterfront Trail.
- Encourage CN Rail to participate in preparation of long-term shore management.

**SEGMENT 9 - Port Union**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	*	✓
Biological connectedness	*	✓
Water and sediment quality	✓	✓
Recreation opportunities	*	✓
Water's edge accessibility	*	✓
Inland trail connection	✓	✓
Link with neighborhood segment	*	✓
Safety from coastal and environmental hazards	*	?
Economic activities and opportunities	*	✓
Connection with the past	*	✓
Neighborhood integrity/cohesion	*	✓
Aesthetics	*	✓

A= Challenges and Opportunities

B= Objectives of Management Recommendations

# Segment 10 Rouge River Park

The Rouge River system is an important natural area with species and habitat diversity second to none in the study area. A Management Plan for the Rouge River is being implemented, and the ISMP recommendations are in support of the Plan. The system provides an excellent natural corridor with a diverse array of passive recreation opportunities.

**■ Characteristics:**

- most significant habitat corridor within the study area extending inland through a number of municipalities
- this segment is part of the Rouge Park Master Plan area, consisting of some 5,800 acres of land in Scarborough (with substantial valley connection to additional parkland/habitat located north of Steeles Avenue).

**■ Challenges and Opportunities:**

- improving the Rouge River water quality
- implementation of the Rouge Park Management Plan
- integration of ISMP with Rouge Park Management Plan
- preservation of sand bar feature at mouth of river
- trail connection to Port Union Road, Segment 9 and Segment 11

**■ Key Management Recommendations:**

- Support implementation of the Rouge Park Master Plan and integration with the ISMP.

- Support all measures designed to improve water quality in the watershed (ie. best management practices to improve surface run-off quality; municipal sewer separation programs; end of pipe solutions).
- Monitor development of sandbar and erosion at headland on the east side of the mouth of the Rouge; stabilize headland (east side), if required.
- Establish primary trail link south of CN Rail line with Segment 9.

#### SEGMENT 10 - Rouge River Park

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	✓
Biological connectedness	✓	✓
Water and sediment quality	*	→
Recreation opportunities	✓	✓
Water's edge accessibility	✓	✓
Inland trail connection	✓	✓
Link with adjacent segment	✓	+
Safety from coastal hazards	✓	?
Economic activities and opportunities	N/A	N/A
Connection with the past	✓	✓
Neighborhood integrity/cohesion	N/A	N/A
Aesthetics	✓	✓

A= Challenges and Opportunities

B= Objectives of Management Recommendations

# Segment 11 Petticoat Creek

This is a largely residential segment with significant natural habitat and recreation areas associated with Petticoat Creek Conservation Area. Petticoat Creek is one of three major natural inland corridors within the study area.

#### ■ Characteristics:

- excellent vehicular and pedestrian access to waterfront and recreation opportunities at the Conservation Area
- Petticoat Creek system represents one of the three most significant natural corridors within the Plan area, extending inland beyond the study area boundaries
- good passive recreation opportunities

#### ■ Challenges and Opportunities:

- shoreline protection without impacting beach nourishment in Segment 12
- improving the water quality of Petticoat Creek

#### ■ Key Management Recommendations:

- Naturalize portions of Conservation Area to enhance natural corridors and habitat diversity.
- Support all measures designed to improve water quality within watershed (ie. best management practices to improve surface runoff quality; municipal sewer separation programs; end of pipe actions; improved waste water treatment efficiency and effectiveness; and RAP initiatives).
- Enhance Whites Road as a regional gateway.

- Recognize Petticoat Creek Conservation Area as a Regional Recreation Node.
- Provide a greater degree of pedestrian/bicycle access/connection to inland areas (along Petticoat Creek).
- Maintain primary trail along the top of the bluff (brow trail).
- Maintain trail link along residential roads between Petticoat Creek Conservation Area and Frenchman’s Bay (i.e. along Park Cr., Surf Ave., West Shore Blvd., and Beachpoint Prom.).
- Provide innovative methods for shoreline treatment at Fairport Beach, such as near-shore armouring, and profile adjusting revetments.
- Reinforce natural headlands to protect/stabilize beach in Segment 10 (low to moderate priority, depending on monitoring results at Rouge River mouth).
- Protection of existing residences (currently unprotected) should be high priority or purchase homes over long-term.

**SEGMENT 11 - Petticoat Creek**

Shoreline Ecosystem Health Criteria	A	B
Habitat and species diversity, Rare species	✓	+
Biological connectedness	✓	+
Water and sediment quality	✓	→
Recreation opportunities	✓	✓
Water's edge accessibility	✓	✓
Inland trail connection	✓	✓
Link with adjacent segments	*	✓
Safety from coastal hazards	✓	✓
Economic activities and opportunities	✓	✓
Connection with the past	*	✓
Neighborhood integrity/cohesion	✓	✓
Aesthetics	✓	✓

A= Challenges and Opportunities

B= Objectives of Management Recommendations



# Segment 12 Frenchman's Bay

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This is a diverse area with a large residential community, commercial uses, marinas, beaches, and public parks. It is a focal point of regional significance for recreation. Significant wetland features and prominent bay.

## ■ Characteristics:

- very accessible for local and regional visitors
- extensive marina facilities
- contains a diversity of wetlands and fish habitat
- poor water quality (sedimentation within the Bay)
- dynamic sand beach

## ■ Challenges and Opportunities:

- improvement of water quality and reduce sedimentation
- preservation of aquatic and wetland habitat
- need to ensure that future development within the watershed will not cause further deterioration of habitat and water quality
- stabilization of beach profiles
- alignment of waterfront trail
- visual quality/level of maintenance of public grounds
- requirement for long term dredging of the Bay entrance

## ■ Key Management Recommendations:

- Develop using a detailed concept plan for the entire Bay area as a regional recreation node; key actions may include:
  - concentration of commercial uses on east side;
  - habitat protection and restoration;
  - use restrictions on the water and bay shores;

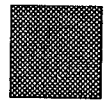
- purchase properties at end of Beachpoint Promenade; block vehicular access at west end of Promenade and provide for parking and trail head facilities;
  - designate waterfront trail spur along Beachpoint Promenade;
  - move the existing boat launch from the west to the east side of Bay;
  - establish pedestrian link between west and east shore (options to investigate may include: ferry link; boardwalk between Bruce Hanscombe Park and Bayview Street);
  - develop Liverpool Road into regional gateway with appropriate trailhead infrastructure;
  - restore and protect beach/dune habitat on west side of gap (promote vegetation of dune features);
  - restore/enhance lake marsh habitat; and
  - naturalize portions of public parklands (Ontario Hydro Park, Bay Ridges Kinsmen Park, Bruce Hanscombe Park).
- Maintain the function of the sand dunes (regeneration of vegetation, limit public access).
  - Support all measures designed to improve water quality (ie. best management practices to improve surface runoff quality; municipal sewer separation programs; end of pipe actions; improved waste water treatment efficiency and effectiveness; and RAP initiatives).

**SEGMENT 12 - Frenchman's Bay**

<b>Shoreline Ecosystem Health Criteria</b>	<b>A</b>	<b>B</b>
Habitat and species diversity, Rare species	✓	✓
Biological connectedness	✓	✓
Water and sediment quality	*	→
Recreation opportunities	✓	✓
Water's edge accessibility	*	?
Inland trail connection	✓	✓
Link with adjacent segments	*	✓
Safety from coastal hazards	*	✓
Economic activities and opportunities	✓	✓
Connection with the past	✓	✓
Neighborhood integrity/cohesion	✓	○
Aesthetics	✓	✓

A= Challenges and Opportunities

B= Objectives of Management Recommendations



Strategy  
Integration &

Implementation

Plan

Implementation

chapter 10

## 10.0 PLAN IMPLEMENTATION

### 10.1 Overview

There are a number of issues which must be considered in carrying out the ISMP:

- regulatory controls;
- concept areas;
- land management;
- land ownership;
- monitoring;
- provision of information, public education;
- Shoreline Management Advisory Committee; and
- roles and responsibilities of government agencies.

Recommendations relating to each one of these categories are discussed in the following sections.

### 10.2 Regulatory Controls

The ISMP study area shoreline stretches approximately 35 km through a number of political and planning jurisdictions with a vested interest in the management, enhancement and preservation of the Lake Ontario shoreline. In this regard, there are as many as 20 pieces of legislation which apply in the regulation of development within or adjacent to the ISMP study area shoreline (as indicated in Table 10.1).

Of particular importance to the development of the ISMP, is the *Comprehensive Set of Policy Statements*<sup>1</sup> which accompanied the revised *Planning Act* (Bill 163) passed under the former Provincial government. The *Comprehensive Set of Policy Statements* include Regulatory Shoreline Standards to identify areas of potential hazards along the shoreline and to control development in these areas. The Regulatory Shoreline is defined within the as the *Comprehensive Set of Policy Statements* as the landward most extent of the three possible Regulatory Shoreline Standards (ie., Regulatory Flood Standard, Regulatory Erosion Standard and the Dynamic Beach Standard). In addition to the three Regulatory Standards, the *Implementation Guidelines* also identify Floodproofing and Protection Works Standards.

The *Comprehensive Set of Policy Statements* state that no development will be permitted within (as applicable to the study area only):

- the regulatory dynamic beach standard; or
- regulatory shoreline where the area is to be used for institutional uses or essential emergency services or for disposal, manufacture, treatment or storage of hazardous substances and/or sewage;

and that development may be permitted in areas within the regulatory flood standard and regulatory erosion standard, where:

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<sup>1</sup> It should be noted that the *Planning Act* has been revised through Bill 20 to become the *Land Use Planning and Protection Act*. With the proclamation of the new *Planning Act* (Bill 20) and its accompanying *Provincial Policy Statement* in May 1996, the *Comprehensive Set of Policy Statements* and with it the policies, definitions and associated implementation guidelines are no longer provincially binding. However, in the absence of new definitions and implementation guidelines, this report continues to use the Regulatory Shoreline Standard and Protection Works Standard as defined in the *Comprehensive Set of Policy Statements* and its accompanying *Implementation Guidelines* in developing management recommendations for shoreline regeneration and public safety.

- the flooding and erosion standards can be safely addressed;
- new or existing hazards are not created or aggravated;
- no adverse impact will result;
- vehicles and people have a way of safely entering and exiting the area during times of flooding and erosion emergencies; and
- development is carried out in accordance with established standards and procedures.

A brief discussion of the roles and responsibilities of the various government agencies with a vested interest in the ISMP shoreline is provided in Section 10.9.

**Table 10.1 Legislation Pertinent to Activities on the ISMP Study Area Shoreline of Lake Ontario**

Agency	Legislation
Department of Fisheries and Oceans	Federal Fisheries Act Fishing and Recreational Harbours Act
Environment Canada	Canadian Environmental Assessment Act Migratory Birds Convention Act (Canadian Wildlife Service)
Transport Canada	Public Harbours and Port Facilities Act Navigable Waters Protection Act Harbour Commissions Act
Ontario Ministry of Natural Resources	Lakes and Rivers Improvement Act Public Lands Act Aggregate Resources Act Game and Fish Act Beds of Navigable Waters Act Conservation Authorities Act Endangered Species Act Provincial Parks Act Trees Act
Ontario Ministry of Municipal Affairs and Housing/Local Municipalities	Planning Act Municipal Act
Ontario Ministry of Environment and Energy	Environmental Protection Act Environmental Assessment Act Ontario Water Resources Act

In addition to these regulatory mechanisms, a **Waterfront Management Zone (WMZ)** has been defined by this Strategy. Its purpose is to protect waterfront features and integrity through the control of land use and development. This policy area has been developed consistent with the provisions of the *Planning Act* and relevant Municipal Official Plans.

The WMZ is intended to provide municipalities and regulatory agencies with a planning and decision-making tool which will be helpful in:

- implementing integrated waterfront policies of this ISMP, Official Plans (and amendments), Secondary Plans, and zoning by-laws;
- evaluating development proposals; and
- prioritizing planning efforts and needs for future project funding.

The WMZ establishes policy recommendations related to :

- Preferred Uses;
- Development Concept, Application and Submission Requirements;
- Setback and Separation Distance Requirements; and
- Design Standards.



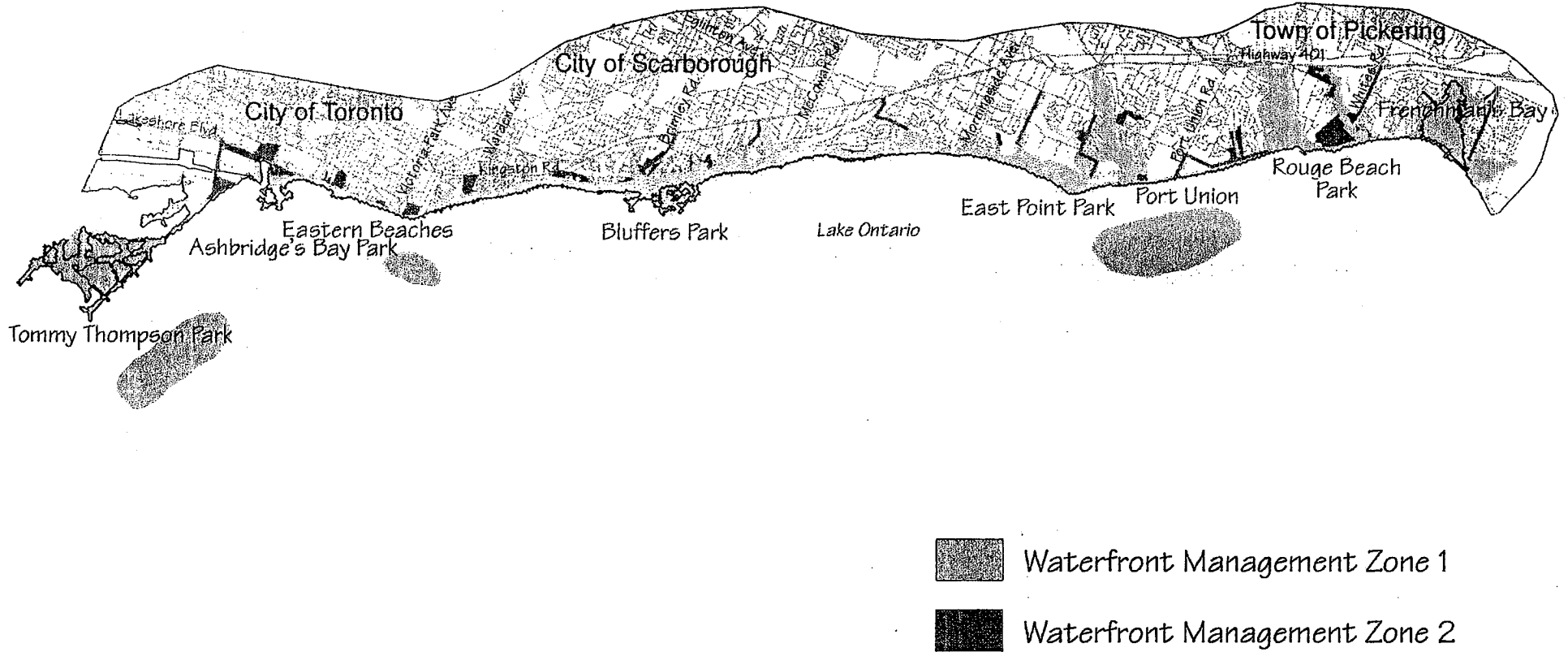
**Recommendation**

It is recommended that a Waterfront Management Zone concept be adopted as Official Plan Policy by the three local municipalities within the plan area. The recommended extent of the WMZ is depicted in Map 10-1. The proposed regulatory provisions for the management zone are provided in Appendix B.

Map 10-1

# Integrated Shoreline Management Plan Tommy Thompson Park to Frenchman's Bay

## Shoreline Management Zones



### 10.3 Concept Areas

Local issues in a number of specific areas can only be resolved on a site-specific basis with the participation and cooperation of all stakeholders including local communities, and the consideration of area characteristics at a level of detail beyond that contained in this ISMP.



#### **Recommendation**

It is recommended more detailed planning studies be conducted (Table 10.2) for six concept areas identified within this ISMP.

**Table 10.2: Recommended Areas for Local Action Plans**

Segment #	Area	Planning Objectives
5	Bluffers Park - Brimley Road - Kingston Road	Relief of high traffic congestion during peak summer hours; establish highest and best use for park lands. Consideration could be given to a visitor parking facility near Kingston Road and alternative uses for portions of parking spaces within Bluffers Park. Future plans should be integrated with the Kingston Road area review being conducted by the City of Scarborough.
6	Bellamy Ravine (Gates Gully)	Relief of parking congestion at north end of the Ravine; a formal community trailhead facility; integration with normal community activities.
6	Guildwood Inn/ Guildwood Ravine	Formal trailhead facilities appropriate for community gateway; improvements to the trail apron at the bottom of ravine to accommodate a formal viewing point and rest area

Segment #	Area	Planning Objectives
7	East Point	Development of formal trail head facilities; visitor management in ANSI/ESA; habitat management; consideration of a boat facility; formalize trail links with community recreation centre and neighbouring segments
9	Port Union	Integrate land use and urban design concepts including village common, pedestrian and vehicular traffic, boat launch facility, viewing pier, waterfront trail, potential. Future plans should be integrated with the various secondary plans and concepts being developed with and by the City of Scarborough.
12	Frenchman's Bay	Watershed management, habitat management (beach protection, lake marsh enhancement/restoration), waterfront trail delineation, improvement of aesthetic qualities, bay entrance design and dredging activities; commercial and residential developments; improvements of water quality should be examined in an integrated manner considering community input and goals/ objectives of the Town of Pickering Official Plan.



## 10.4 Land Management

The objectives of this ISMP can only be accomplished with the cooperation and active support of property owners (private and public). The following sections provide a discussion and direction as to the style and role of land management and ownership recommended for the ISMP plan area.

### **Management of Public Lands**

Publicly owned lands such as parks, sportsgrounds, lands held by utilities etc. make up the much of the immediate waterfront in the ISMP plan area. As such the responsibility for implementing many of the recommendations within this ISMP, such as improvement of habitat qualities, the provision of recreational amenities, or surface water management improvements, lie with public agencies/landowners (mostly the MTRCA and the municipalities).

The management of public lands may be more effective if carried out by a private organization. In this case, a private party (such as a neighbourhood group) might agree to manage a public property, perhaps in exchange for a specific use of the property considered to be in the public interest.

Increasingly, neighbourhood groups, and individuals are taking on more responsibility in managing public lands as public budgets do not always fulfill the objectives of the community within an area. More and more citizens groups within Metropolitan Toronto are raising funds privately for the purpose of providing public resources such as park fixtures (e.g., benches, children's play areas, etc.).



### **Recommendation**

It is recommended that the MTRCA and other public agencies encourage and support the involvement of private organizations,

neighbourhoods, and individuals in the management of publicly owned lands.

### **Management of Private Lands**

Opportunities can be provided for private landowners and government agencies to form partnerships in the management of land through mutually acceptable agreements. The purpose of these agreements would be for a public agency to join a private landowner as a partner in the stewardship and management of land acknowledged to have a high value to the public because of its natural resources, views, shoreline profile, etc. The landowner would not have to give up ownership and control of the land, and the government agency would not have to finance purchase of the land.

These types of agreements may be ideal in cases where the public has a specific interest in a property (such as protection or enhancement of a significant natural resource such as a woodlot). Although the public need not own the woodlot and cannot afford to manage the woodlot, a stewardship agreement is entered into with the landowner whereby he agrees to maintain the woodlot in a certain manner. The motivation on the private landowner's side may be purely altruistic or based on incentive programs (e.g., tax reductions, supply of free plant material, etc.).

Land stewardship agreements have been used successfully in many parts of Ontario to advance public-oriented goals and objectives in the management of private lands. Many landowners are supportive of natural heritage protection and experience has shown that a personal approach through a non-regulatory landowner contact program can increase this commitment. Private land stewardship programs are primarily oriented towards the protection and restoration of the natural qualities of a property. They are less appropriate for acquiring the right-of-way for public access due to traditional landowner concerns about liability, maintenance, privacy, etc. Private land stewardship

agreements can be verbal or written and may or may not be legally binding.

### **Public-Private Partnerships**

ISMP participants clearly indicated that the waterfront should be an environment offering cost-free recreational experiences, primarily passive in nature with active areas of use remaining the exception. Over-commercialization of the waterfront was clearly rejected by the majority of participants. In keeping with this vision, it is unlikely that a large number of major projects would be developed within the ISMP plan area.

