McKAY LAKE MANAGEMENT PLAN

A report prepared for the Village of Rockcliffe Park

by ESG INTERNATIONAL Inc.

November, 2000

EXECUTIVE SUMMARY

The Village of Rockcliffe Park Environment Committee commissioned ESG International Inc. to develop a Management Plan for those public and private lands comprising the private shoreline of McKay Lake, the closed portion of Lansdowne Road (known as the Dog Walk), and the Carver-Caldwell Conservation Area (C-CCA). The C-CCA consists of the publicly-owned eastern shore of McKay Lake, the Pond and the wooded areas. The intent of the Management Plan is to document the existing conditions, describe how the area has been managed in the past and to provide guidelines for the management of these areas in the future.

There has been a wide spread acceptance among Village residents of rural character within a larger urban setting, of individual architectural expression within a shared landscape, and of seeking a proper balance between development and conservation. Because the community has enjoyed the benefits of local government at a neighbourhood scale, it has been able to pursue its objectives more directly than most urban neighbourhoods that exist within larger municipal jurisdictions. This Management Plan is designed to form part of the basis for allowing this influence to continue into the future under the new City of Ottawa.

The Management Plan describes the history of the area, its geology, vegetation and the waters of McKay Lake and the Pond. The entire area provides a unique natural landscape character within an existing residential setting. The biological conditions and opportunities for activities that exist today are the result of conservation themes actively developed and implemented by past and current Village residents. These themes include retention and enhancement of the existing natural areas, passive activities and uses such as maintenance of trails through the wooded areas, controlled swimming in the Pond and winter activities on the Lake. The Management Plan also describes the history of landfill activities in the 1960s and the 1980s and subsequent Environment Committee activities in wetland and upland restoration.

The vision developed for the McKay Lake area is a reflection of those values the Village residents feel the area should represent in the future. It is of a Lake and surroundings (including the Pond) that retains their natural and "rural" character and of a Management Plan that respects the conservation status and involves local people in the implementation of that plan.

In general, there was consensus among the participants on the following points:

- the greatest threats to the natural environment features of the McKay Lake area are from changes to shoreline vegetation, direct intrusions into the water in association with development on the private lots, and adjacent activities and uses on the public side of the Lake and the Pond;
- there is a need to maintain the existing opportunities for passive activities and uses in the C-CCA and within its Corridor of Public Passage, while conserving the features and

functions of the natural environment;
- the Plan should provide the guidelines for the protection and enhancement of the features of the C-CCA and the private lands adjacent to the Lake;
- the Vision and Goals for the area should be recognized though the adoption of this Plan by the Village Council.

The goals and measures to implement the vision were developed to maintain the existing positive attributes of the aquatic habitat, wetlands, water quality and terrestrial habitats of the C-CCA, McKay Lake and the Pond, mitigate the potential natural environment and social impacts, and enhance the features and functions of the area.

The four general goals for the Lake and the Pond are:

- maintain and enhance the aquatic habitat, wetlands and water quality of the C-CCA and McKay Lake;
- maintain and enhance the adjacent terrestrial environment;
- provide for suitable activities and uses; and,
- maintain the existing habitat and settings associated with the Pond.

The Plan recommends implementation measures in Section 6 so that each of the four goals will be achieved. The measures include but are not limited to

- passive activities and uses of the area in summer and winter;
- trail maintenance;
- naturalization of lands within 10 metres of the shoreline;
- selective thinning and vegetation enhancement including soil/compost addition;
- invasive tree and shrub control; and,
- no motorized watercraft.

The process of developing the Management Plan represented a mechanism for community input into the future decisions affecting the natural resources and ecosystems in the McKay Lake area. The mechanism for decision by consensus that has been developed to ensure community input into any decisions affecting the natural resources and ecosystems in the McKay Lake area should be continued under the new City of Ottawa. This consensus is expressed as much through informal mechanisms and individual initiatives as through formal regulations and public dictates.

Through the Environment Committee, or its successor as a committee of the Rockcliffe Park Conservation Association, the Village should continue to play an active role in maintaining public properties, providing local input on maintenance plans, and in providing services, technical advice and resources in support of private initiatives.