However, in those cases where major projects may be envisaged, it is worth considering private-public partnerships as an alternative to the traditional project financing/development model. In light of limited public funds for public works projects, partnerships between private developers/operators and public agencies are becoming increasingly attractive for the realization of certain, mostly large projects.

There are many models of private-public partnerships ranging from a simple contract to operate a service or facility to full private sector financing of development, private sector ownership and transfer of ownership after an agreed period. The key ingredient of a private-public partnership is to have the private sector finance development/operation in exchange for an annual payment or revenue stream. The private sector benefits in that it develops/operates a facility or service at a profit. The public sector benefits as it is able to provide public infrastructure without bearing full financial risk. This model must be examined carefully before implementation, and will likely only apply in limited cases.



### **Recommendation**

Land stewardship programs and agreements with private landowners are considered to be a desirable implementation tool for a number of shoreline management recommendations, in particular, habitat restoration and enhancement measures recommended as part of the Natural Heritage Strategy. In general, it is recommended that the MTRCA and other public agencies:

- examine and develop appropriate land stewardship models which are publicly acceptable and appropriate;
- actively encourage landowners to enter stewardship agreements;
- document successful stewardship programs within the plan area, as an information base for future projects and in public recognition of corporations, individuals and groups who demonstrate outstanding leadership in the stewardship of land; and
- examine the feasibility and potential for private-public partnerships in the provision of facilities and services on a case-basis, particularly for projects/initiatives for which financing may be limited and/or public management/ownership is not required.

### **10.5 Land Ownership**

Within the plan area, the majority of land directly adjacent to the shoreline is currently in public ownership, in the form of parks and conservation areas. The land in private ownership, although a smaller proportion, is still significant and requires separate consideration in the formulation of planning direction for the waterfront (see Management of Private Lands, above).

There are advantages to both private and public landownership.

## Public Ownership

Public ownership of land provides a high degree of public control over the maintenance and use of properties. This is of particular interest in the case of sensitive natural areas, areas targeted for habitat restoration or enhancement measures, as well as areas designated for public use and access.

Public agencies typically acquire land through purchase, donation, or dedication during development, often using the parkland dedication provision in the *Planning Act*. Acquisition includes acquisition of access agreements or leases (easements) to provide for a trail link or other public access across private lands.

Where public access and use is the prime objective, public ownership is preferred given private landowner concerns about liability, privacy, and maintenance. In addition, the protection, enhancement and overall management of significant natural resources and parks may also be left to public ownership given acquisition and maintenance costs.

Ownership of properties by non-profit conservation oriented organizations may represent a viable alternative to acquisitions by public agencies.

## Private Ownership

There are many private land holdings along the ISMP shoreline. Because of the rare beauty and uniqueness of waterfront properties, they have always, and will always remain in high demand, even after consideration of public safety and public access concerns. Aside from lands where access and public use are best restricted for safety and preservation reasons, and those lands which are strategically important for recreation reasons, private landownership is entirely compatible with the objectives of this ISMP and will remain a characteristic of the ISMP shoreline for many years to come.



## Recommendation

It is recommended that the ultimate goal of this ISMP is to secure public ownership of all lands within the Waterfront Management Zone 1 with priority on hazard lands, recognizing the ever-growing public demand for access to the lakeshore, the limited supply of land, and public safety requirements in light of the proposed shoreline regeneration.

This goal will not be achieved for many years to come, and as such does not preclude private ownership of lands along the waterfront as a near term prospect.

## Land Acquisition

Given the cost of purchasing and maintaining land, it is suggested that the current process of acquiring lands incrementally, as budgets allow, be continued. Currently lands are acquired for several reasons:

- concerns for public safety where erosion or other lake processes are threatening the safety of a residence for occupation purposes;
- to provide public recreational opportunities; and
- to provide public access (e.g., trails) or services (e.g., parking) in support of other public uses.

Through this approach, it could be generations before the long-term goal is achieved. To hasten the process, it may be beneficial to implement a land acquisition program whereby strategic properties are purchased as they come to market.

In developing the shoreline management strategies discussed in Sections 6 to 9, a number of properties have been identified for which public ownership in the short-term is recommended. The suggested priority for acquiring these lands was developed in consideration of the many demands for public property acquisition placed on the MTRCA for many divergent purposes.



### Recommendation

Recommended acquisitions are listed in Table 10.3 including rationale and priority ranking.

**Table 10.3: Recommendations for Public Acquisition of Key Properties and Easements**

#	Location/ Description	Purpose	Priority
2	Main Sewage Treatment Plant	Perpetual public use easement along shoreline for waterfront trail	L
4	Toronto Hunt Club Waterlot	Perpetual public use easement along shoreline for waterfront trail	H
4	Reach 62 residential properties at south end of Midland Avenue	Purchase properties to allow continuous bluff erosion	M-L
	Private properties affected by self stabilization of bluffs	Allow self stabilization of slopes	L
6	Greyabbey Trail to Copperfield Road	Perpetual public use easement along CN Rail right-of-way	H
	Any private property within regulatory shoreline east of Morningside	Ensure maintenance of natural shoreline	L
8	Highland Creek Mouth	Perpetual public use easement for underpath and bridge/trail parallel to railroad track right-of-way	H
9	Port Union, south of CN Rail tracks	Perpetual use easement to establish waterfront trail	H
9	Port Union, Chesterton Shore	Property acquisition for completion of waterfront trail and development of water-oriented recreation facility	M
12	Frenchman's Bay, properties south of Beachpoint Promenade	Property acquisition for shore stabilization through dune development	M

Priorities: H - High M - Moderate L - Low

## 10.6 Monitoring

Monitoring the implementation of the goals and objectives of the ISMP has been recognized as being critical to the success of the ISMP and, therefore, has been incorporated as a separate shoreline management strategy. For a detailed discussion of recommended monitoring measures please refer to Chapter 11.

## 10.7 Provision of Information (Public Education)

The success of shoreline management is largely dependent on community commitment to plan goals and objectives. Without the support of individuals, citizen groups and neighbourhoods, the vision developed for the shoreline cannot become reality. Prerequisite for this “buy-in” from the residents is a good understanding and appreciation of the waterfront’s natural heritage resources, their function and processes. What is also needed is a general awareness of the potential impact of our day-to-day life on the shoreline resources. This could include, for example, interactions and relationships between activities (e.g., water consumption and lake water quality, recreation activities and wildlife diversity).



### **Recommendation**

Techniques and tools to disseminate information and foster awareness, pride and a sense of ownership are many fold. The following key approaches are recommended:

- interpretive signage along the proposed waterfront trail explaining:
  - key natural features and processes; and
  - habitat restoration and enhancement measures.
- ISMP planning documentation in CD-ROM format for schools, libraries, community centres etc.

- opportunities for frequent hands-on experiences in habitat management (e.g., planting events).
- on-going public involvement in municipal and provincial planning processes which affect the future of the waterfront.

## 10.8 Waterfront Council

The formation of a Waterfront Council would be an effective method of integrating regulatory requirements technical issues, neighbourhood concerns, and municipal planning issues in the shoreline management. Typical tasks of the Council could be:

- promotion of habitat enhancement measures;
- promotion of stewardship programs;
- public education and information;
- coordination of the shoreline health monitoring;
- yearly state of the environment reporting;
- monitoring of ISMP strategy implementation;
- review of municipal planning activities/development applications;
- liaison and coordination of agency planning initiatives, including planning efforts in neighbouring communities; and
- updating the ISMP.



### **Recommendation**

It is recommended that a Waterfront Council be established to oversee the implementation and ongoing development of the ISMP. A membership similar to the Steering Committee that developed the ISMP is recommended, i.e., participants should represent, the shoreline communities, the three local municipalities, the two regional municipalities, the Ontario Ministry of Natural Resources, Conservation Council of Ontario, the Waterfront Regeneration Trust, and the Metro and Toronto Region Conservation Authority.

## 10.9 Roles and Responsibilities of Government Agencies

Responsibility for shoreline management and planning activities within the ISMP study area includes all three levels of government (federal, provincial, municipal).

### **The Federal Government**

Through the International Joint Commission, the Department of Fisheries and Oceans, Environment Canada, Transport Canada, and the Canadian Environmental Assessment Agency, the federal government is responsible for establishing policies and implementing planning at a national level.

- ***International Joint Commission***  
The International Joint Commission addresses issues regarding water quality and quantity, trans-boundary pollution and methods of dealing with fluctuating lake levels within the Great Lakes basin. The Commission is also responsible for monitoring progress on Remedial Action Plans (RAPs) for specific areas of concern around the Great Lakes.
- ***Department of Fisheries and Oceans***  
The duties, powers and functions of this Department extend to coastal and inland fisheries, fishing and recreation harbours, hydrographic and marine science policy, and program coordination among federal departments and agencies. Management and regulation of fisheries resources and habitat takes place under the *Federal Fisheries Act*.
- ***Environment Canada***  
Environment Canada has a mandate to protect Canada's natural heritage, promote sustainable development and conserve renewable water, land and wildlife resources. Both the *Canadian Environmental Assessment Act* and the *Migratory Birds*

*Convention Act* are available to Environment Canada to reach these objectives.

- ***Canadian Environmental Assessment Agency***  
Reporting to the Federal Minister of the Environment, the Canadian Environmental Assessment Agency (CEAA) operates independently of other federal departments or agencies in administering the *Canadian Environmental Assessment Act*.
- ***Transport Canada***  
Transport Canada regulates and protects the public's right to navigation by administering a system of applications and permits for works likely to obstruct navigation, as provided for under the *Navigable Waters Protection Act*. The department also administers the *Public Harbours and Port Facilities Act*.

### **The Provincial Government**

The Ontario Ministry of Natural Resources (OMNR) and the Ministry of Municipal Affairs and Housing (MMAH) are the two key provincial ministries involved in shore zone management. The Ministry of Environment and Energy (MOEE) also plays a role through legislation dealing with water quality and waste disposal.

- ***Ontario Ministry of Natural Resources***  
The OMNR is the lead agency responsible for administering the provincial shoreline management program. It is in charge of setting the overall policy direction and for program development - defining, delineating and managing shoreline hazards, flood forecasting and warning, technical assistance, and provision of emergency funding during a flood and/or erosion emergency. The OMNR administers the *Lakes and Rivers Improvement Act*, the *Public Lands Act*, the *Conservation Authorities Act*, and the *Federal Fisheries Act*, although ultimate authority for the latter is held by the Department of Fisheries and Oceans.

- Ministry of Municipal Affairs and Housing**  
 The administration of the *Planning Act* is the mandate of MMAH (see footnote 1 on page 11-1). MMAH is responsible for the establishment of broad provincial planning policy, the review and/or approval of various municipal land use planning documents, the funding of disaster relief programs as approved by Cabinet, and funding assistance programs for the repair of municipal and other public infrastructure activities.
- Ministry of Environment and Energy**  
 The MOEE is responsible for maintaining and enhancing the quality of the environment, including air, land and water, through the *Environmental Protection Act*. This affects potential shoreline work in places where the Ministry has developed specific programs for the management of water use, the protection of surface water quality, and the enhancement and protection of groundwater resources. In addition, the MOEE has instituted regulations to control water taking, sewage treatment and discharge of contaminants to land and water.

**Municipal Governments**

The ISMP study area traverses two Upper Tier Municipalities (The Municipality of Metropolitan Toronto and the Region of Durham) and three Lower Tier Municipalities (the City of Toronto, the City of Scarborough and the Town of Pickering). Each is responsible for preparing Official Plans and other planning documents under the *Planning Act* to guide and control land use activities within their jurisdictional boundaries. This includes the approvals process for building permits, severances and minor variances through Official Plans and Zoning By-Laws.

Within the ISMP study area, The Municipality of Metropolitan Toronto, the City of Toronto and the City of Scarborough have included waterfront policies within their recently approved Official Plans. The Region of Durham has completed a Draft Lake Ontario

Waterfront Report (1995) containing policies to be incorporated into the Durham Plan by amendment. Although still in draft form, the Town of Pickering revised its Official Plan in 1995, incorporating a number of policies specific to waterfront planning.

**The Metropolitan Toronto and Region Conservation Authority**

Under the *Conservation Authorities Act*, the jurisdiction of the MTRCA comprises nine watersheds and the Lake Ontario shoreline. Within its jurisdiction, the Authority is responsible for enacting regulations, and establishing programs and projects, to conserve, restore, develop, and manage the watershed natural resources. To implement a part of its mandate, the Authority has adopted and administers Ontario Regulation 293/86 requiring private or municipal proponents to apply for permission to build in an area susceptible to flooding, place fill in an area shown on registered schedules, or alter a watercourse.

The MTRCA also serves a valuable role as coordinating agency for multi-jurisdictional planning tasks such as watershed planning, as well as the formulation of Shoreline Management Plans. Watershed management plans have been developed by the MTRCA for the Don Valley and the Rouge Valley. The Don Valley represents a major stream corridor at the western boundary of the ISMP study area. The Rouge Valley is the major stream corridor crossing the ISMP study area. Due to the ecosystem linkages and interactions, developments in these watersheds are directly relevant to the ISMP study area. A mutually beneficial relationship exists, in that watershed planning policies support the implementation of the ISMP, and the recommendations put forward in the ISMP are of relevance in accomplishing watershed plan objectives.

**The Waterfront Regeneration Trust**

As noted in Chapter 1, the WRT was created by the Ontario Government in June 1992 under Bill 1. The *Lake Ontario Greenway*

*Strategy* developed by the WRT for the Lake Ontario shoreline between Burlington Bay and the Trent River, provides guidance for development of the ISMP from Tommy Thompson Park to Frenchman's Bay. The *Greenway Strategy* is based on values and principles developed by the Royal Commission. Although it is not a formal statement of government policy, it does provide a context for setting priorities, guidance on ways to achieve a shared vision, and an information base to assist decision-making.



### **Recommendation**

Given the large number of government agencies with a vested interest in shore planning and management, it is recommended that the role of the Waterfront Council includes liaison and coordination of agency planning initiatives, including planning efforts in neighbouring communities.



State of the  
Environment  
Strategy

chapter 11

## 11.0 STATE OF THE ENVIRONMENT REPORTING STRATEGY

“Monitoring of barometers of progress along the waterfront is essential, to provide a credible basis for further actions, to celebrate accomplishments, and to help ensure informed public opinion.” (WRT, 1995). The recommendations of this ISMP for implementing an on-going monitoring process relate to the following subjects:

- monitoring parameters,
- responsibilities,
- data management,
- reporting mechanisms, and
- community monitoring.

### Monitoring Parameters and Responsibilities

Parameters recommended for on-going monitoring are presented in Table 11.1. Parameters selected included:

- relate to the long-term vision of the ISMP;
- represent measurable indicators for ecosystem health criteria as discussed in Chapter 4 of this report;
- build on existing monitoring efforts to minimize cost and duplication;
- can be monitored effectively and routinely by local government agencies.

Additional parameters may be added as budgets and responsibilities allow. Also, volunteer-based monitoring programs should be reviewed as a possible source of complementary data collection (see discussion of Community Monitoring below).

As a benchmark for the assessment of changes with respect to “ecosystem health”, Table D.1 (Appendix D) identifies current conditions for individual parameters (where available). For some

monitoring parameters, this “baseline” value has not been established or needs to be refined as a result of further study or as a product of the first set of monitoring data.

### Data Management

The usefulness of the ISMP as well as the data collected as part of the monitoring process will be greatly enhanced, if the data can be easily and readily accessed and kept up to date. This will require that a central agency assume responsibility for coordinating data processing, storage and updating.

There are currently five substantial computer databases which contain information relevant to the Lake Ontario Shoreline (WRT 1996):

- Halton Region Conservation Authority, Shoreline Management Plan database;
- Metropolitan Toronto and Region Conservation Authority shoreline database;
- Environment Canada Great Lakes-St. Lawrence River Classification;
- OMNR Flood Damage Reduction Program Mapping;
- OMNR Ontario Base Maps and Coastal Zone Atlas.

The City of Scarborough provides another comprehensive and useful digital database. These data relate primarily to the land component of the study area. Unfortunately, the comparison and exchange of data among these databases is very limited. These data have often been collected using different standards, and classification systems.

The ISMP strongly supports the recommendation made by the WRT (WRT, 1996) that the various data collection and processing formats currently applied by various agencies be standardized to facilitate sharing. Ideally, an agreement on standards should be established between the above listed agencies prior to the commencement of monitoring within the ISMP study area.

For a detailed discussion of a standardized database and the associated challenges and benefits refer to *Shore Management Opportunities for the Lake Ontario Greenway* Chapter 6: Data Management (WRT, March 1996).

It is recommended that the management of data (baseline and monitoring data) be coordinated by the MTRCA. This would include coordination with agencies maintaining databases relevant to the study area (see list above), as well as coordination with the area municipalities within the study area; in particular the following issues should be addressed:

- defining of common terminology;
- establishing data collection and recording standards; and
- data exchange/updating mechanisms.

#### **Reporting Mechanisms**

To track change over time and progress against the objectives of this ISMP, it is proposed that a Waterfront Report Card be prepared at a minimum once every three years using the monitoring parameters described above. Responsibility for preparation of the Green Report Card should be with one agency and should relate to the entire Plan area as opposed to individual municipalities. In this way data compatibility can be guaranteed and cumulative effects identified. Cost could be minimized by assigning responsibility for data management and Waterfront Report Card generation to one agency. While it is most practical to have the responsibility for the technical aspects of the work carried out by a government agency such as the MTRCA, the administrative responsibility and principal authorship could be placed with a non-government group such as the proposed Waterfront Council (Chapter 10).

#### **Community Monitoring**

Community monitoring is an innovative approach to involving residents, community groups, schools, universities and other public groups in monitoring the state of their local environment. Volunteer groups and individuals within our communities often accumulate an astonishing amount of environmental information. Most of this information remains outside formalized databases maintained by government agencies and municipal planning departments. As a result, useful and up-to-date information is not being used. The idea behind community monitoring is to take advantage of local knowledge and expertise, to integrate "good" (as in rigorous) data into government operated databases and to make it widely accessible.

The mechanism for implementing this program starts with the CD-ROM prepared as a product of this ISMP, which permits residents to review the data compiled by the MTRCA and, through an electronic medium, forward data for review and incorporation. This medium could be the rapidly growing world wide web, or a simple e-mail linkage with libraries, schools and other public information repositories.

It is recommended that the ISMP be a pilot project for community based monitoring. This would require the following initial steps:

- identification of a central database and data management agency;
- establishing a site on the World Wide Web;
- definition of monitoring standards and procedures; and
- installation of quality control mechanisms and protocols.