TABLE OF CONTENTS

FIGURE

APPENDIX

1.0 INTRODUCTION

The Village of Rockcliffe Park Environment Committee commissioned ESG International Inc. to develop a Management Plan (hereinafter referred to as 'the Plan') for those public and private lands comprising the private shoreline of McKay Lake, the closed portion of Lansdowne Road (known as the Dog Walk), and the Carver-Caldwell Conservation Area (C-CCA). The C-CCA consists of the publicly-owned eastern shore of McKay Lake, the Pond, and the wooded areas. The intent of the Management Plan is to document the existing conditions, describe how the area has been managed in the past and to provide guidelines for the management of these areas in the future. The process of developing the Management Plan also represented a mechanism for community input into the future decisions affecting the natural resources and ecosystems in the McKay Lake area.

The Plan was adopted by the Council of the Village of Rockcliffe Park in November 2000.

The Plan provides the tools for the Village residents and the new City of Ottawa staff to ensure the protection and enhancement of the Lake and Pond environment as described in the Heritage Conservation District Study and the Village of Rockcliffe Park Official Plan and zoning bylaws. These tools represent the basis for an appropriate ecological approach to continue the process of restoration of the wooded and shoreline areas and preserve the natural and historical features of this area.

1.1 Study Area Description

Figure 1 identifies the study area directly covered by the Plan. McKay Lake and the Pond are situated in the southeast portion of the Village of Rockcliffe Park, south of the Ottawa River and east of the Rideau River. Beechwood Cemetery is south of the Lake and represents the upper portion of the subwatershed of McKay Lake. The outlet of McKay Lake flows north to the Ottawa River. However the outlet has been piped just north of Hillsdale Road since the 1950s. McKay Lake is referred to as Hemlock Lake in some publications. As described in Sections 2.0 and 3.3.1 landfill activities in the 1960s to the early 1980s destroyed most of the marsh area on the east side of the Lake.

The Pond was an active sand pit in the 1930s and 1940s. There is no obvious surface connection between the Pond and McKay Lake immediately to the northwest.

The study area includes the land designated as *Conservation Zone* in the Village of Rockcliffe Park Official Plan (Village of Rockcliffe Park 1993) surrounding McKay Lake and the Pond (Figure 1). This represents both public and private land around McKay Lake and the Pond. Walking trails and forested areas are present on public land along the east side of the Lake. This land is part of a Corridor of Public Passage. The closed portion of Lansdowne Road contains a trail on the west side of McKay Lake known as the Dog Walk. This area was the site of a major storm sewer project in 1996 and a revegetation plan was developed and implemented by the Village's Environment Committee.

Figure 1

2.0 VILLAGE PHILOSOPHY

The 1993 Official Plan (Village of Rockcliffe Park 1993) summarizes the character of the Village as:

> *Much of the existing road and lot pattern was established in 1864, when Thomas Coltrin Keefer subdivided the MacKay estate. This pattern, which was strongly influenced by the topography and woodland areas, has left a legacy of large and small lots, a winding road network, and park-like surroundings. The escarpment looking over the Ottawa River, MacKay Lake, and the Pond are some of its natural beauties.*
>
> *Throughout its history, Rockcliffe Park has been and continues to be primarily a residential community of single-family residences. It has been a place where individuals and families could build or buy their own homes to suit their needs and desires, and the* Village has been developed with a sensitivity to scale, massing, and density of housing in a park-like setting. Other land uses, such as high density residential, commercial, and industrial, have been excluded from the community.
>
> *This balance of residential development and the natural environment has created a community that is distinctive in the surrounding urban context within the Ottawa-Carleton Region.*

The importance of the natural environment, in particular McKay Lake and the Pond area, is reflected in the statement of community vision presented in the Official Plan (Village of Rockcliffe Park 1993):

> *The residents of the Village of Rockcliffe Park wish to sustain the character and quality of the environment in which they now live. The Village is fortunate to have the beauty of its landscape with its high canopy of trees, open spaces and vistas, the Lake and the Pond, informal small-scale roads, and unobtrusive siting of houses. As a residential neighbourhood close to the centre of a large urban area, the Village has successfully retained a reasonably well-balanced ecological condition. It is therefore the desire of the community, as expressed in this Plan, to protect the present environment, including the spatial relationships between buildings, and to conserve and restore the quality of the landscape wherever and whenever this is opportune and feasible.*

There is concern that the traditional emphasis on conservation and landscape maintenance has diminished in the Village, with less thought and sensitivity being given to scale and retention of the park-like setting within the built environment.