**Table 11.1: Monitoring Parameters (and Responsibility)**

Shoreline Ecosystem Health Criteria and Monitoring Parameters	Proposed Responsibility		
	MTRCA	Municipalities	Other
1. Diversity of natural habitat, diversity of species, rare species			
- area of ANSIs (in ha)	✓	✓	MNR
- area of ESAs (in ha)	✓	✓	
- area of wetlands (in ha)	✓	✓	MNR
- number of terrestrial vegetation complexes/ habitat types	✓	✓	
- area (ha) covered by forest	✓	✓	
- number of vascular plant species	✓		
- number of nationally and/or provincially rare plant species	✓		
- number of important habitats for migratory birds	✓		
- number of bird species	✓		
- number of rare or significant bird species	✓		
- number of mammal species	✓		
- number of aquatic habitat types	✓		
- ratio open coast/sheltered warmwater habitat	✓		
- length of "natural" shoreline (i.e., not hardened)	✓		
- number of fish species	✓		
- number of rare fish species	✓		
2. Biological connectedness			
- size (ha) of core areas	✓	✓	
- number of inland corridor links	✓	✓	
- total length of inland corridor links	✓	✓	
3. Sediment and water quality			
- number of beach closures		✓	

Shoreline Ecosystem Health Criteria and Monitoring Parameters	Proposed Responsibility		
	MTRCA	Municipalities	Other
- number of combined sewer outfalls (CSOs)		✓	
- number of stormwater outfalls		✓	
- number and frequency of exceedance of provincial water quality and sediment quality standards	✓		MOEE Env. Canada
- quality of effluent from WPCP outfalls			Metro, MOEE
- number of sport fish consumption advisories	✓		MNR, MOEE
4. Variety and quality of recreation opportunities			
- number of boat launch facilities/lanes	✓	✓	
- number of boat slips/berths	✓	✓	
- number and significance of recreational nodes	✓	✓	
- number of existing recreation opportunities/uses	✓	✓	
- area (ha) of designated public open space	✓	✓	
- number of community festivals, events, etc.		✓	
5. Accessibility			
- length of designated waterfront trail (in m) at or near water's edge	✓	✓	
- number of local, community and regional gateways	✓	✓	
6. Environmental and Coastal Hazards			
- area (ha) and type of incompatible land uses within regulatory shoreline standard	✓		
- number of known and suspected areas with soil and/or groundwater contamination that have not been cleaned up	✓	✓	MOEE

**Table 11.1: Monitoring Parameters (and Responsibility) (cont'd)**

Shoreline Ecosystem Health Criteria and Monitoring Parameters	Proposed Responsibility		
	MTRCA	Municipalities	Other
<b>7. Variety of economic opportunities and activities; shoreline management cost</b>			
- amount of municipal revenues from concessions, leases, etc.		✓	Metro
- number of commercial focal points complementary to the recreational open space/waterfront use		✓	
- maintenance cost for shore protection measures	✓	✓	
<b>8. Connection with the past</b>			
- number of designated built heritage features		✓	
- area (ha) of Regional Heritage Sites (cultural landscapes)		✓	
- number of Regional Heritage Sites		✓	
<b>9. Neighbourhood integrity</b>			
- area of public open space (in ha and % of segment)		✓	
- area of urban lands (in ha and % of segment)		✓	
- area of utility lands (in ha and % of segment)		✓	
- area of industrial lands (in ha and % of segment)		✓	
<b>10. Aesthetics</b>			
- number of designated look-outs, viewpoints	✓	✓	
- number of visual landmarks	✓	✓	
- presence of community design guidelines		✓	

Public  
and  
Agency Consultation  
chapter 12

## 12.0 PUBLIC AND AGENCY CONSULTATION

### 12.1 Introduction

As part of the ISMP planning and decision-making process, a public and government agency consultation program was designed and carried out at the outset of the study to ensure the effective and interactive exchange of information between the study team and the communities throughout the study area. The program was designed to achieve the specific objectives listed below:

- *to provide adequate and meaningful opportunities for public involvement in the development of the ISMP;*
- *to provide the opportunity for the public to contribute to decisions; and*
- *to provide the public ready access to information.*

Activities undertaken to fulfill these objectives and to facilitate an interactive exchange of information and viewpoints included:

- Electronic Mailing List;
- Meetings with Interest Groups and Non-Government Organizations (NGOs);
- Distribution of Fact Sheets;
- Workshops/Open Houses; and
- Circulation of ISMP Reports.

#### *Electronic Mailing List*

At the outset of Phase I, the MTRCA developed an Electronic Mailing List of members of the public, interest groups and associations and government agencies generated from contact lists available from the MTRCA and the WRT. Participating municipalities and the OMNR

were circulated the initial list, and requested to identify any additional groups and agencies (including key contacts) that had participated in previous waterfront related planning processes.

As the study progressed, the MTRCA continued to update and expand the list as new contacts were identified through public consultation. In this regard, there are approximately 306 contacts presently on the list (200 individuals, 32 community/ratepayer groups, 11 nature-related interest groups, 24 public agencies, 16 government representatives, 16 special interest groups and 7 yacht clubs. Throughout the study, the Electronic Mailing List has been used to distribute Fact Sheets and notices to those listed.

#### *Invitation to Meet With Community and Interested Groups*

At the outset of the study, the MTRCA extended an invitation to meet with any community and/or interested groups, at their convenience. The intent of these meetings was to provide these groups with an opportunity to meet face-to-face with representatives from the MTRCA and the ISMP consulting team to discuss issues/concerns pertinent to the ISMP process. The following meetings were held during the ISMP planning process:

- Centennial Community Recreation Association
- West Rouge Community Association
- IBM Retirees Group
- Citizens for a Lakeshore Greenway
- Pickering Naturalists
- Ashbridge's Bay Yacht Club
- Mature Adult Day Group
- R.C. Harris Public Advisory Committee
- Scarborough Rotary Club

### ***Distribution of Fact Sheets***

Fact Sheet Numbers 1 and 2 were released in September 1995 and March 1996, respectively. They were distributed to all individual residents, stakeholders, agencies, etc. within the study area (see Appendix C at the back of this report for copies of the Fact Sheets). In addition, Fact Sheets were posted and made available at local community centres, schools and libraries within the study area.

**Fact Sheet Number 1** included information regarding the development of the ISMP, the decision-making process and opportunities for public involvement including an open invitation for interested parties to attend the first Public Workshop held on October 30, 1995.

**Fact Sheet Number 2** announced the completion of the *Draft Phase I Report*, provided an overview of Phase II activities (including the development of preliminary ecosystem health criteria to assist in understanding future challenges and opportunities), and extended an open invitation to interested parties to attend additional Public Workshops (see discussion below).

### ***Public Workshops/Open Houses***

During Phase I, a Public Workshop was held on October 30, 1995 at the Scarborough Village Community Centre. Approximately 30 members of the public were in attendance, in addition to 12 people representing shoreline or community associations and approximately 20 municipal staff members from study area municipalities. The Workshop was designed to solicit input from the community regarding key features along the shoreline, their experiences and opinions regarding issues affecting the future of the waterfront (see the Workshop Agenda provided in Appendix C).

Following an overview presentation of the ISMP study process and Phase I ecosystem characteristics (by MTRCA and project team staff), participants were organized into small groups. The objective of the

small group session was to provide each participant with an opportunity to share with other participants his/her views, experiences, and ideas or visions pertaining to the study area shoreline. Three small groups were established and facilitated by MTRCA staff members who were responsible for ensuring continuous dialogue and recording all relevant comments on flip-charts. Three questions were provided to the groups to help structure their respective discussions. In addition, resource people from the project team were readily available to answer any questions which arose. A copy of the outline for the small group sessions is contained with the Workshop Agenda in Appendix C of this report.

Following the small group discussions, a plenary session was held whereby a spokesperson from each group summarized the key issues raised. All issues were recorded by the MTRCA. Table C.1 summarizes the issues raised by the three discussion groups. A mail back questionnaire was provided to participants interested in providing more detail, to solicit feedback on a wide range of issues. A copy of the questionnaire and results of feedback received is included in Appendix C of this report.

During Phase II, two Public Workshops were held to receive public input on the ten ecosystem health criteria developed during Phase I. This would assist in understanding the challenges and opportunities within each of the twelve shoreline segments, and develop the vision of the future of the shoreline from a community perspective. The meetings were held at the following locations:

- March 4, 1996 - Scarborough Village Community Centre (City of Scarborough);
- April 10, 1996 - Frenchman's Bay Yacht Club (Town of Pickering);

Following an Open House session, and a brief presentation of the ecosystem characteristics of the ISMP shoreline and the development of ecosystem health criteria to assess each shoreline segment (by



MTRCA staff), participants were organized into small groups (see the Workshop Workbook provided in Appendix C). The objective of the small group session was to provide each participant with an opportunity to share with other participants his/her vision for the future of the ISMP shoreline on a community and/or segment basis.

Small groups were established and facilitated by MTRCA staff/project team members who were responsible for ensuring continuous dialogue and recording all relevant comments. To facilitate and help structure the small group discussions, participants were provided with a handout containing information on the ten ecosystem health criteria, important issues facing the entire shoreline, and the challenges and opportunities within each shoreline segment. In addition, participants were requested to complete two worksheets and a workshop evaluation form.

Following the small group discussions, a plenary session was held whereby a spokesperson from each group summarized the key issues raised. All issues were recorded by the MTRCA. Tables C.2 to C.6 summarize the comments received from workshop participants (i.e., those who returned their workbooks) during the group discussion sessions for each of the Public Workshops.

Based on the information received from the Steering Committee, Technical Advisory Committee, public agencies, interest groups and the public; three Strategies were developed to provide guidance in the development of the Integrated Shoreline Management Plan. Three Public Open Houses were held to present the Draft Integrated Shoreline Management Plan and to solicit comments. Given that the study area shoreline traverses three local municipal boundaries, it was decided to hold meetings within each of these municipalities to provide local residents with convenient access to view ISMP displays, obtain information, talk face-to-face with Steering Committee and project team members, and allow the project team to obtain public input on a community and/or shoreline segment specific basis.

In this regard, a combined total of approximately 150 participants, including local politicians and municipal staff attended the Public Open Houses held at the following locations:

- June 18, 1996 - Frenchman's Bay Yacht Club (Town of Pickering);
- June 24, 1996 - Balmy Beach Club (City of Toronto); and
- June 26, 1996 - R.H. King Academy (City of Scarborough).

Participants were provided with a brief presentation of the Integrated Shoreline Management Plan and its strategies. A comment sheet was provided to solicit input on the draft ISMP management recommendations (See Appendix C).

A summary of the key issues raised at these workshops is included in Appendix C.

#### *ISMP Report Circulation*

Following completion of the *Draft Phase 1 Report*, it was circulated to all members of the ISMP Steering Committee, the City of Scarborough (Works and Environment, Community Planning, Economic Development), Metropolitan Toronto (Works Department, Parks and Culture, Planning Department), the City of Toronto (Planning and Development, Works and Environment), the ISMP Technical Advisory Committee (TAC), and appropriate staff members from the MOEE, WRT, OMNR, and the MTRCA in December 1995 for review and comment.

The *Draft Phase 1 Report* included several key elements:

- delineation of twelve distinct shoreline segments (planning sub-areas) to be used for planning and implementation purposes;

- a comprehensive database of natural, cultural and physical aspects of the shoreline;
- a preliminary framework for assessing the health of the shoreline ecosystem; and
- preliminary comments on challenges and opportunities for each of the twelve shoreline segments.

Reviewers were requested to provide comments on the content, accuracy and completeness of the report and to provide input on the issues raised and conclusions documented. To this end, a number of comments on the *Draft Phase I Report* were received through informal discussions with the Steering Committee, the TAC, and staff of the WRT and the MTRCA. In addition, comments were received from various individuals who either participated at the October 30, 1995 Public Workshop or submitted letters concerning Phase I of the ISMP planning process. Table C.7 contained within Appendix C includes a summary of the key comments received which were instrumental in refining the Phase II approach and subsequent development of recommendations, as discussed in Chapters 4 and 10 of this report.

The *Draft Phase II Report* was completed in May 1996. Due to the size of the report and the associated cost of reproduction, circulation of reports was limited to libraries, MTRCA offices, municipal offices within the study area, and select groups and/or agencies who actively participated throughout the ISMP planning process. As with the *Draft Phase I Report*, reviewers were requested to provide comments on the content, accuracy and completeness of the report, and particularly to provide input on the draft planning strategies, recommendations and conclusions documented. All comments received were recorded by MTRCA staff and incorporated into the *Final Phase II Report*, where appropriate.

## 12.2 Availability of the Integrated Shoreline Management Plan

The *Integrated Shoreline Management Plan* (i.e. the *Final Phase II Report*) will be distributed to libraries, MTRCA offices, municipal offices within the study area, and selected groups and/or agencies.

To provide the broader public with an overview of the *Integrated Shoreline Management Plan*, an Executive Summary has been prepared (including incorporation of all review comments received, where appropriate) and distributed to all participants of the public workshops. Copies of the Executive Summary are available upon request by contacting the MTRCA at (416) 661-6600.

In addition hard to copy reports, an interactive CD-ROM will be made available by the MTRCA shortly after release of this ISMP.

Information  
Sources

chapter 13

## 13.0 INFORMATION SOURCES

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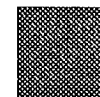
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**ISMP**  
**Tommy Thompson Park**  
**to Frenchman's Bay**  
**appendices**



**Proposed Habitat  
Management Projects**

**Appendix A**

**TABLE A.1**  
**Proposed Habitat Management Projects (See Map 7-2 for Locations)**

Segment No.	Site No.	Location	Targeted Habitat Types							Target Objective		
			SCB	OS	FC	CM	WL	VC	ESO		ESW	SE
1	R1	Embayment B, Tommy Thompson Park									✓	Cool and warm water fisheries habitat enhancement through shoreline and littoral zone naturalization
	R2	North end of Tommy Thompson Park, part of North Shore Park ESA	✓			✓			✓			Naturalization, maintain successional balance
	R3	East Side of T.T. Park/Main Sewage Treatment Plant/Coatsworth Cut	✓	✓		✓	✓				✓	Shoreline and littoral zone naturalization,; restoration of shoreline currently stabilized by sheet piling
2	R4	Ashbridges Bay Park									✓	Shoreline naturalization, coolwater fisheries habitat enhancement
3	E1	Lower End, Glen Stewart Park	✓						✓	✓		Corridor enhancement, naturalization
	E2	Kew Gardens and Beaches Corridor	✓						✓	✓		Corridor enhancement, naturalization
	E3	R.C. Harris lands		✓							✓	Enhancement of coldwater fish habitat through restoration of convex beach profile and creation of off-shore spawning shoals
4	P1	Fallingbrook Woods			✓							Protect forest vegetation
	E4	East side of foot of Warden Avenue			✓					✓		Residential vegetation enhancement
	E5	Below east end of Crescentwood Road			✓					✓		Corridor enhancement in open area
	E6	South of Dault Road and east end of Kingsbury			✓					✓		Residential vegetation enhancement
	R5	Foot of Bluffs, south of Dault Road					✓		✓	✓		Wetland and attendant landscape restoration
	R6	Junction of Kingsbury Crescent and Harding Blvd.			✓						✓	Corridor restoration

**MANAGEMENT:**

- P - Habitat Protection (Minimal Habitat Management)
- E - Habitat Enhancement
- R - Habitat Restoration

**HABITAT TYPES:**

- WL - Wetlands
- VC - Valley Corridors
- Early successional vegetation communities: old-fields and meadows
- FC - Forest cover
- ESW - Early successional woody communities
- SE - Sheltered Embayments

- SCB - Sand/cobble beaches and bars
- OS - Off-shore shoals
- Forest cover
- CM - Coastal Lake marshes



**TABLE A.1**  
**Proposed Habitat Management Projects (See Map 7-2 for Locations)**

Segment No.	Site No.	Location	Targeted Habitat Types									Target Objective	
			SCB	OS	FC	CM	WL	VC	ESO	ESW	SE		
4 (cont'd)	R6a	Scarborough Bluffs West - near shore		✓								Enhancement of coldwater fish habitat and corridor functions through restoration of historic convex beach profile	
	E7	South of Springbank Avenue			✓						✓	Residential vegetation enhancement	
	E8	Harrison Property			✓						✓	Corridor enhancement	
	E9	Rosetta MacLain Gardens to Fishleigh Ravine			✓							Corridor enhancement	
	P2	Fishleigh Ravine			✓					✓		Protect slope forests which are in mid-succession	
	E10	Scarborough Heights Filtration Plant			✓						✓	Corridor enhancement on edge of tableland, naturalization	
	E11	South of east end of Fishleigh Drive			✓						✓	Residential vegetation enhancement/Corridor enhancement	
5	E12	Scarborough Bluffs Park			✓	✓					✓	✓	Cool/warm water fisheries habitat enhancement in sheltered bay; corridor enhancement on tableland near edge of bluffs
	P3	Midland Ravine			✓					✓			Protect existing ravine vegetation
	R7	Bluffers Park				✓						✓	Shoreline/littoral zone naturalization to enhance wary/ cool water fisheries habitat enhancement in sheltered bay;
	E13	Area near east end of Undercliff Road and Cliffcrest Drive			✓						✓		Corridor enhancement
	E14	Seminary Lands			✓						✓	✓	Naturalization and Corridor and general enhancement
	R8	West side, Brimley Ravine			✓					✓		✓	Slope forest restoration
	R9	East side, Brimley Ravine			✓					✓		✓	Slope forest restoration
	E15	Eastville Avenue, tablelands at edge of bluffs			✓						✓		Corridor enhancement

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TABLE A.1

Proposed Habitat Management Projects (See Map 7-2 for Locations)

Segment No.	Site No.	Location	Targeted Habitat Types									Target Objective
			SCB	OS	FC	CM	WL	VC	ESO	ESW	SE	
6	P4	East beach of Bluffers Park	✓									Partially restricted access to maintain beach conditions
	R10	Cathedral Bluffs Park			✓						✓	Tableland, forest for corridor and stabilization value
	E16	Foot of Lakehill Crescent			✓						✓	Residential vegetation enhancement and corridor enhancement
	P5	Cudia Park Woodlands			✓							Protect
	R11	Cudia Park open lands								✓	✓	Maintain successional balance
	E17	South of Meadowcliffe Drive			✓						✓	Residential vegetation enhancement and Corridor development
	R12	Bellamy Ravine			✓			✓			✓	Forest development
	R13	Foot of Bellamy Ravine					✓	✓				Lake marsh restoration
	R13a	Scarborough Bluffs West (near shore)		✓								Enhancement of coldwater fish habitat and corridor function through restoration of historic convex beach profile
	R14	Sylvan Park								✓	✓	Maintain successional balance
	E18	Sylvan Park								✓	✓	Corridor enhancement on tableland at edge of bluffs
	E19	South of Sylvan Avenue			✓						✓	Residential vegetation enhancement and corridor enhancement
	P6	South Marine Drive Park, west portion			✓							Protect
	E20	East portion of South Marine Drive Park to Guildwood Park			✓						✓	Residential vegetation enhancement and corridor enhancement
	R15	South and east of South Marine Drive Park						✓		✓	✓	Wetland and terrain enhancement

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Proposed Habitat Management Projects (See Map 7-2 for Locations)

Segment No.	Site No.	Location	Targeted Habitat Types									Target Objective
			SCB	OS	FC	CM	WL	VC	ESO	ESW	SE	
6 (cont'd)	R16	South of west end of Guildwood Park					✓					Wetland restoration
	R17	South of Guildwood Park					✓		✓	✓		Wetland and terrain protection
	P7	Guildwood Park			✓							Protect existing forest
	P8	Guildwood Ravine and Forest Block to the east	✓	✓	✓							Protect existing forest
	E21	West of Morningside			✓					✓		Residential vegetation enhancement and corridor enhancement
	R18	Morningside east to Greyabbey Ravine			✓					✓		Corridor restoration
7	E22	Greyabbey Ravine			✓			✓		✓		Corridor enhancement
	E23	Greyabbey, east and west along railroad track			✓					✓		Corridor enhancement
	R19	East of Greyabbey Ravine			✓					✓		Corridor restoration on edge of bluffs
	E24	Filtration Plant and East Point Community Park area							✓	✓		General enhancement of developed lands
	P9	East Point Park (selected portions)			✓		✓		✓	✓		Strong emphasis on protection
	R20	East Point Park (selected portions) East Point - near shore	✓		✓		✓		✓	✓		Maintain successional balance; wetland and topographical relief restoration (see also Section 4.1); restore off-shore coldwater fish habitat through restoration of convex beach profile and historic spawning shoals
	R21	East Point Park, northeast to Highland Creek System	✓		✓							Corridor restoration

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TABLE A.1

Proposed Habitat Management Projects (See Map 7-2 for Locations)

Segment No.	Site No.	Location	Targeted Habitat Types							Target Objective		
			SCB	OS	FC	CM	WL	VC	ESO		ESW	SE
8	P10	Stephenson's Swamp Area					✓				Protection	
	P11	Highland Creek						✓			Protect existing valley system	
	R22	East of Highland Creek					✓				Wetland restoration	
	R23	East Point to Highland Creek			✓					✓	Corridor restoration; shoreline naturalization	
9	R24	Highland Creek to Port Union Road	✓		✓					✓	Corridor restoration, shore naturalization	
	E25	Port Union Road to Chesterton Station	✓		✓					✓	Corridor enhancement, shore naturalization	
	R25	Chesterton Station shoreline	✓								Coastal marsh and beach restoration	
	E-26	Chesterton Station to south extension of Greybeaver Trail	✓								Residential vegetation enhancement and corridor enhancement	
	P12	Adams Creek System north of railroad tracks			✓			✓			Protect	
	E27	Both sides of Rouge Hill Drive			✓					✓	Residential vegetation enhancement	
	R26	Southward extension of Greybeaver Trail to western edge of Rouge Marsh	✓		✓					✓	Corridor restoration	
10	R27	Rouge River Marsh and river mouth	✓		✓	✓	✓	✓		✓	✓	Protect and enhance river mouth area; naturalization of disturbed areas; enhancement of cold water habitat through restoration of convex beach profile and historic spawning shoals

MANAGEMENT:

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Proposed Habitat Management Projects (See Map 7-2 for Locations)

Segment No.	Site No.	Location	Targeted Habitat Types						Target Objective		
			SCB	OS	FC	CM	WL	VC		ESO	ESW
11	E28	Railroad track to east end of Rodd Avenue	✓						✓		Corridor enhancement
	E29	East end of Rodd Avenue to Petticoat Creek			✓				✓		Corridor enhancement on tableland on edge of bluffs
	P13	Lower end and mouth area of Petticoat Creek	✓		✓		✓		✓		Protect
	E30	Petticoat Creek to west end of sandbar at Frenchman's Bay	✓		✓				✓		Residential vegetation enhancement and corridor enhancement
12	E31	Park/old-field area north of Beachpoint Promenade	✓		✓				✓	✓	Enhance successional balance
	P14	Sandbar and barrier beach at Frenchman's Bay	✓								Limit access over time - no planting; allow natural recolonization
	R28	Frenchman's Bay					✓	✓			Marsh restoration
	P15	Hydro Marsh					✓	✓			Protection

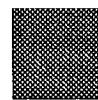
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**Proposed  
Waterfront  
Management Zone**

**Appendix B**

# APPENDIX B: WATERFRONT MANAGEMENT ZONES

## 1.0 INTRODUCTION

The **Waterfront Management Zone (WMZ)** is a policy area within which land use development is to be controlled for the purpose of protecting and enhancing natural heritage resources and waterfront integrity. It represents a policy area with specific use regulations, planning and approval requirements. The policy area is intended to provide municipalities and regulatory agencies with a planning and decision making tool which is useful in:

- establishing planning direction for Official Plans (and amendments), Secondary Plans, and development controls;
- evaluating development proposals; and
- prioritizing planning efforts and needs for future project funding.

The overall objective of the Waterfront Management Zone is :

**to provide a framework for integrated ecosystem-based planning and managing of the ISMP plan area; with the purpose of increasing overall shoreline ecosystem health and implementing the vision statements and objectives established by the ISMP.**

The WMZ consists of two sub-zones:

### ■ Waterfront Management Zone 1 (WMZ 1)

WMZ 1 is the most restrictive policy area. It is comparable and consistent with the Waterfront Environmental Impact Zone (WEIZ) defined by Metro's Waterfront Plan, and the Environmental Impact

Zone (EIZ) defined by Scarborough's Official Plan. Included in the WMZ 1 are the most sensitive components of the *Natural Heritage System*, a system of interconnected natural areas, and all lands within the *Regulatory Shoreline* defined by the Regulatory Erosion, Flood or Dynamic Beach Standard.

### ■ Waterfront Management Zone 2 (WMZ 2)

The WMZ 2 is less restrictive than the WMZ 1. The intent of the WMZ 2 is to encompass all lands associated with the Natural Heritage System and gateways and recreation nodes which are not within WMZ 1, including :

- Local Links;
- Local Core Areas;
- Supplementary Habitat Areas ;
- Buffer Areas;
- Regional and Community Nodes (see Public Use Strategy); and
- Regional and Community Gateways (see Public Use Strategy).

## 2.0 WATERFRONT MANAGEMENT ZONE 1 (WMZ 1)

### 2.1 Objective of WMZ 1

The objectives of Waterfront Management Zone 1 are twofold:

- 1) **to provide a system of natural areas (*Natural Heritage System*) for the purpose of preserving and enhancing natural heritage features and processes, and to preserve/enhance the connectedness of natural areas through the provision of natural linkages within the plan area; and**

- 2) to prevent risk to life and property as a result of flooding, erosion and dynamic beach processes.

## 2.2 Delineation of the WMZ 1

The WMZ 1 comprises all lands and waters containing significant natural features continuously interacting in a series of dynamic natural processes such as erosion, wave action, sediment transport, and nutrient cycles. The on-shore boundary is defined by the *Natural Core Areas and Natural Corridors* of the *Natural Heritage System*, plus lands within the *Regulatory Shoreline* or *Fill Regulation Line*.

The lakeward boundary of the WMZ 1 is defined by the outer limits of the identified *Core Aquatic Natural Areas* of the *Natural Heritage System*.

## 2.3 Policy Provisions Within WMZ 1

The policy provision recommended for the Waterfront Management Zone 1 relates to :

- Preferred Uses;
- Application and Submission Requirements;
- Setback and Separation Distance Requirements; and
- Design Requirements.

The individual provisions are discussed in further detail below. The ISMP encourages MTRCA and Municipalities to support these policies through official plans, zoning by-laws, and other development control measures.

## Preferred Uses - WMZ 1

Due to the hazardous and/or sensitive nature of the lands within the WMZ 1, they should generally not be considered for development purposes. They should not be included in land area measurements used for the purpose of calculating density, since these lands serve a natural function as well as providing a public/social benefit. Exemptions could be considered for uses at or near the water's edge that relate to:

- water filtration and water pollution control facilities; and
- lake-dependent or lake-enhanced recreational, industrial, commercial and transport uses (e.g., docking facilities for water taxis).

Any development within and adjacent to the WMZ 1 should be required to meet specific criteria such that the undertaking will not conflict with objectives of the ISMP. Alterations to the shoreline that do not demonstrate a beneficial impact on coastal processes including fish and wildlife habitats, and do not offer recreational benefits to the public, should not be permitted.

## Development Application and Submission Requirements WMZ 1

- (1) Any proposed development or re-development in the WMZ 1 or within 20 m of the WMZ 1 must be considered through an *Environmental Impact Study* (EIS) to meet the overall ISMP objectives for the shoreline and to support the Plan's specific management recommendations for affected shoreline segments. In particular, the EIS must provide opportunities for public involvement and should demonstrate that the proposal will contribute to the healthy functioning of coastal and biological processes.



As a minimum the impact assessment should discuss potential negative impacts or benefits to the shoreline on the basis of the ten ecosystem health criteria established by the ISMP:

- habitat and species diversity, rare species;
- biological connectedness;
- water and sediment quality;
- recreation opportunities;
- access: waters edge accessibility, inland trail connection, link with adjacent segments;
- safety from coastal hazards;
- economic activities and opportunities;
- connection with the past;
- neighbourhood integrity/cohesion; and
- aesthetics.

The EIS should include a detailed and current inventory of existing ecosystem features, functions and processes (including coastal processes where applicable) and assessment of environmental impacts including a description of the anticipated effects of the undertaking on the ecosystem health indicators established by the ISMP. Measures to mitigate or reduce anticipated impacts should be assessed and described. In addition, comprehensive monitoring requirements should be specified. Public consultation data collected by the EIS or subsequent monitoring activities should be made available in a digital form compatible with the ISMP database.

- (2) All new development or re-development sites within 20 m of Natural Core Habitats and Corridors should be subject to *site plan control* which will address (among other things) matters of:
- physical access to/along the shoreline (where applicable);
  - storm and surface water management;

- the provision of open space;
- shadow impacts and visibility of any structure exceeding low density residential standards;
- aesthetic quality of architectural and open space design ;
- visual access to shoreline;
- landscaping (existing vegetation to be removed; proposed plantings); and
- illumination.

#### Setback and Separation Distance Requirements - WMZ 1

- (1) A minimum 10 m setback (from property lines) will be required for developments proposed within or adjacent to the WMZ 1 (e.g. within 20m), to protect the development from flooding and erosion, and to buffer features and functions of the *Natural Heritage System*. Exemptions may be granted where it is demonstrated by the applicant that minor additions or alterations to an existing structure are consistent with the objectives of the WMZ 1.
- (2) Where warranted, upon review of a proposal, agencies may require additional separation distances for specific habitat protection or public safety purposes.

#### Design Requirements - WMZ 1

As stipulated above (Preferred Uses) the WMZ 1 should generally not be considered for development purposes. If exemptions are considered for uses requiring water's edge locations, the planning/design of any (re-)development shall have regard for:

- (1) Provision/enhancement of a Waterfront Trail in accordance with trail types and design features recommended by the Public Use Strategy of the ISMP.

## (2) Implementation of Surface Water Management Practices that:

- are considered best management practices (BMP)<sup>1</sup>;
- minimize stormwater runoff and maximize stormwater detention on-site;
- maximize integration of surface water management facility design with habitat enhancement and open space design; and
- prevent direct discharges to tributaries or Lake Ontario.

## (3) Provision of Waterfront Protection Works that:

- are in accordance with protection works standard;
- maximize habitat (terrestrial, aquatic) value;
- maximize benefits for recreation, access and aesthetics;
- maximize use of bioengineering techniques where feasible; and
- minimize public safety hazards.

## (4) Provision of new and enhancement of existing public open space and recreation facilities by:

- Minimizing removal of existing trees;
- utilizing indigenous species in landscaping;
- maximizing habitat (terrestrial, wetland, aquatic) value;
- maximizing benefits for recreation, access and aesthetics;
- integrating cultural and natural history into the recreation experience;
- avoiding impervious ground cover (e.g., asphalt);
- promoting low maintenance native landscape features where appropriate;

<sup>1</sup> For a description of BMPs, see MOEE, 1994, Stormwater Management Practices Planning and Design Manual; and MOEE, 1991, Stormwater Quality Best Management Practices.

- selecting building materials that blend and harmonize with the natural landscape setting;
- incorporating viewpoints and allowing for vistas over the lake;
- following a design that establishes a unique local character and promotes local identity;
- minimizing at-surface parking areas; and visually integrating at-surface parking areas to the extent possible through tree and shrub planting within and around the parking area; and
- designing and siting buildings and facilities as subordinate to the parkland served.

**3.0 WATERFRONT MANAGEMENT ZONE 2 (WMZ 2)****3.1 Objectives**

The objectives of the Waterfront Management Zone 2 are:

- **to protect and develop an open space and habitat system that supplements the Natural Core Areas and Natural Corridors located within WMZ 1;**
- **to provide new and enhance existing recreational nodes and associated gateways to the lakefront for community and regional users; and**
- **to prevent adverse impact on the sensitive features of the WMZ 1.**

**3.2 Delineation of Waterfront Management Zone 2**

The WMZ 2 is confined to on-shore areas and comprises all lands outside of the WMZ1 which have been identified as:

- Local Linkages, Local Habitat Areas, Supplementary Habitat Areas, and Buffer Areas within the Natural Heritage System; and
- Recreation Nodes and Gateways of regional and community significance.

**3.3 Policy Provisions within WMZ 2**

**Preferred Uses - WMZ 2:**

Lands within the WMZ 2 that have been identified as part of the Natural Heritage System or as Recreation Nodes, or Gateways of regional and community significance are subject to land use restrictions. Preferred uses for the Zone are conservation, and active and passive recreation related.

Development of facilities complimentary to the preferred uses should be encouraged and directed towards the Recreation Nodes or Gateways. It should be demonstrated (by the Proponent), that such development is complimentary and would not preclude, limit, or negatively affect the overall conservation and recreation objectives of the Zone.

It is generally intended that uses within the WMZ 2 be relative to open space uses, in particular, uses that are water-dependant or water-enhanced. Any development of a structural type should only be permitted if it can be clearly demonstrated that habitat values are not negatively affected or that habitat improvements accompanying the development add to existing habitat conditions.

Within areas of the Natural Heritage System, open space uses and recreation are generally preferred; however, low intensity development may be permitted where it can be demonstrated (by the proponent) that such development would not interrupt the natural features being protected. High intensity open space and facility related uses are

generally preferred within the identified Recreation Nodes and Gateways.

**Development Application and Submission Requirements WMZ 2**

In all instances, a professionally prepared landscaping plan must accompany any application for development within the WMZ 2.

Any (re)development proposed will be subject to site plan control which will address (among other things) matters of:

- physical access to/along the shoreline (where applicable);
- storm and surface water management;
- the provision of open space;
- shadow effects;
- aesthetic quality and visual access to shoreline;
- landscaping (existing vegetation to be removed and proposed planting plan); and
- illumination.

**Setback and Separation Distance Requirements - WMZ 2**

A 10 m minimum setback for structures will be required for developments proposed within the vicinity of lands of the Natural Heritage System (NHS), except for where it can be demonstrated to the satisfaction of the appropriate governing agency that the proposed development supports or does not negatively affect the habitats.

Structures proposed as ancillary or complimentary to habitat protection and enhancement programs will be encouraged, provided that these meet stated objectives and design standards.

Buffer areas serve as a setback and separation distance function.

## Design Requirements - WMZ 2

Design requirements of any (re-)development proposed within the WMZ 2 should incorporate/ have regard for:

### (1) Waterfront Trail:

- separate pedestrian and bicycle paths where feasible;
- easily identifiable;
- designed for year round use;
- is supported by facilities such as washrooms, seating, parking and trail links;
- integrates opportunities to experience cultural and natural history of the Plan area;
- design reflects overall segment characteristics, e.g.
  - promotes high urban design standards within high intensity use areas and gateways; and
  - maintains a less formal but functional design with less 'urban' elements and materials along segments outside of intensive use areas in support of the natural and wild character of the shoreline.

### (2) Water Management:

- follows BMPs;
- stormwater run-off is minimized and detained on-site;
- facility design maximizes integration with habitat enhancement and open space design; and
- no direct discharge to tributaries of Lake Ontario.

### (3) Public Open Space, Recreation Facilities (includes HEA's and BA's):

- Maximize use of indigenous species in landscaping;

- maximizing habitat (terrestrial, wetland, aquatic) value;
- maximizing benefits for recreation, access, and aesthetics;
- integrates opportunities for experiencing cultural and natural history of the Plan area;
- minimize impervious ground cover (e.g., asphalt);
- promoting low maintenance native landscape features where appropriate;
- selecting building materials that blend and harmonize with the natural landscape setting;
- incorporating viewpoints and allowing for vistas over the lake;
- design that establishes a unique local character and promotes local identity;
- visually integrate parking areas to the extent possible through tree and shrub planting within and around the parking area; and
- designing and siting buildings and facilities as subordinate to the parkland served.

### (4) Commercial and Residential:

- minimize impervious cover;
- visually integrate parking areas to the extent possible through tree and shrub planting within and around site;
- provide for pedestrian and bicycle links between elements of NHS, waterfront, public transit routes;
- maintain visual links with waterfront; and
- street furniture and lighting to maximize aesthetic quality and recreational value.

## 3.4 Natural Heritage System within WMZ 2

Habitats such as old fields, derelict lands, manicured open spaces, parks, playgrounds, cemeteries and tree lined boulevards are not as

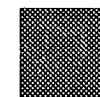
sensitive as the Natural Core and Corridor Areas. Nevertheless, they are considered a valuable component of the Natural Heritage System, serving a number of ecological functions (e.g., climatic regeneration, groundwater infiltration). Such spaces are also often connected to, or extensions of Core and Corridor Habitat Areas, adding further to their role in the overall context of an integrated system. The Natural Heritage Strategy has identified and classified these habitats as either, local linkages, local habitat areas, or supplementary habitat areas. For further discussion of their characteristics and ecological functions refer to the Natural Heritage Strategy (Chapter 8).

**Buffer areas** represent defined zones around Natural Core Areas and Natural Corridors. *Buffer Areas* by definition aim at protecting sensitive habitat features (e.g., core and corridor areas) from adverse impact such as noise, water level alterations, recreational use, etc. Buffer areas may lack specific natural features but represent zones within which use restrictions such as set back regulations apply. These restrictions aim at minimizing adverse impact on important habitat areas.

### **3.5 Recreation Nodes/Gateways within WMZ 2**

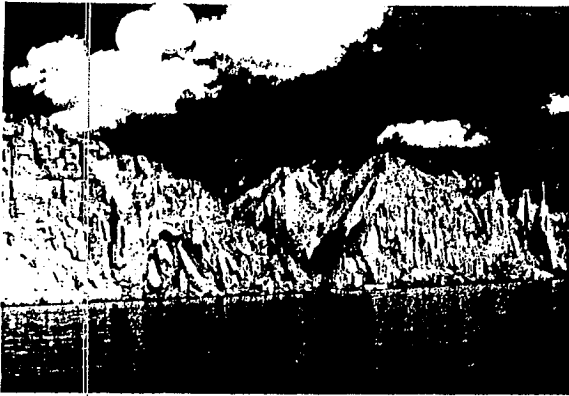
The waterfront between Tommy Thompson Park and Frenchman's Bay is an area of special regional identity perceived as a public resource with a number of particular places of distinct character or quality which is special to residents and visitors. These special places referred to as *Recreational Nodes and Gateways* are largely comprised of public lands and recreational related facilities or features, and are accessible to local and regional populations. *Recreation Nodes and Gateways* identified by the ISMP, require special protection and are considered focal points for strengthening the Plan area as a recreation resource of special local and regional significance. The concept of *Recreation*

*Nodes and Gateways* is further discussed in the Public Use Strategy (Chapter 9).

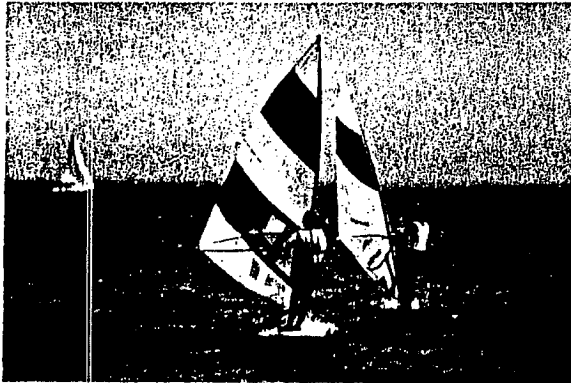


**Public  
Consultation**

**Appendix C**



*The Scarborough Bluffs are a unique example of glacial geology.*



*The Lake Ontario shoreline is a popular recreation area.*



*The shoreline of Lake Ontario is an important wildlife corridor for many species.*

### UPCOMING EVENT

The first public workshop to discuss various elements of the ISMP is scheduled for:

**Monday, October 30**  
at 6 p.m.

at Scarborough Village Community Centre,  
(Markham and Kingston Road),  
North and South Craft Room.

This will be an excellent opportunity to learn more about the ISMP, get to know the Steering Committee, and make your views known. We look forward to your participation!

### WANT MORE DETAILS?

Add your name to the mailing list to receive public notices and fact sheets.

Are you interested in having study team members address your group? If you have any questions or comments please call Larry Field, Waterfront Specialist, MTRCA at (416) 661-6600, ext. 243, Fax (416) 661-6898.

If you prefer, please write to him at:



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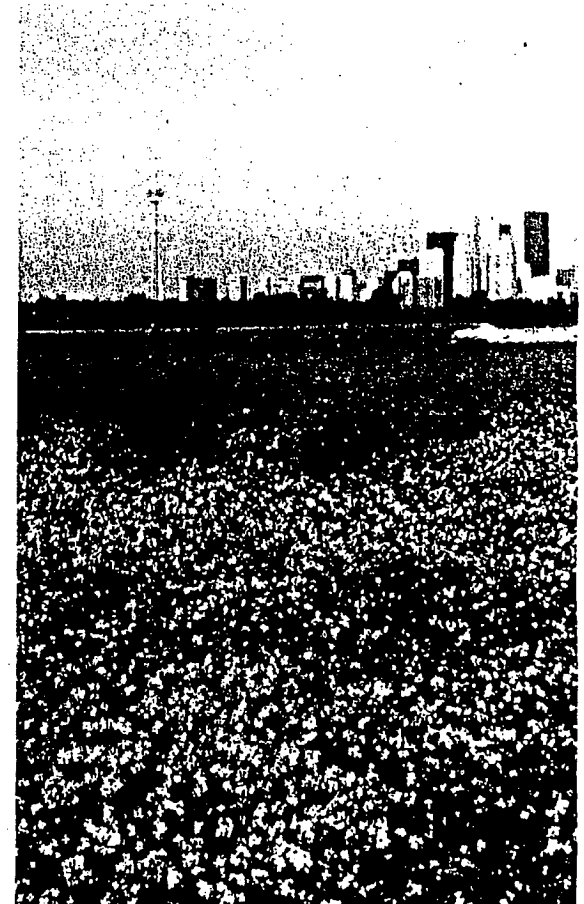
5 Shoreham Drive, Downsview, ON M3N 1S4

The Metropolitan Toronto and Region Conservation Authority is a provincial/municipal partnership established to manage renewable natural resources on a watershed basis.



# OUR GREAT LAKESHORE INTEGRATED SHORELINE MANAGEMENT PLAN

**FACT SHEET NO. 1**

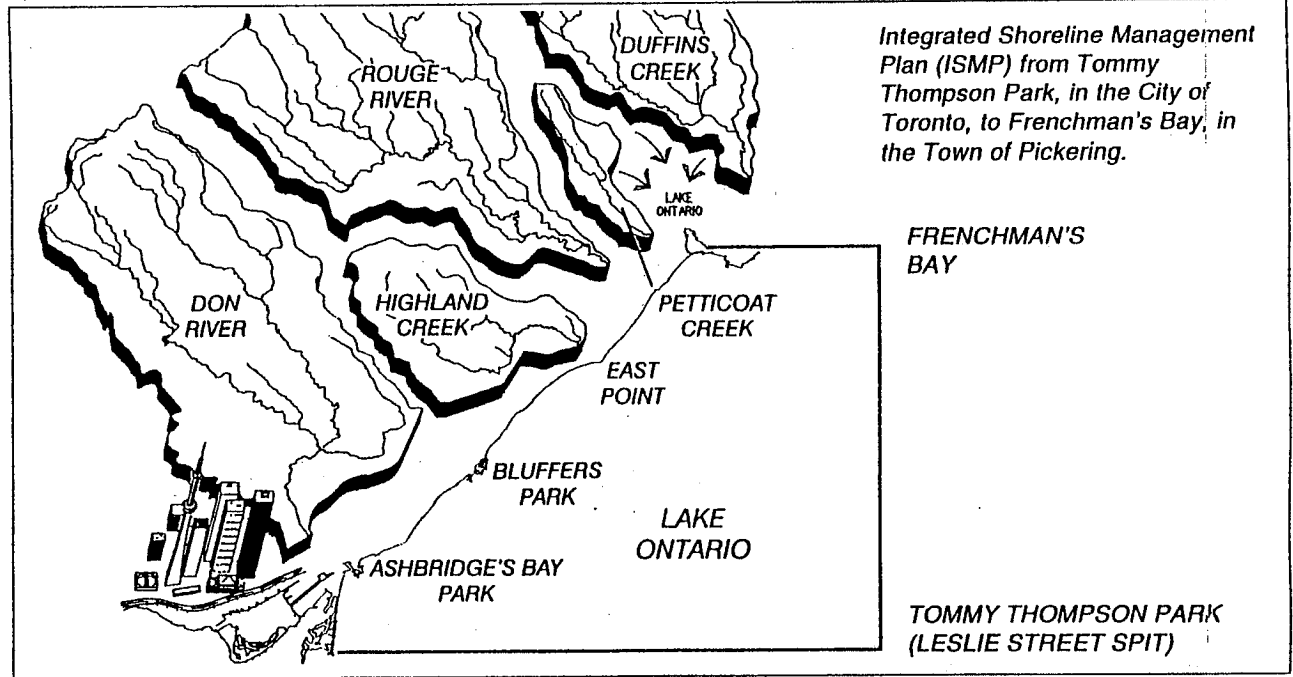


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## WHAT IS AN INTEGRATED SHORELINE MANAGEMENT PLAN (ISMP)

The Metropolitan Toronto and Region Conservation Authority (MTRCA) has started work on an Integrated Shoreline Management Plan (ISMP) for the Lake Ontario shoreline stretching from Tommy Thompson Park, in the City of Toronto, to Frenchman's Bay, in the Town of Pickering, as indicated on the map. The Plan will provide guidance on erosion protection, public-use and access, fish and wildlife habitat, and water quality. It will allow shoreline activities and development to proceed, where appropriate, and in consideration of the shoreline environment.

In keeping with recent planning initiatives, the ISMP will provide localized guidance to shoreline activities. To fully develop the ISMP, public consultation and input is essential.



## HOW WILL THE ISMP BE DEVELOPED?

Over the course of a year, the ISMP will be developed in two phases.

**Phase 1** will inventory and describe environmental conditions along the shoreline, physical processes of the lake, and human use. It is anticipated that Phase 1 will be completed in the fall of 1995.

**Phase 2** involves development of a series of planning strategies that will provide guidelines and recommendations for:

- public-use (recreation, access, etc.)
- natural heritage (natural areas, fish and wildlife, etc.)
- public safety (erosion, flooding, etc.)
- shoreline regeneration (breakwaters, etc.).

Each strategy will provide direction and will establish overall priorities for protection, regeneration, and public-use along the shoreline.

## WHO IS MAKING THE DECISIONS?

The ISMP is being guided by a Steering Committee made up of residents and councillors from Metropolitan Toronto, Scarborough, and Toronto; representatives of the MTRCA; Conservation Council of Ontario; and the Waterfront Regeneration Trust.

The Steering Committee will provide advice and direction to the MTRCA for future shoreline management.



## HOW CAN I GET INVOLVED?

The Steering Committee wants your input! Let us know what you consider to be the main issues. Help identify sensitive areas and features.

There will be small group meetings, public meetings, presentations, regular meetings of the Steering Committee, and technical information and reports to review. Your participation is welcomed.

Fact Sheets will be published on a regular basis throughout the upcoming year. They will inform you of the progress to date, highlight issues, and announce upcoming events.



## HOW DO WE WANT TO MANAGE OUR SHORELINE?

Following the completion of the **Phase 1** work which included a detailed inventory of the environmental characteristics of the shoreline, the physical processes of the lake, and human uses, the study team is now working on **Phase 2** of the ISMP process.

**Phase 2** involves development of a series of planning strategies that will provide guidelines and recommendations for:

- public-use (recreation, access, etc.);
- natural heritage (natural areas, fish and wildlife, etc.);
- public safety (erosion, flooding, etc.); and
- shoreline regeneration (breakwaters, etc.).

Each strategy will provide direction and will establish overall priorities for protection, regeneration, and public-use along the shoreline. The Ecosystem Health Criteria will be used to formulate objectives for the individual strategies. It is also suggested that these criteria be used in monitoring the success of the ISMP.

## WHO IS MAKING THE DECISIONS?

The ISMP is being guided by a Steering Committee made up of residents and councillors from Metropolitan Toronto and the Cities of Scarborough and Toronto; representatives of the MTRCA; Conservation Council of Ontario; and the Waterfront Regeneration Trust.

The Steering Committee will provide advice and direction to the MTRCA on the future of shoreline management.

## HOW CAN I GET INVOLVED?

The Steering Committee wants your input! What would you like the shoreline to look like in 20 years? How do you want to use the shoreline, and what are the most appropriate activities? Help to develop a vision for the future of the shoreline.

Fact Sheets will be published on a regular basis throughout the upcoming year. They will inform you of the progress to date, highlight issues, and announce upcoming events.


## WANT MORE DETAILS?

Add your name to the mailing list to receive public notices and fact sheets.

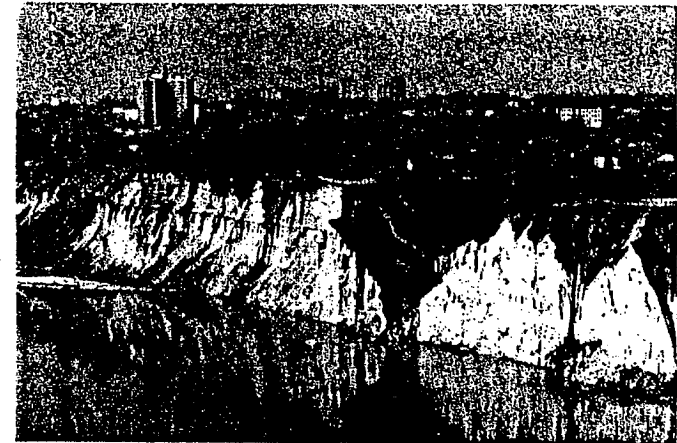
Are you interested in having study team members address your group? If you have any questions or comments, please call:

**Larry Field, Waterfront Specialist,  
MTRCA, at (416)661-6600, ext. 243.  
Fax (416)661-6898.**

If you prefer, please write to him at:

 the metropolitan toronto and region  
conservation authority  
5 Shoreham Drive, Downsview, ON M3N 1S4

Established in 1957 to manage the renewable natural resources of the region's watersheds, the Authority is a provincial/municipal partnership with participation from the Province of Ontario; The Municipality of Metropolitan Toronto; the Regional Municipalities of Durham, Peel, and York; and the Townships of Adjala-Tosorontio and Mono.



## Our Great Lakeshore

Lake Ontario is a unique and valuable resource. It is one of the largest bodies of freshwater in the world, and it has a profound affect on the way our communities have developed and our quality of life. The shoreline of Lake Ontario is a special place. It is the most biologically and physically active zone of the lake.

The management of our shoreline is important to The Metropolitan Toronto and Region Conservation Authority, the City of Scarborough, the City of Toronto, The Municipality of Metropolitan Toronto, and the Province of Ontario. Together we are developing an Integrated Shoreline Management Plan (ISMP) for the shoreline from Tommy Thompson Park to Frenchman's Bay.

The ISMP will be an ecosystem based shoreline management plan that will take into account the biological, physical, and cultural attributes of the shoreline. The ISMP is being developed in two phases. The first phase has been completed and involves a comprehensive description of the shoreline ecosystem and a database of shoreline conditions. The second phase has been initiated and focuses on the analysis of shoreline health and the development of management strategies.

To assist in understanding future challenges and opportunities, we have developed a number of ecosystem health criteria and divided the shoreline into manageable segments.

## Ecosystem Health Criteria

Just like a doctor would use criteria such as blood pressure, diet, and cholesterol to determine your personal health, the following is a list of criteria that we propose to use in discussing the health of the shoreline.



### Quality of Natural Habitat, Diversity of Species, Rare Species:

Natural habitats are the places where the fish and wildlife live along the shoreline. The quality of natural habitats can be determined by the wildlife which inhabit the area. The number and type of individuals and the presence or absence of rare species are excellent indicators of shoreline health. Predatory fish like the bowfin are considered rare along the shoreline, indicating that there is an abundance of food, shelter, and all the necessities of life for this species.



### Biological Connection

A key component of ecological health is the connection of habitats and the ability of fish and wildlife populations to move along the shoreline. Isolated habitats are commonly less productive and significant than habitats which are linked to other areas. A good example of a connected habitat is the Rouge River. This system provides a linked habitat for both fish and wildlife that reaches inland from the shoreline.



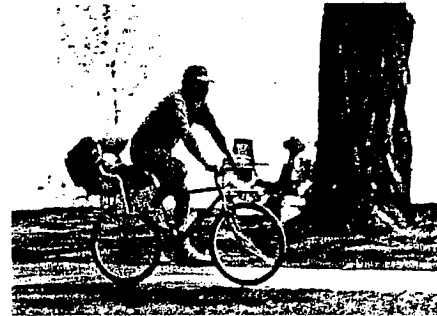
### Sediment and Water Quality

The quality of lake sediments and water along the shoreline are excellent indicators of environmental health. Water and sediments are commonly polluted by many sources, including storm sewers, sewage treatment plants, and river discharges. The results of poor water and sediment quality include beach closings, degraded aquatic habitat, and consumption advisories on sportfish. Good water and sediment quality conditions are the foundation of a desirable and healthy shoreline.



### Variety and Quality of Recreational Opportunities

The shoreline is a very unique space within our community, and we are naturally attracted to the water's edge. The value of recreational experiences is related to the variety and quality of shoreline activities. Active and passive opportunities and specific water based activities provide this unique mix of shoreline experiences.



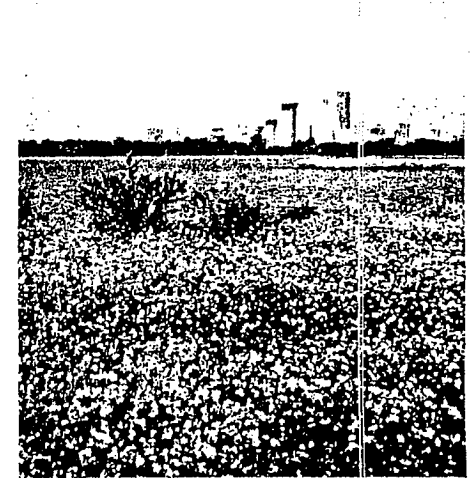
### Accessibility

Accessibility to the shoreline, in the form of a continuous trail at or near the water's edge, or strong inland connection are two indicators of shoreline health from a human perspective. Access nodes like Bluffers Park and waterfront trails like the boardwalk at the Eastern Beaches provide a strong connection and link between the lake and our communities.



### Environmental and Coastal Hazards

Shorelines are very active areas, and at times they can be quite hazardous due to flooding, erosion, and other water related hazards. These coastal processes are natural conditions of the shoreline and do not detract from the health of the system; however, when incompatible land uses exist within areas of coastal hazards, the integrity and health of the shoreline is diminished. Environmental hazards are not often visible, but exist along the shoreline as contaminated soils and old landfill sites.



### Connection with the Past

Heritage resources such as historical buildings, landmarks, and archeological sites are important attributes of the shoreline. These features provide opportunities to understand and identify with the cultural history of our shoreline and promote our sense of community.

### Neighbourhood Character

The connection of the neighbourhood and community to the shoreline is an important characteristic of shoreline health. Neighbourhoods provide an important number of qualities and characteristics to the shoreline. Neighbourhoods like the Eastern Beaches are strongly connected to the shoreline, unlike more industrialized areas.

### Aesthetics

The landmarks, vistas, and architectural and natural features give the shoreline unique and distinct characteristics important in the way we relate to the lake. Familiar landmarks such as the bluffs at Bluffers Park are not only regional "attractions," but also local points of interest, orientation, and community identity. The community's perception of health is commonly linked to the aesthetic quality of the shoreline.

### Economic Activities and Opportunities

The waterfront provides attractive opportunities for business, many of which are recreation related such as restaurants, boat charter businesses, surfboard rentals, etc. From a human perspective, the presence of a variety of commercial activities indicates a healthy economic environment necessary for an overall sustainable community.



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**INTEGRATED SHORELINE MANAGEMENT PLAN  
TOMMY THOMPSON PARK TO FRENCHMAN'S BAY**  
Phase 1: Description of the Shoreline Ecosystem

**PUBLIC WORKSHOP  
October 30, 1995**

**AGENDA**

- 6:00 - 7:00** Display of Materials
- 7:00** Welcome/Introductions  
Mr. Brian Denney  
(MTRCA)
- 7:05** Welcome from the Steering Committee  
Mr. Jim Dike (Steering  
Committee Member)
- 7:10** Consultant Presentations:  
Introduction to Study, Workshop Overview  
Biological Environment  
Physical Environment  
Cultural Environment  
Summary  
Introduction to Small Group session  
Various, Coordinated by  
Mr. Steve Lindley  
(Consultant Project  
Manager)
- 7:50** Questions & Answers
- 8:00 - 8:10** Coffee Break; Establishment of Small Groups
- 8:10 - 8:50** Small Group Session  
Review maps, shoreline characteristics and experiences  
Discussion of shoreline management issues
- 8:50 - 9:10** Plenary Discussion  
- Summary presentations from each small group
- 9:10 - 9:20** Questions and Answers
- 9:20 - 9:30** Closing Note/Adjournment  
Mssr. Jim Dike and Brian  
Denney

(Please use reverse side for notes)  
(For explanation of common technical terms, please obtain a shoreline glossary at the registration desk.)

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*Working Together for Tomorrow's Greenspace*



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INTEGRATED SHORELINE MANAGEMENT PLAN  
PUBLIC WORKSHOP NO.1  
OCTOBER 30, 1995

## PARTICIPANT QUESTIONNAIRE

Dear Participant,

The ISMP study team is eager to hear your point of view respecting the future of the Lake Ontario shoreline between Tommy Thompson Park and Frenchman's Bay. Your input in the workshop itself is very much appreciated, but often participants appreciate the opportunity to provide comments individually.

This questionnaire is designed for you to provide more detail about your viewpoints and concerns than may have been possible during the workshop session. It is your opportunity to directly provide the study team with direction. There are no right or wrong answers to the questions we ask, and you will not be singled out for providing an honest opinion. As much as we would be interested in knowing who you are, in order to better understand the context of your comments, please feel free to return the response in confidence. Simply leave the name/address/affiliation boxes empty.

Because of our timelines, we kindly ask that you complete the questionnaire before you leave and drop it in our "Comment" box at the registration desk; or submit your response to the address above, to the attention of Mr. Larry Field, Waterfront Specialist, **no later than Friday, November 10, 1995.**

Thank you for your participation. Your contribution to the future of this important shoreline is appreciated by your community.

---

*Working Together for Tomorrow's Greenspace*

**INTEGRATED SHORELINE MANAGEMENT PLAN  
PARTICIPANT QUESTIONNAIRE**

Please use the space provided below the question to record your response. If you wish to add more detail, please feel free to provide extra pages providing a reference to the appropriate question. Please also put your name on any extra sheets in the event they become separated.

Participant Name: \_\_\_\_\_  
 Affiliation (if any): \_\_\_\_\_  
 Address: Street \_\_\_\_\_  
 City \_\_\_\_\_ Postal Code \_\_\_\_\_

1. With which segment of the shoreline are you most familiar?
2. How would you rate your level of knowledge of the entire shoreline? Check one.
  - Very familiar \_\_\_\_\_
  - Somewhat familiar \_\_\_\_\_
  - Familiar with the above segment \_\_\_\_\_
3. What features/areas of the shoreline do you enjoy the most? Why?
4. What features/areas of the shoreline do you enjoy the least? Why?
5. Have you observed any unusual or interesting wildlife along the shoreline? If so, what did you observe, where and when (approximately)?
6. On a scale of 1 to 5 points (1 being most favourable), how would you rate existing shore protection works (retainer walls, revetments, breakwaters, etc.) from an aesthetic (how does it look) and functional (how well does it work) perspective? If you are not familiar with these types of works, please go to the next question.

Shore Protection Works No.1 \_\_\_\_\_

Shore Protection Works No.2 \_\_\_\_\_

**Shore Protection Works No.1**

aesthetic	1	2	3	4	5
functional	1	2	3	4	5

**Shore Protection Works No.2**

aesthetic	1	2	3	4	5
functional	1	2	3	4	5

**INTEGRATED SHORELINE MANAGEMENT PLAN  
PARTICIPANT QUESTIONNAIRE  
(Cont'd)**

7. Do you feel the public should have uninterrupted access along the shoreline, despite physical constraints and property ownership? Yes \_\_\_ No \_\_\_ Why?

8. Do you feel that additional shoreline access points (eg. trails, roads leading down to the waterfront) should be provided? If so, where and why?

9. List the three most important issues you feel should be addressed by the ISMP, in order of importance:

Most important \_\_\_\_\_  
 Second most important \_\_\_\_\_  
 Third most important \_\_\_\_\_

10. What do you feel should be the conclusions of the ISMP respecting the three issues listed in response to Question #9?

Conclusion -- Most important Issue -  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion -- 2nd Most important Issue -  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion -- 3rd Most important Issue -  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

11. In planning the future of the shoreline, please rank the following shoreline activities (listed alphabetically) in order of relative importance:

Access to the water's edge	_____	Scenic viewing	_____
Birding/plant identification/ photography	_____	Sports fields	_____
Boating	_____	Swimming	_____
Cycling/walking/blading/etc.	_____	Other	_____
Fishing	_____	1.	_____
Housing/residential	_____	2.	_____
		3.	_____

INTEGRATED SHORELINE MANAGEMENT PLAN  
PARTICIPANT QUESTIONNAIRE  
(Cont'd)

12. Considering your rank selection in Question #11, above, how would you rank the following management actions so as to facilitate your concept of the shoreline:

Beach protection/enhancement	___	Protection of Bluff feature	___
Build a continuous waterfront trail at water's edge	___	Erosion protection for developed areas	___
Provide additional access points	___	Protect/enhance aquatic wildlife (fish) habitat	___
Protect/enhance terrestrial wildlife habitat (eg. woodlots, ravines)	___	Water quality improvements	___

13. What do you feel should be the principle role of the MTRCA in shoreline management?

14. What role, if any in addition to your participation in public workshop meetings and the mailing list, do you wish to play in the development or implementation of the ISMP (ie. more meetings; other events; assist with data monitoring; assist with plan updates)?

15. Do you have any other comments/observations you wish to make?

16. Please take a moment to comment on the workshop. How would you rate it (scale of 1 to 5 points; 1 being the best) in the following categories:

Informative (displays, presentations)	1	2	3	4	5
Thought-provoking (discussion, questions)	1	2	3	4	5
Well-managed (time management, organization, etc.)	1	2	3	4	5
Small group format	1	2	3	4	5
Resource materials (handouts, etc.)	1	2	3	4	5
Meaningful (you get the sense your input will make a difference)	1	2	3	4	5
<b>Overall</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

17. Any suggestions for future meetings (format, time, location, resource materials, etc.)?

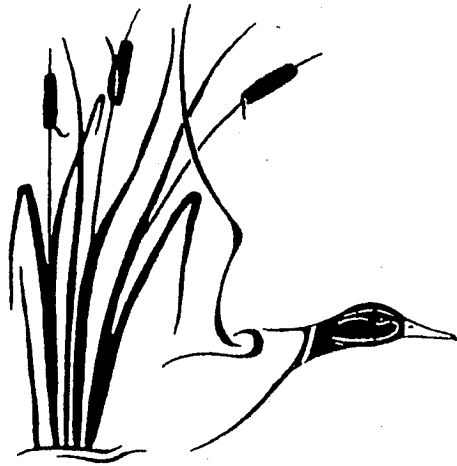
**TABLE C.1**  
**October 30, 1995 Public Workshop Discussion Group Summary**

Question	General Comments	Group 1	Group 2	Group 3
1. What do you think are the most important attributes of the shoreline?	<ul style="list-style-type: none"> <li>• preservation of beaches/bluffs/shoreline vegetation</li> <li>• overall aesthetics of the shoreline</li> <li>• fish and wildlife habitat</li> <li>• public access to the shoreline</li> <li>• specific locations including the Rouge Marsh and East Point Park</li> </ul>	<ul style="list-style-type: none"> <li>• sensitive areas where development is restricted</li> <li>• the dynamic nature of the shoreline</li> <li>• contaminated areas of the shoreline</li> <li>• public safety and security</li> <li>• recreational facilities like East Point Playing Fields</li> </ul>	<ul style="list-style-type: none"> <li>• shoreline waterfront parks provide good access and recreational opportunities</li> <li>• East Point Park</li> <li>• Rouge River Marsh</li> </ul>	<ul style="list-style-type: none"> <li>• beach</li> <li>• bluff</li> <li>• water</li> <li>• shoreline</li> <li>• fish and wildlife terrestrial habitat</li> <li>• cultural features (i.e., wreck of the Alexandria)</li> </ul>
2. What do you think are the most important issues to be addressed, and how would you rank them?	<ul style="list-style-type: none"> <li>• Wetlands, ESAs, natural areas</li> <li>• access in balance with the sensitivity of the shoreline and access for all members of society</li> <li>• appropriateness of development</li> <li>• decommissioned landfills, wetland infilling</li> </ul>	<ul style="list-style-type: none"> <li>• access for all, but balance between too much</li> <li>• property acquisition and public space</li> <li>• safety</li> <li>• preserve habitat and dynamic nature of shoreline</li> <li>• aesthetics</li> <li>• education and monitoring tied together and ongoing</li> </ul>	<ul style="list-style-type: none"> <li>• access - improve through waterfront trail, signage, emergency routes</li> <li>• access - control motor vehicles, vandalism and garbage</li> <li>• maintain natural areas through improved erosion control measures and limit development</li> <li>• water and lakefill quality educational facilities</li> </ul>	<ul style="list-style-type: none"> <li>• scenic views</li> <li>• access (walking, jogging, pedestrian pathways should be separate)</li> <li>• boating, windsurfing</li> <li>• add value to shoreline, where appropriate</li> <li>• preservation of bluff feature</li> <li>• protect bluff slopes with vegetation</li> </ul>
3. How do we resolve conflicting objectives?			<ul style="list-style-type: none"> <li>• planned access - parking, new routes, transit, designate high/low use areas</li> <li>• combine uses (i.e., filtration plant with parking)</li> <li>• erosion protection - habitat friendly (plantings, non-linear structures), aesthetically pleasing</li> <li>• property acquisition</li> <li>• determine balance between protection, natural, etc.</li> </ul>	



**TABLE C.2**  
**Integrated Shoreline Management Plan**  
**Review of Public Workshop #2, March 4, 1996**  
**Participant Responses on Importance of Ecosystem Health Criteria Related to Overall Shoreline**

<b>Criteria</b>	<b>No. of Responses/ Check Marks</b>	<b>Very Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>	<b>Not Ranked</b>
<b>Diversity of natural habitat, diversity of species, rare species</b>	24	3	0	2	
<b>Biological connectedness</b>	23	3	1	2	
<b>Sediment and water quality</b>	23	3	0	3	
<b>Variety and quality of recreation opportunities</b>	10	11	6	2	
<b>Accessibility</b>	11	12	3	3	
<b>Environmental and coastal hazards</b>	11	11	1	6	
<b>Variety of economic opportunities</b>	4	11	11	3	
<b>Connection with the past</b>	7	18	1	3	
<b>Neighbourhood character</b>	11	13	1	4	
<b>Aesthetics</b>	17	8	1	3	



# *OUR GREAT LAKE SHORE*

What will it look like in the future ?

---

Developing a vision for the shoreline:  
Tommy Thompson Park to Frenchman's Bay

A Community Workshop.

*A vision statement should paint a picture of the kind of shoreline we would like to see far in the future, and set a broad framework for the management decisions that will take us there. This draft vision is intended to stimulate your thoughts and your reactions. Is this the kind of waterfront you want? Are there important themes missing, or elements included that should not be? Is the emphasis right? Please tell us what you think.*

# A VISION FOR OUR GREAT LAKESHORE

DRAFT - March 1996



The Lake Ontario shoreline from Tommy Thompson Park to Frenchman's Bay provides a special quality of life for residents, a source of recreation and beauty for visitors, and a unique identity for adjacent communities. The Lake Ontario Greenway Strategy, which includes this and adjacent shoreline areas, calls for a waterfront that is clean, green, accessible, connected, open, useable, diverse, affordable and attractive. But urban shorelines are subject to many forces of change. Ensuring a sustainable future, reflecting community, environmental, and economic needs, will be a challenge. Fifty years from now, what kind of waterfront will our children and other forms of life share?

Parts of the waterfront will be busier, and more crowded with human activities, that is certain. New waterfront residential and commercial communities will have emerged at urban nodes such as Woodbine, Port Union, and Frenchman's Bay, as part of a regional population grown to twice its current level. Waterfront neighbourhoods will offer a choice of attractive residential settings, including quiet, well-treed streets, and other more lively areas with a distinctive character such as the Beaches community.

The water's edge and bluffs will be a vital focus for communities along their length, nurtured by volunteer involvement in regeneration projects and waterfront events and festivals. For young and old, the waterfront will have a special sense of place, where pride in the past is reflected in active use of heritage building such as the Guild Inn, and where new facilities are both affordable and of the highest quality.

Part of the quality will be a much improved environmental condition, with waters clean enough that our children can swim or fish, and with a healthy mix of native fish and wildlife living and migrating along the shore. That wildlife

will be able to move freely along ribbons of green connecting the regenerated forests and wetlands that occupy much of the shoreline. Protected natural areas such as the Rouge Park will provide connections through the city in wooded valleys. Many of us will visit special places along the shore to watch how the birds change with the seasons, or to take part in educational tours about the geological history of the bluffs or the fish spawning along the open coastline.

The waterfront will be a greener place than now, in part because much of the eroding Scarborough Bluffs has been replaced by more gently sloping wooded hillsides. Along the toe of these hills, a variety of shore protection works have tamed the force of the waves. In a few places such as the Needles, where houses are set well back from the top of the bluffs, natural erosion processes will maintain the steep bluff face as an example of this former shoreline feature.

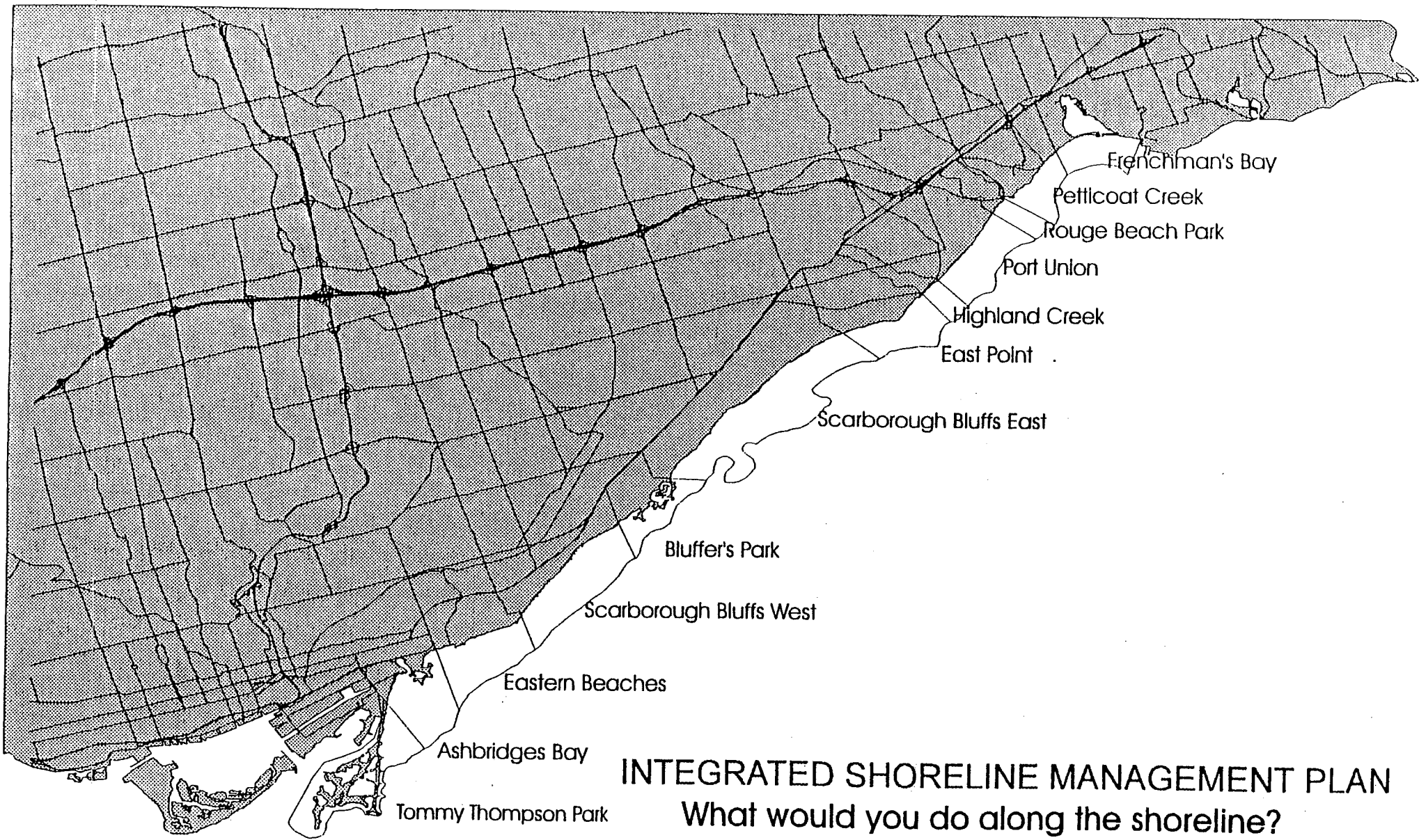
Many of us will be drawn to the shoreline to play, especially to the beaches and the clusters of marinas and boat clubs. Some of us will come to quietly explore the walking trails along the shore edge, including natural paths through near-wilderness sections where the bustle of the city seems so far away. Or we might bring out families to cycle along the Waterfront Trail, as it links through the scenic parklands along the top of the bluffs, and loops down to the water's edge in several places. Some of us will come by car, but for most, convenient rapid transit or safe, attractive cycling trails will provide better alternatives.

As we visit this future waterfront, we are likely to be struck by its contrasts, from quiet havens of green to lively neighbourhoods, from sweeping vistas of lake and sky to sheltered walks in wooded parks. Fifty years from now, we will value that waterfront diversity even more than now, and our communities will be committed to working together to ensure the waterfront's continued ecological health and unique sense of place.

*Welcome to a community workshop for the future of Our  
Great Lakeshore!*

*This workbook contains all the information you will need for the evening.  
Please write your comments anywhere on the pages of this workbook, and  
leave it with us at the end of the workshop. We will use this information  
to develop the shoreline management plan for the shoreline between  
Tommy Thompson Park and Frenchman's Bay.*

*If you would like to have your workbook returned to you when we are  
finished with it, please fill out the form on the back page.*



# INTEGRATED SHORELINE MANAGEMENT PLAN

## What would you do along the shoreline?

## AGENDA

# A Community Workshop : Our Vision for the LAKESHORE: Tommy Thompson Park to Frenchman's Bay

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- 6:00 Open House - View displays and talk to Steering Committee Member and project team members.
- 7:00 Welcome and introductions from the Steering Committee
- 7:05 Presentation Our Great Lakeshore
- 7:30 Outline of Workshop objectives and group discussions
- 7:40 Coffee Break
- 7:50 Group discussions:   - review the criteria  
                                  - important issues for the overall shoreline  
                                  - important issue for the Pickering segments
- 9:15 Small Group Summary
- 9:25 Wrap Up

## BACKGROUND

In early 1995, the Metro Toronto Region Conservation Authority (MTRCA) began to prepare an Integrated Shoreline Management Plan for the shoreline between Tommy Thompson Park in Toronto and Frenchman's Bay in Pickering. At the first community workshop in October, 1995, participants were asked to discuss what they like and dislike about the shoreline.

Over the past few months, the Steering Committee and project team reviewed this information, plus other documents about the shoreline, and spoke to several community groups along the waterfront. We have developed a list of criteria for a healthy shoreline. These criteria are:

- diversity of natural habitat, diversity of species, rare species
- biological connectedness
- sediment and water quality
- variety and quality of recreation opportunities
- accessibility
- environmental and coastal hazards
- variety of economic opportunities and activities
- connection with the past
- neighbourhood character
- aesthetics

These are discussed in more detail on the next page. The ten criteria will be used as a checklist for thinking about the future of the shoreline, to make sure that all important issues and opportunities are considered.

## PURPOSE OF THIS WORKSHOP

1. Discuss the general criteria for a healthy shoreline.
2. Discuss your vision for the future of the shoreline.

## THE TEN CRITERIA FOR THE SHORELINE — WHAT DO THEY MEAN?

When you are discussing the entire shoreline, or specific segments, keep in mind the following questions for each criterion. These questions will help you to think about what each criterion means, and how it might affect you and your family in the future. These questions are not the only ones for each criterion — they are only a few to get you started. Please add other questions as you think of them.

**1. Diversity of natural habitat, diversity of species, rare species**  
(number of plant and animal species, and the quality of natural areas)

- Do you want to see more natural habitat in a few large areas, or in many smaller areas? Where?
- How much effort and money do you think should be spent on habitat creation (a lot? some? a little? none?)

**2. Biological connectedness** (links and connections between natural areas and habitats)

- Do you think existing corridors are adequate, too much, or too little? Where?
- Do you want to see more habitat corridors? Where? For what animals?
- How do you think community groups and private landowners could help improve wildlife corridors?

**3. Sediment and water quality** (quality of the water in the lake, water from storm outfalls, and quality of the lake bottom material)

- What level of water quality would you like to have in the Lake (drinkable? swimmable? fish is edible? other?)

**4. Variety and quality of recreation opportunities**

- Do you see the shoreline as a place mainly for local residents or as a place for all visitors from the region?
- Are you satisfied with the variety of recreation opportunities available? Why or why not? Do you want more boating? more swimming? more fishing? more trails? Where?



**5. Accessibility** (east-west access and north-south access from the community to the water's edge & the waterfront)

- Do you want a Waterfront Trail? If so, where? How important is it to you?
- Where do you want other trails? Where do you not want trails?
- Where do you want access to the water's edge?
- Where do you want to have views?

**6. Environmental and coastal hazards**  
(erosion, flooding, safety of pedestrians, and contaminated areas)

- Do you think it is important to harden private and public property to stop erosion, or to keep some of the shoreline in a natural state and allow erosion to occur (e.g., at the Needles Bluffs)

**7. Variety of economic opportunities and activities** (economic enterprises that benefit the waterfront, and benefit from the waterfront)

- Do you want to see more small business (e.g., concession stands) along the waterfront, or do you think that business should keep away from the waterfront?
- How do you think we can improve connections between local businesses and waterfront activities?

**8. Connection with the past**  
(historic sites & buildings, landmarks, natural features, etc.)

- What historic features, places and things should be protected?
- How?

**9. Neighbourhood character**  
(community feeling and satisfaction with neighbourhood, connections with the shoreline and waterfront)

- Do you want more connection between neighbourhoods and the shoreline? Where? How?
- Do you want current neighbourhoods kept the way they are, or opened up to generate more visitors and tourism economic benefits?
- Do you think more transit is needed? more roads? more parking? other?

**10. Aesthetics** (beauty, views, vistas, quality and character of the landscape)

- What parts of the shoreline do you think are beautiful and should be kept the way they are?
- What parts do you think are ugly and should be improved? What should be done to improve them?

## WORKSHEET NO. 1: APPLYING THE CRITERIA TO THE OVERALL SHORELINE

Keeping in mind the overall picture of the shoreline between Tommy Thompson Park and Frenchman's Bay, try to indicate how important each criterion is to you. Discuss why. Feel free to modify or add other criterion.

Ranking: 1 = very important 2 = somewhat important 3 = not important 4 = indifferent 5 = don't know

CRITERIA	IMPORTANCE	WHY
Diversity of natural habitat, diversity of species, rare species (number of plant and animal species, and the quality of natural areas)		
Biological connectedness (links and connections between natural areas and habitats)		
Sediment and water quality (quality of the water in the lake, water from storm outfalls, and quality of the lake bottom material)		
Variety and quality of recreation opportunities		
Accessibility (east-west access and north-south access from the community to the water's edge & the waterfront)		

CRITERIA	IMPORTANCE	WHY
<b>Environmental and coastal hazards</b> (erosion, flooding, safety of pedestrians, and contaminated areas)		
<b>Variety of economic opportunities</b> (economic enterprises that benefit the waterfront, and benefit from the waterfront)		
<b>Connection with the past</b> (historic sites & buildings, landmarks, natural features, etc.)		
<b>Neighbourhood character</b> (community feeling and satisfaction with neighbourhood, connections with the shoreline and waterfront)		
<b>Aesthetics</b> (beauty, views, vistas, quality and character of the landscape)		
Other?		
Other?		

## SEGMENT CHALLENGES AND OPPORTUNITIES

### Segment 1 - Tommy Thompson Park

The park is currently used primarily for passive recreation purposes (i.e., walkers, bicyclists, bird watchers, etc.).

#### Characteristics:

- excellent access
- very high biological diversity
- provides a blend of natural habitat and low intensity recreation
- very severe wave climate (east side)

#### Challenges:

- increase natural diversity through habitat enhancement and management programs
- establishment of a history (i.e., connection of the park with our cultural past)
- establish link with Centre Island
- provide for sustainable shore stabilization
- increase recreation opportunities without compromising natural heritage
- increase commercial activities without compromising natural heritage

### Segment 2 - Ashbridge's Bay

Developments at Ashbridge's Bay over the past century (e.g. Main WPCP and Ashbridge's Bay Marina) have resulted in intense pressure on, and change to local natural systems.

#### Characteristics:

- excellent access
- provides a variety of active and passive recreation opportunities
- one of the major recreation nodes within the study area
- current efforts are underway to enhance habitat diversity in Park
- major residential development planned
- severe deposition zone

#### Challenges:

- improve water quality and sediment quality
- enhance habitat diversity
- establish natural links with inland
- enhance opportunities for experiencing landscape history
- provide water's edge trail link with Segment 1 (T. Thompson Park)
- modify lands to minimize dredging requirements
- provide pedestrian links with new development on race track lands

### Segment 3 - Eastern Beaches

Perhaps the best known and most visited segment of the shoreline.

#### Characteristics:

- provides a vast array of recreation opportunities
- easy access
- commercial focal point at Queen St. East
- important resource to residents of the entire GTA
- intact and diverse neighbourhood
- long-term shore stability uncertain

#### Challenges:

- enhance habitat and species diversity without compromising the recreational qualities
- improve natural inland link
- rehabilitate Glen-Stewart Ravine
- extend boardwalk to R.C. Harris
- develop self sustaining shoreline stabilization program
- improve parking

## SEGMENT CHALLENGES AND OPPORTUNITIES

### Segment 4 - Scarborough Bluffs West

Best recognized by the aesthetic quality of the Scarborough Bluffs geologic formation.

#### Characteristics:

- difficult access along water's edge through much of the segment
- steep slopes divide the shoreline from inland areas
- shore protection by revetments and gruyeres throughout much of the segment.

#### Challenges:

- adjust /improve shore protection by groyne structures to allow for access along water's edge
- establish formalized waterfront trail at least along revetments
- establish trail links with neighbouring segments
- maintain/enhance fish habitat.

### Segment 5 - Bluffers Park

A focal point for boating, park and beach usage, with tremendous aesthetic and locational advantages.

#### Characteristics:

- substantial boat mooring facilities
- passive parkland area located in proximity to the Needles geologic formation
- a small beach area is located on the east side of the segment.

#### Challenges:

- improve pedestrian (and vehicular) access down Brimley Road
- establish water's edge trail connection to neighbouring shoreline segments
- improve links with economic activity along Kingston Road corridor
- improve water quality

### Segment 6 - Scarborough Bluffs East

Long stretch of shoreline with many important park features throughout.

#### Characteristics:

- steep slopes divide the shoreline from inland areas; opportunities to walk down to water's edge limited
- along shore access through much of the segment on recently constructed revetments
- many park areas of various size on top of bluffs
- shoreline abuts largely residential communities
- aquatic habitat diversity low.

#### Challenges:

- close gaps between trail segments
- enhancement of terrestrial habitat in parklands and along revetments
- enhance aquatic habitat
- increase use of park locations such as the Guild Inn
- develop self sustaining shoreline stabilization program; preserve unprotected "natural" reaches
- improve parking for users from outside the local area.

## SEGMENT CHALLENGES AND OPPORTUNITIES

### Segment 7 - East Point

Segment with large residential and commercial area; at waterfront large and significant natural area, accommodating predominantly passive recreational uses.

#### Characteristics:

- presence of a large ANSI and ESA on top of the bluffs
- dividing point between east and west littoral transport
- location has been under review for establishing marina
- open coast environment, little fish shelter, spawning or feeding habitat
- portion of the near shore open space has playing fields, the larger land area is used for informal passive recreation.

#### Challenges:

- increase greater and more varied recreational opportunities without compromising terrestrial habitat quality
- enhance aquatic habitat diversity
- formalize access to and along the water's edge
- provide trail links with neighbouring segments.

### Segment 8 - Highland Creek

Extensive natural corridor with near natural river mouth containing diverse and habitat, animal and plant communities.

#### Characteristics:

- segment primarily in natural state providing for diverse plant and animal life
- some informal recreational activity occurs in the form of hiking, nature viewing and canoeing.

#### Challenges:

- support efforts to improve water quality by enhanced upstream stormwater management practices
- establish access to inland areas (along Highland and Centennial Creek)
- provide pedestrian bridge over Highland Creek
- keep natural river mouth and beach habitat in as natural a state as possible.

### Segment 9 - Port Union

Large residential communities and extensive former industrial area currently undergoing re-development.

#### Characteristics:

- partly comprised of old industrial lands between two important natural corridors (Highland Creek and Petticoat Creek)
- access to the shore blocked by CN rail line
- good regional road access is provided through Lawrence Avenue and Port Union Road.

#### Challenges:

- provide pedestrian access to and along the water's edge (overcoming the CN rail line)
- improve/enhance of vegetation/ natural habitat along shore corridor
- establish new natural inland linkages and integrate with new residential developments
- preservation and enhancement of Centennial Creek corridor.
- provide at-shore recreation facility without disruption of sediment transport to Rouge River mouth
- develop self sustaining shoreline stabilization program
- improve parking for regional users

## SEGMENT CHALLENGES AND OPPORTUNITIES

### Segment 10 - Rouge River

An important and widely studied natural area; species and habitat diversity second to none in the study area. Excellent natural corridor.

#### Characteristics:

- most significant habitat corridor within the study area extending inland through a number of municipalities
- part of the Rouge Park Master Plan area consisting of some 5,800 acres of land in Scarborough (substantial additional parkland/ habitat is located north of Steeles Avenue as well).

#### Challenges:

- support efforts to improve water quality by enhanced water management practices in upstream watershed
- implementation of the Rouge Park Master Plan (RPMP)
- integration of ISMP with (RPMP)
- preservation of sand bar feature at mouth.

### Segment 11 - Petticoat Creek

Largely residential segment with significant habitat (Petticoat Creek Conservation Area) and with one of the three major natural inland corridors within study area (Petticoat Creek).

#### Characteristics:

- Petticoat Creek System represents one of the three most significant natural corridors within the study area extending inland beyond the study area boundaries
- intermittent access
- good public recreation opportunities, however not water-related.

#### Challenges:

- improved pedestrian access to and along water's edge and establish link with Segment 12
- improve shoreline protection without impacting beach nourishment in Segment 12
- support efforts to improve water quality of Petticoat Creek through enhanced water management practices in upstream watershed.

### Segment 12 - Frenchman's Bay

Diverse area with large residential community, extensive marinas, beaches, wetlands, and public parks. Focal recreation point at eastern end of study area.

#### Characteristics:

- very accessible for local and regional visitors
- extensive marina facilities
- contains a diversity of wetlands and fish habitat
- poor water quality.
- dynamic sand beach

#### Challenges:

- improve water quality
- preservation of aquatic and wetland habitat
- further development without further deterioration of habitat and water quality
- stabilization of beach profiles through bio-engineering
- establish public trail across beach bar without jeopardizing beach stability
- enhance habitat quality in parklands.

## **WHAT ARE SOME ALTERNATIVE VISIONS FOR THE FUTURE OF THE SHORELINE?**

The following two pages describe alternative scenarios for the future of the shoreline. Each scenario reflects different values, priorities and visions for the shoreline, and they are designed to provoke ideas and discussion. Would the shoreline of your dreams look like one of these scenarios? Or would it combine parts of each scenario? Please feel free to write your comments on this page, and discuss these ideas in your small groups.

### **SCENARIO A: Intensive Development**

**Priority: Encourage intensive development of recreational and commercial uses**

- support/promote a high level of financial investment.
- maximize recreation through high intensity uses including marina, aquarium, and park facilities.
- maximize water's edge access including maximized shoreline protection.
- maximize access to the shoreline through large scale improvements to vehicular routes and parking.



## **SCENARIO B: Intensive Habitat Development**

**Priority: Encourage extensive habitat improvements and development of new habitat**

- maximize aquatic habitat diversity through introduction of new shelves, spawning beds, embayments, and flood plain features.
- re-construct Ashbridge's Bay Marsh in conjunction with re-development of Woodbine racetrack.
- maximize terrestrial and aquatic diversity through creation of new coastal/marine park areas.
- intensive planting and naturalization programs to improve habitat in existing open spaces.

## **SCENARIO C: Minimize Development and Maintain Status Quo**

**Priority: Discourage intensive development and rely on natural succession, land and resource stewardship programs, and regulation of development to maintain status quo.**

- maximize natural coastal processes, i.e., minimize new shore stabilization works.
- preserve and enhance natural diversity through natural succession, naturalization schemes, and stewardship programs.
- focus on low cost trail options, i.e., away from the water's edge where required.
- maintain status quo for recreational facilities.

## WORKSHEET NO. 2: APPLYING THE CRITERIA TO SPECIFIC SEGMENTS

Segment #'s \_\_\_\_\_

For specific segments of the shoreline, indicate how important each criterion is to you. Discuss why.

Ranking: 1 = very important 2 = somewhat important 3 = not important 4 = indifferent 5 = don't know

CRITERIA	IMPORTANCE	WHY
Diversity of natural habitat, diversity of species, rare species (number of plant and animal species, and the quality of natural areas)		
Biological connectedness (links and connections between natural areas and habitats)		
Sediment and water quality (quality of the water in the lake, water from storm outfalls, and quality of the lake bottom material)		
Variety and quality of recreation opportunities		
Accessibility (east-west access and north-south access from the community to the water's edge & the waterfront)		

CRITERIA	IMPORTANCE	WHY
<b>Environmental and coastal hazards</b> (erosion, flooding, safety of pedestrians, and contaminated areas)		
<b>Variety of economic opportunities</b> (economic enterprises that benefit the waterfront, and benefit from the waterfront)		
<b>Connection with the past</b> (historic sites & buildings, landmarks, natural features, etc.)		
<b>Neighbourhood character</b> (community feeling and satisfaction with neighbourhood, connections with the shoreline and waterfront)		
<b>Aesthetics</b> (beauty, views, vistas, quality and character of the landscape)		
Other?		
Other?		

## WORKSHOP EVALUATION FORM

Please take a few minutes to provide the shoreline planning Steering Committee with the following information:

1. Did you find the format of this evening's workshop effective? Why or why not?
2. Do you have any general comments about the process followed so far to develop the ten criteria, or other parts of the shoreline plan?
3. Is there anything else that you feel should be discussed?
4. Please leave your name and address, so we can keep you on our mailing list:

Would you like your filled-out workbook returned to you?

Yes

The Integrated Shoreline Management Plan Steering Committee and the Metro Toronto Conservation Authority thank you for your participation. We hope that you have enjoyed yourself and that you will continue to be involved in this process.

TABLE C.3

Integrated Shoreline Management Plan Review of Public Workshop #2, March 4, 1996 Participant Responses on Importance of Ecosystem Health Criteria related to Specific Shoreline Segments (results from small group discussions)

Criteria	Group 1 Segment 1-3				Group 2 Segment 4-6				Group 3 Segment 7-10				Group 4 Segment 11-12			
	VI	SI	NI	NR	VI	SI	NI	NR	VI	SI	NI	NR	VI	SI	NI	NR
Diversity of natural habitat, diversity of species, rare species	3	0	0	2	8	0	0	2	3	1	0	2	5	0	0	3
Biological connectedness	1	1	0	3	6	1	0	3	4	0	0	2	5	0	0	3
Sediment and water quality	3	0	0	2	7	0	0	3	3	0	0	3	5	0	0	3
Variety and quality of recreation opportunities	1	0	1	3	0	3	3	4	2	2	0	2	0	3	2	3
Accessibility	0	1	0	4	2	2	2	4	2	1	1	2	0	3	2	3
Environmental and coastal hazards	0	0	1	4	4	0	1	5	0	3	1	2	1	2	2	3
Variety of economic opportunities	0	0	1	4	1	2	2	6	1	2	1	2	1	0	3	4
Connection with the past	0	0	1	4	1	3	1	5	2	1	1	2	3	1	1	3
Neighbourhood character	0	0	1	4	2	3	1	4	3	1	0	2	3	2	0	3
Aesthetics	0	1	0	4	4	3	0	3	3	1	0	2	4	1	0	3

VI = Very Important

SI = Somewhat Important

NI = Not Important

NR = Not Ranked

## Summary of Workbook

## ments (March 4, 1996 Workshop)

**Criterion 1 Diversity of natural habitat, diversity of species, rare species**

- should occur in small areas throughout the study area
- natural habitat should be the main interest of visitors
- many benefits to healthy ecosystem
- focus efforts where natural habitat predominates now

**Criterion 2 Biological connectedness**

- generally relates to health of wildlife/humans and ecosystem
- many benefits to a healthy eco-system
- focus efforts where natural habitat predominates

**Criterion 3 Sediment and water quality**

- dependant on lake for drinking water
- work required to get rid of combined sewers and to upgrade sewage treatment plants
- should strive for swimmable beaches

**Criterion 4 Variety and quality of recreation opportunities**

- lake front should provide a connection with nature rather than equipped sports
- passive uses preserve natural attributes
- recreational uses at the water should be restricted to those reliant on the water; no baseball and tennis, etc.
- lakefront used mostly local - but is an important asset for Metro Region and Tourism
- quality of recreational opportunity is important
- low intensity is preferred
- recreational facilities should be set in specific areas but not along the entire shoreline
- recreation can educate and draw people to the waterfront

**Criterion 5 Accessibility**

- no point in having an integrated system if people can't access it
- access must be simple and easily used by visitors
- while access is important to recreation areas, it is also damaging to fragile ecosystems
- north-south access is very important ... east-west access should occur along the table land
- it's not necessary to make all the shoreline easily accessible
- need for both improved access for recreation areas, and controlled access to sensitive natural areas
- access should be near but not right on the shoreline
- need to study transportation to park areas created
- Waterfront Trail is not important

**Criterion 6 Environmental and coastal hazards**

- some erosion should continue to occur so that the bluffs profile is maintained (in some cases loose a few homes)
- erosion has to be stopped

- should continue to maintain the shoreline
- concrete structures are a real hazard to children

**Criterion 7 Variety of economic opportunities**

- only self-sustaining economic enterprises can make environmental conservation feasible in the future
- add commercial uses where there are concentrated recreation areas
- floating condo's area a good idea if controlled, but there are already enough marina's
- enterprises have no business on the shoreline, should be on top of access road
- eco-tourism could be a big opportunity
- economic ventures generally ruin habitat and natural areas
- improve Kingston Road as a people place with commercial uses similar to Queen Street (ie., not a major highway)

**Criterion 8 Connection with the past**

- boiler from Alexandria is near Gates Gully
- "if we lose our past we might as well give up"
- very important to instill a sense of culture and history
- the Bluffs must remain as such in some sections

**Criterion 9 Neighbourhood character**

- important to bring neighbourhoods closer to waterfront through volunteer opportunities
- neighbourhoods should not be overtaken by the opening of the waterfront
- many areas have very strong feelings
- access needs to be controlled to preserve community character
- more advertising/information might help people find and utilize parks

**Criterion 10 Aesthetics**

- should consider the spiritual value of land and water
- aesthetic quality is already good
- an inventory of quality views, vistas should be done
- try not to block views with structures
- provides a sense of place
- area should not be changed, leave as is

**Other****Tourism potential**

- some areas should have concentrated tourism development

**Cost Control**

- development of shoreline must be affordable and sustainable over the long term

**TABLE C.5**  
**Integrated Shoreline Management Plan**  
**Review of Public Workshop #2, April 10, 1996**  
**Participant Responses on Importance of Ecosystem Health Criteria Related to Overall Shoreline**

<b>Criteria</b>	<b>No. of Responses/ Check Marks</b>	<b>Very Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>	<b>Not Ranked</b>
Diversity of natural habitat, diversity of species, rare species	10	1	0	0	0
Biological connectedness	8	2	0	0	1
Sediment and water quality	10	0	0	0	1
Variety and quality of recreation opportunities	1	6	4	0	0
Accessibility	3	7	0	0	1
Environmental and coastal hazards	7	1	2	0	0
Variety of economic opportunities	0	7	3	0	1
Connection with the past	5	5	1	0	0
Neighbourhood character	8	2	0	0	0
Aesthetics	7	4	0	0	0

## TABLE C.6

### Summary of Workbook Comments (April 10, 1996 Workshop)

#### Criterion 1 Diversity of natural habitat, diversity of species, rare species

- would like to see species of fish and wildlife that existed 25 years ago
- do not force diversity, look to the past as a guideline.
- make it natural along the waterfront so people have an alternative to distant areas, like cottage country
- where rivers and streams enter Lake Ontario
- Society is the steward, not the owner. By maintaining biodiversity we can help to avoid extinction of natural, native species.
- Environment protection should be the highest priority, critical and essential
- Environmental contracts and agreements among agencies to preserve nature and wildlife
- With diversity, a natural environment follows naturally - the food chain must be preserved
- Rare and endangered animals require habitat, a variety of plants, large connected areas

#### Criterion 2 Biological connectedness

- allow species to move to different areas
- link with trails for humans - to appreciate wildlife
- links are very important
- required for the natural migration of animals, birds, and fish species are to maintain a healthy species
- keep the present (and past) connectedness, do not try to make artificial connections, if two areas are disparate, then keep them so
- to preserve plant life and wildlife

#### Criterion 3 Sediment and water quality

- swimmable water and edible fish most important
- essential for protection of natural habitat, fish and aquatic life
- need to improve the water quality of Frenchman's Bay to re-establish better species of fish and birds
- swimmable and edible fish is important but recreational uses are still available
- water quality - also for the health and diversity of the biological species of the area
- water quality must be improved

#### Criterion 4 Variety and quality of recreational opportunities

- recreation is sufficient in Frenchman's Bay some upgrades may be desirable
- recreation must be carefully managed and controlled to protect habitat, economic opportunity and community
- public enjoyment
- controlled access (boardwalks, designated areas) - restricted access to natural habitat areas
- walkways rather than roadways
- no motors (oil and gas) - noise - only quiet activities
- accessible, but not a place for crowds - enough people to prevent improper behaviour
- no jet skis
- the more people use an area, the more attached they become to its wellbeing - promote the

- area uses to their maximum so long as the areas do not suffer
- safe, leisure physical activities that are conducive to the environment
- clear cut grassed areas are not essential

#### Criterion 5 Accessibility

- trails should be for walking only (strollers and wheelchairs) with limited access to key natural habitats
- west shore beach and area needs to be designed to prevent vehicle access to beach and edge of shoreline
- ensure that this access is safe and compatible with nature's highways
- the quality of an area must override the ease of access access by foot - no concrete

#### Criterion 6 Environmental and coastal hazards

- protect coastline
- health of ecosystem preserved
- mandate of the MTRCA should be met
- erosion is a part of life - keep it safe
- trade off against the quality of the area, control the erosion, but do not do it to the detriment of the areas
- erosion control is very important especially at Petticoat Creek

#### Criterion 7 Variety of economic opportunities

- keep small businesses in the parking lots and not in the sensitive areas
- must not let economic development destroy the natural features
- economic opportunity must exist to ensure the community's financial health
- no commercialized Wonderlands
- leisure focus, requires rules and regulations and policies regarding safe environmental and social practices are adhered to
- they can promote use, help to confine vehicular traffic to certain area, they help fund future plans for the area
- keep businesses away
- not necessary to have large economic development policy development

#### Criterion 8 Connection with the past

- human, educational interest
- keep them - we have little as it is and preserve them for history and learning
- very important to our heritage and values, need to factor in economic opportunities and aesthetics as well
- save as much as possible

#### Criterion 9 Neighbourhood character

- important to foster stewardship and ownership - provides incentives for volunteer work for



## preservation and enhancement

- parking off site, side streets and residential areas
- public access to the waterfront must be maintained
- the environment contributes to the health and wellness of the community (quality of life)
- neighbourhoods offer community support, need to be educated
- involve the local people, make them feel it is in their best interest - education
- community pride

**Criterion 10 Aesthetics**

- appreciation of nature (bird watching)
- human enjoyment
- the bluffs are of international geological interest, improve dirty water conditions
- try to keep and restore as much as possible
- factor in economic opportunities with aesthetics
- no highrises
- important insofar as it relates to ecological health and serves as an indicator of health - has economic ramifications (tourism etc.)

**Other**

- public education and awareness
- industry - existing conflict - power stations
- should not be allowed to edge of the shoreline, marsh, high water mark, setback of 100m from the shoreline
- management of area by the MTRCA is critical, explore public/volunteer participation
- Control vehicle access to shoreline
- policy development
- environment practices
- signage - multicultural mosaic culture
- communal responsibility - let us help you help the shoreline
- hot line for people to report damage or garbage
- prevent overgrowth

# INTEGRATED SHORELINE MANAGEMENT PLAN

BALMY BEACH OPEN HOUSE - JUNE 24, 1996

- Are groyne effective in protecting the Scarborough shoreline?
- The variety of trail designs reflect the differences in stretches of shoreline. There is a need for community support because the trail may be developed on local roads due to safety and physical limitations?
- Is Tommy Thompson Park a barrier? What is the purpose of Tommy Thompson Park?
- Do the recommendations include the restoration of the marsh at Ashbridges Bay?
- There is confusion in the summary regarding the difference between beach walk and board walk (page 12)?
- Is it a recommendation that the MTRCA and/or the City can/should implement the waterfront management recommendations?
- Concern over intensive public use and its impact on the community?
- Concern over vandalism at R.C. Harris if more access is provided by the trail?
- Who owns Frenchman's Bay?
- If the access road at East Point will be completed by September 1st, when will the boat launch be completed?
- Is public input just thrown in as an after thought, since it is already at the end of Stage 2?
- Bluffers boat launch is very crowded and there is a shortage of launching facilities in the east end. Frenchman's Bay and Ashbridges Bay are also inadequate. Fishing charters bring big money to the city. Therefore, there is a need for launching facilities at East Point?
- When will facilities at East Point be completed?
- Will the trail will go south of the tracks between Port Union Road and the Rouge River?
- In the summary, Highland Creek is labelled a regional access point, but there are no facilities there, such as parking?
- There is a community debate, regarding whether it is appropriate to put the trail on Kingston Road (ie. around Guild Inn). Community does not want signs and increase traffic on local roads (ie. because of garbage, noise, etc.)?
- Suggestion that there be more detail in the strategy for implementation, such as zoning?
- Why did the MTRCA not buy land that was for sale a few years ago, and is now

recommended in the Plan?

- It would be effective to clarify/ distinguish between the short term and long term plans?
- Other, less expensive projects were cancelled, yet this plan is very costly, therefore, where does the MTRCA get the money?
- The Plan is too philosophical. It would be helpful to know such things as how the monitoring on the beach is done and that parking at R.C. Harris is out of the question?
- Steering Committee members reasserted the high priority that has been given to public involvement?
- The public should be made aware of the future boat launch site at East Point and the problems of Bluffers?
- There are problems due to the impact of mountain bikes in Highland Creek.?
- How will it be ensured that the environmental report card be objective and not politically motivated?

#### FRENCHMAN'S BAY OPEN HOUSE - JUNE 18, 1996

- What are we going to do to eliminate congestion at Bluffers Park? We have to do something to fix the problem?
- What needs to be done to start a marina at East Point? How many studies do we have to do to get something into the ground?
- When are you going to do something about the beach at Frenchman's Bay? Nothing has been done?
- You don't do anything anymore--just planning?
- The study outlines a boat launch facility at East Point, when can the environmental assessment be submitted to the Province?
- The Highland Creek trail is too wide and paved and therefore it scares the deer away. It is a sensitive area. People were kept out because of the terrain, narrow paths and trails.
- Is there a solid time frame, when something is going to happen ? You took properties away and then you left them neglected? When is the promised park going to be developed?
- If you (MTRCA) need help, let us know because we can get the obstacles out of the way?
- Frenchman's Bay Waterdogs started with jet-ski issue. It is aiming at a multiple use concept. (The MTRCA is committed to coming back in the Fall to do something.)?
- Plenty of plans have been developed for the enhancement of the Frenchmans Bay when

is something going to happen?

## SCARBOROUGH OPEN HOUSE

- Public access, use, safety: Limited access at Bluffers, How do you protect people from themselves in difficult areas? Access means more parking lots, why is there no public transit?
- What is the cost of revetments per/m along the Scarborough Bluffs. How much money do these structures cost in maintenance? What is the life expectancy of the beach and headlands?
- Will you renaturalizing Bellamy Ravine and what is the budget?
- Opportunity to do community based Reforestation - 100 volunteers.
- Can we involve school children in the rehabilitation projects?
- we should require boats to have a launch sticker so boats are registered to go into the Lake. This would certify the environmental quality of the boats and stickered boats would only have access to the launch.
- Proposal - floating chalets - public protest deferred at Metro Council - Is the MTRCA able to take the position that is not appropriate use - Make deputation.
- Movie set on Cathedral Bluffs? Who let that happen? Behind St. Augustine.
- Ball park at East Point - eye sore, can see glare from Bellamy Ravine - not appropriate - what else will go in that will be similar?
- Will you build another Bluffers Park at East Point?
- Has this study has put a halt to works in progress?
- Shoreline Management Advisory Committee will it include representation from across the shoreline including ratepayers groups? Where do we sign up?
- Concept Sites will there be community involvement in design and implementation?
- How is the Fishleigh Drive project funded?
- Is this Executive Summary the only report?
- Development is occurring in places where it is inappropriate - Centennial Creek ie. Top of Bank - COSCAN development?
- How will the trail delineation - public consultation process work?
- Does the MTRCA put sensors on animals to teach us about wildlife movement - wildlife

detection in areas of development?



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## INTEGRATED SHORELINE MANAGEMENT PLAN PUBLIC OPEN HOUSE - June 24, 1996

### Comment Sheet

Thank you for your interest in today's Open House. Please take a minute and write down your comments. The study team is eager to hear your input on the draft ISMP shoreline management recommendations. Any comments or concerns you may have are of interest to us. The following questions, however, may help you organize your comments.

**Question 1:** The ISMP contains three broad management strategies: 1) shoreline treatment and public safety; 2) natural heritage; and 3) public use. Do you consider the proposed strategy recommendation to be adequate?

**Question 2:** The ISMP includes specific management recommendations for 12 individual shoreline segments. Do you agree with the individual segment recommendations as presented in the Executive Summary (e.g., proposed trail alignments, shoreline treatment or habitat management measures)?

**Question 3:** The ISMP provides for an implementation and monitoring mechanism to bring the plan to fruition and to ascertain accomplishments. Do you agree with the proposed implementation and monitoring strategy? What changes, if any, would you suggest?

**Table C.7**  
**Key Comments Instrumental in Refining the Phase II Approach**

the level of detail used to describe the characteristics of the ISMP shoreline is appropriate;

the ten shoreline segments are credible and supportable, and represent reasonable sub-areas to be used for planning purposes in Phase II;

in concept, the "ecosystem health" approach to planning for the ISMP study area is valid; However, the framework and conclusions presented in the Draft Phase I Report are too general and are misleading for several reasons:

- the criteria used to assess health require additions in the area of social and economic, and community issues; and overlapping criteria must be consolidated to avoid duplication;
- the "checks and blanks" conclusions provided in Table 6-1 of the report, are overly simplistic and mislead the reader to drawing absolute conclusions about "healthy" or "unhealthy" conditions where these conclusions were not intended to be drawn;
- connection of the conclusions drawn to the characteristics of each segment is not traceable, leading some readers to conclude that the conclusions may not be consistent with the Phase I data;
- the description of challenges and opportunities on a

segment basis (which were based on the "ecosystem health" assessment) are, for some segments, overly simplistic and lack localized context (eg. it was assumed by some that a blank under species diversity is intended to indicate that the segment is "unhealthy"; yet the habitat of the segment may not have the characteristics necessary to support a diverse biota -- the segment may be "healthy" even though species diversity is lower than for some other segments);

Notwithstanding these criticisms, with refinements, the "ecosystem health" approach can be applied successfully in Phase II of the ISMP;

the context for assessing "ecosystem health" should not be pre-settlement or pre-development, but should be based on where we are today; and

the context for assessing challenges and opportunities, and in developing a plan for the ISMP study area should be forward-thinking, based on a vision for the area. As noble as many planning objectives, developed by others, may seem (eg. protect/enhance water quality, protect/enhance significant natural features, provide a sustainable environment), they are often overly general and not sufficiently specific to the ISMP study area to facilitate successful implementation and monitoring over time.



**General**  
**Shoreline Characteristics**  
**Appendix D**



TABLE D.1 General Shoreline Characteristics by Study Area Segment\*

General Shoreline Characteristics by Segment	Shoreline Segments												Overall Shoreline
	1	2	3	4	5	6	7	8	9	10	11	12	
area (ha) by shoreline segment (% of total study area in parentheses)	129.91 (3.1)	231.25 (5.6)	282.85 (6.9)	233.53 (5.7)	206.45 (5.0)	877.88 (21.3)	456.04 (11.0)	109.28 (2.6)	709.53 (17.2)	111.79 (2.7)	394.56 (9.6)	384.96 (9.3)	4128.03 (100.0)
linear (km) length	4.3	1.9	2.5	3.9	2.5	6.4	2.2	0.7	2.7	0.6	1.8	2.0	31.5

(\* All values have been rounded to the nearest decimal place.

Ecosystem Criteria/Health Indicators	Shoreline Segments												Overall Shoreline
	1	2	3	4	5	6	7	8	9	10	11	12	
<b>1.0 DIVERSITY OF NATURAL HABITAT, DIVERSITY OF SPECIES, RARE SPECIES</b>													
1.1 area (ha) of ANSIs (% of total ANSI area (421.88 ha) in parentheses)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	10.72 (2.5)	65.76 (15.6)	162.01 (38.4)	75.22 (17.8)	0.0 (0.0)	2.97 (0.7)	95.78 (22.7)	9.42 (2.2)	0.0 (0.0)	422.88 (10.2)
number of ANSIs				1*	1*	1*	1			1			3
1.2 area (ha) of ESAs (% of total ESA area (300.78 ha) in parentheses)	45.73 (15.2)	0.0 (0.0)	7.73 (2.6)	1.05 (0.3)	27.29 (9.1)	40.57 (13.5)	14.46 (4.8)	41.04 (13.6)	1.47 (0.5)	82.31 (27.4)	29.70 (9.9)	9.42 (3.1)	300.78 (7.3)
number of ESAs	1		1	2*	1*	2*	1	1		1	1	1	10
1.3 area (ha) of wetlands (% of total wetland area (72.76 ha) in parentheses)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	6.56 (9.0)	2.79 (3.8)	0.0 (0.0)	0.0 (0.0)	63.40 (87.1)	72.76 (1.8)
1.4 number of terrestrial vegetation complexes/habitat types	6	1	2	4	5	4	6	3	3	9	4	6	53
1.5 area (ha) covered by forest (% of total forest area (365.60 ha) in parentheses)	0.0 (0.0)	3.71 (1.0)	17.85 (4.9)	20.78 (5.7)	8.31 (2.3)	93.01 (25.4)	42.22 (11.5)	66.19 (18.1)	23.46 (6.4)	44.03 (12.0)	38.90 (10.6)	7.12 (1.9)	365.60 (8.9)
1.6 number of vascular plant species - represents plant diversity (number in parentheses represents native species)	152 (64)	--	33	156 (124)	--	--	133	146 (120)	--	762	169	--	762 (124)
1.7 number of nationally and/or provincially rare plant species (number in parentheses represent regionally rare plant species)	1 (10)	--	3*	1*	--	(1)	2 (5)	1	--	3 (32)	--	5 (5)	5 (32)
1.8 number of high quality vascular plant habitat	--	--	2	1	--	--	1	1	--	1	1	--	7
1.9 number of important habitats for migratory birds	1	--	--	1	1	1	1	--	--	1	--	1	7
1.10 segments possessing high faunal diversity/high quality wildlife habitat (i.e., segments with > 60 species)	X	--	--	--	--	--	X	X	--	X	--	X	--
1.11 number of bird species (number in parentheses represents breeding birds)	255 (25)	--	--	--	--	--	67 (51)	69	--	225 (123)	--	126 (34)	255 (123)

TABLE D.1 General Shoreline Characteristics by Study Area Segment\*

Ecosystem Criteria/Health Indicators	Shoreline Segments	1	2	3	4	5	6	7	8	9	10	11	12	Overall Shoreline
1.12	number of rare or significant bird species	2-4	--	--	2	2	2	--	--	--	3	--	4	4
1.13	number of mammals	3	--	--	2	--	--	7	--	--	27	--	--	27
1.14	number of aquatic habitat types	2	2	1	1	2	1	1	2	1	2	2	3	3
1.15	number of fish species	31	24	--	14 (7)	31	22 (13)	--	23	--	31	--	--	49
1.16	number of rare fish species	2	2	--	--	1	--	3	--	--	4	--	3	12

\* represents presence of a single feature in more than one segment.

2.0 BIOLOGICAL CONNECTEDNESS														
2.1	size (ha) of core areas (% of total core area (784.44 ha) in parentheses)	75.10 (9.6)	0.0 (0.0)	8.12 (1.0)	28.23 (3.6)	62.76 (8.0)	189.12 (24.1)	99.76 (12.7)	75.82 (9.7)	12.99 (1.7)	99.44 (12.7)	43.63 (5.6)	89.48 (11.4)	784.44 (19.0)
2.2	length (km) of water's edge corridor (% of total study area length (74.46 km) in parentheses)	23.0 (30.9)	7.1 (9.5)	3.2 (4.3)	5.6 (7.5)	8.9 (12.0)	6.9 (9.2)	2.6 (3.5)	0.7 (1.0)	2.7 (3.6)	0.6 (0.8)	2.2 (2.9)	11.0 (14.8)	74.46 (100.0)
2.3	number of inland corridor links	1	0	0	3	4	7	2	1	1	1	1	3	24
2.4	total length of inland corridor links (approximate) (m)	2,762			1,053	1,924	3,683	3,359	2,603	842	2,016	1,700	3,500	23,442
3.0 SEDIMENT AND WATER QUALITY														
3.1	number of beach closures in 1992	no beach	0%	0%	no beach	9%	no beach	no beach	no beach	no beach	10%	no beach	no beach	
3.2	number of combined sewer outfalls	0	3	2	6	0	0	0	0	0	0	0	0	11
3.3	number of stormwater outfalls	0	2	9	0	2	7	1	3	6	0	0	0	30
3.4	number and frequency of exceedance of provincial water quality and sediment quality standards (X = locations of monitoring stations - for data refer to Hoher and Parkinson 1993)	X	X	--	--	X	--	--	--	--	--	--	--	
3.5	quality of effluent from WPCP outfalls (X = location of WPCP - for data refer to Metro Works Annual Reports)	--	X	--	--	--	--	--	--	--	--	--	--	
3.6	number of sport fish consumption advisories (during the 1995/96 and 1993/94 seasons); (1) = 1993/94 season	12	12 (2)	6	6 (4)	6 (4)	6 (4)	10	10	10	10 (0)	10	4 (2)	32 (8)
4.0 VARIETY AND QUALITY OF RECREATION OPPORTUNITIES														
4.1	number and significance of recreational nodes	1 major, 0 minor	2 major, 0 minor	1 major, 0 minor	2 major, 3 minor	1 major, 0 minor	1 major, 4 minor	1 major, 0 minor	0 major, 1 minor	0 major, 0 minor	1 major, 0 minor	1 major, 0 minor	1 major, 0 minor	12 major, 8 minor
4.2	number of existing recreational opportunities/uses (number of water-related recreational opportunities/uses in parentheses)	5 (4)	7 (5)	10 (4)	3 (1)	6 (3)	8 (3)	6 (3)	4 (3)	0	5 (4)	5 (3)	6 (4)	

TABLE D.1 General Shoreline Characteristics by Study Area Segment\*

Ecosystem Criteria/Health Indicators	Shoreline Segments												Overall Shoreline	
	1	2	3	4	5	6	7	8	9	10	11	12		
<b>9.0 NEIGHBOURHOOD INTEGRITY (COMMUNITY COMPOSITION)</b>														
9.1	general characterization of segment area (R) residential, (PO) parkland and open space, (ICI) industrial/commercial/institutional, and, (T) area in transition	T/PO	ICI/PO	R/PO	R/PO	R/PO	R/PO	ICI/R/PO	PO	T/R	PO	R/PO	R/PO	--
9.2	area (ha) of public versus private open space lands (% of total segment area in parentheses)	129.91 (100.0) 0.00 (0.0)	44.27 (19.1) 0.00 (0.0)	58.85 (20.8) 0.00 (0.0)	27.50 (11.8) 54.81 (23.5)	118.94 (57.6) 0.20 (0.1)	256.21 (29.2) 0.41 (0.0)	102.33 (22.4) 2.09 (0.5)	65.00 (59.5) 0.00 (0.0)	101.18 (14.3) 3.63 (0.5)	97.94 (87.6) 0.00 (0.0)	78.21 (19.8) 0.00 (0.0)	109.72 (28.5) 0.00 (0.0)	1190.05 (28.8) 61.15 (1.5)
9.1	area (ha) of urban lands (% of total segment area in parentheses)	0.00 (0.0)	76.26 (33.0)	224.69 (79.4)	148.59 (63.6)	87.33 (42.3)	621.27 (70.7)	206.48 (45.3)	16.25 (14.9)	527.50 (74.3)	13.85 (12.4)	272.37 (69.0)	226.19 (58.8)	2420.80 (58.6)
9.1	area (ha) of utility lands (% of total segment area in parentheses)	0.00 (0.0)	83.67 (36.2)	0.00 (0.0)	2.59 (1.1)	0.00 (0.0)	0.00 (0.0)	38.75 (8.5)	20.91 (19.1)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	2.65 (0.7)	148.57 (3.6)
9.1	area (ha) of industrial lands (% of total segment area in parentheses)	0.00 (0.0)	27.06 (11.7)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	106.38 (23.3)	7.10 (6.5)	70.10 (9.9)	0.00 (0.0)	0.64 (0.2)	1.62 (0.4)	212.90 (5.2)
<b>10.0 AESTHETICS</b>														
10.1	significant views	2	1	1	2	1	2	1	0	1	1	1	1	14
10.2	number of visual landmarks	1	3	1	1	1	2	1	0	0	1	0	0	11

TABLE D.1 General Shoreline Characteristics by Study Area Segment\*

Ecosystem Criteria/Health Indicators	Shoreline Segments	1	2	3	4	5	6	7	8	9	10	11	12	Overall Shoreline
4.3	area (ha) of designated public open space (% of total study area (4128.03 ha) in parentheses)	129.91 (3.1)	44.27 (1.1)	58.85 (1.4)	27.50 (0.7)	118.94 (2.9)	256.21 (6.2)	102.33 (2.5)	65.00 (1.6)	101.18 (2.5)	97.94 (2.4)	78.21 (1.9)	109.72 (2.7)	1190.05 (28.8)
4.4	variety of uses (5 represents highest variety)	3	4	4	3	3	3	3	2	0	3	3	4	
<b>5.0 ACCESSIBILITY</b>														
5.1	length of trail (in km) at or near water's edge (E-W trail) (difficult/incremental/highly accessible); total distance in % of segment length in parentheses	4.496 (100)	1.4 (100)	3.477 (93)	1.114 (26)	1.653 (42)	0.331 (4)	0	0	0.637 (23)	0	0	0	13.108 (17.6)
5.2	number of gateways	2 major, 1 minor	2 major, 0 minor	2 major, 0 minor	0 major, 4 minor	1 major, 0 minor	0 major, 6 minor	0 major, 1 minor	0 major, 1 minor	0 major, 1 minor	1 major, 0 minor	1 major, 0 minor	1 major, 0 minor	10 major, 14 minor
5.3	number of formalized public vehicle storage areas at or near waterfront	1	2	0	2	2	2	1	1	1	1	1	2	16
<b>6.0 ENVIRONMENTAL AND COASTAL HAZARDS</b>														
6.1	area (ha) and type of incompatible land uses within dynamic beach standard/ flood standard/ erosion standard													
6.2	number of known areas with soil and/or groundwater contamination	0	1 former MSW landfill	0	0	3 former MSW landfills	1 former MSW landfill	0	0	1 former asbestos disposal site	0	0	0	6
<b>7.0 VARIETY OF WATER-RELATED OR ENHANCED ECONOMIC ACTIVITIES AND OPPORTUNITIES</b>														
7.1	presence of commercial focal points complementary to the recreational open space/waterfront use	1 marina (plus complimen- tary facilities, businesses)	1 marina (plus complime- n-tary facilities, businesses)	Queen St. East	Hunt Club	1 marina (plus complimen- tary facilities, businesses)	Guildw ood Inn	0	0	(planned)	0	0	2 marinas (plus complimen- tary facilities, businesses)	8
<b>8.0 CONNECTION WITH THE PAST</b>														
8.1	number of designated built heritage resources	0	1	7	3	7	4	0	0	1	0	0	0	23
8.2	area (ha) of Regional Heritage Sites (cultural landscapes) (% of total Regional Heritage Sites area (716.86 ha) in parentheses)	0.0 (0.0)	53.31 (7.4)	75.63 (10.6)	113.47 (15.8)	45.97 (6.4)	183.93 (25.7)	67.74 (9.4)	50.58 (7.1)	38.45 (5.4)	85.20 (11.9)	2.59 (0.4)	0.0 (0.0)	716.86 (17.4)
8.3	number of Regional Heritage Sites	0	3	3	3	2	5	1	1	1	1	0	0	20
8.4	number of known archaeological sites	0	0	1	1	0	1	0	0	0	0	2	1	6