Beechwood Cemetery, which was laid out in 1873, and the surrounding parks have had an important influence and impact on village growth. They have provided natural boundaries around a large portion of the Village, and established treed buffer-zones, creating a rural feeling.

The preservation and enhancement of topographical features, including the Lake and Pond, have reinforced the apparently casual and informal styles that are so integral to the picturesque tradition of Rockcliffe Village.

Specifically to the McKay Lake area, the Special Policies for Conservation Areas in the Official Plan (Village of Rockcliffe Park 1993) note that the Village of Rockcliffe Park is committed to protecting and conserving McKay Lake and the Pond as significant amenities within the Village. As such, particular interest is given to land uses adjacent to these water bodies, and along the shoreline. Important objectives for the Village are to maintain and create natural habitats along the land/water interface, and to protect the water from accelerated rates of nutrification due to land use practices of adjacent landowners (Village of Rockcliffe Park 1993).

The Village of Rockcliffe Park was designated as a Heritage Conservation District under Part V of the Ontario Heritage Act in 1997. Management Guidelines are recommended as part of the District designation, to ensure the protection and enhancement of heritage character. The designation of the Village as a Heritage Conservation District, and implementation of the Management Guidelines, provides a firm basis to protect and enhance the quality and historical significance of this unique community.

The dumping of fill in the marsh area over a period of years (first in 1963 to "improve" the land following sewer construction) culminated in a major landfill activity starting in 1968. In 1972, "Stop" and then "Control" orders under the Ontario Environmental Protection Act halted the dumping, and led the way to a series of court actions. Eventually, a change in ownership of the land (including a large tract of maple-beech forest) and extensive debate in the Village resulted, in 1980, in a by-law being passed allowing the subdivision of the land east of the Pond (Parcher 1990). The Council agreed to permit cluster housing in exchange for approximately one hectare (2.5 acres) of public land for conservation and the Corridor Of Public Passage. Construction of the condominiums south and east of the Pond began in 1983 together with single dwelling homes on the upland area. The public lands have been treated as a conservation area rather than as parkland.

3.0 EXISTING CONDITIONS

Much of the following information is taken from a report completed on the environment and hydrology of McKay Lake and the Pond in 1980 (A.J. Robinson 1980) and updated to include changes that have taken place since then and observations from field reconnaissance undertaken in September and October, 2000. Figure 1 identifies the study area described in this section.

3.1 Geology and Soils

McKay Lake originated as a plunge pool along a narrow channel that swept between rock escarpments of Rockcliffe Park and Beechwood Cemetery some 9000 years ago. During the initial erosion the channel must have been a turbulent cascading stretch of water since the strong currents and eddies carved deeply into the marine clays, plunged over the escarpment, exhumed a pre-existing glaciofluvial deposit that occurs at the site below the Pond, and eroded a giant sized pot-hole (A. J. Robinson 1980).

The oldest bedrock deposit consists of massive limestone belonging to the Ottawa Formation. This unit occurs in the high ridge at Beechwood Cemetery where the beds dip gently to the south. This ridge appears to be a good example of a rock drumlin. Another outcrop of limestone believed to belong to the Ottawa Formation was discovered on the northern foreshore of Mckay Lake about 100 metres to the west of the Swiss Embassy (A. J. Robinson 1980). The beds appear to be horizontal. The Rockcliffe Formation is the youngest and only other bedrock material in the area (A. J. Robinson 1980). It consists of fine-grained silty sandstone with shale partings. It is typically thin-bedded, underlies the western part of the Village and forms several well-defined terraces to the west of McKay Lake. Fractures and joints in the Ottawa Formation are widely spaced and tight, whereas fractures in the Rockcliffe Formation are more closely spaced and more open (A. J. Robinson 1980).

Surficial deposits consist of glacial materials formed during the latter stages of the ice retreat in the Pleistocene, including Champlain Sea sediments, and non-glacial materials deposited in the fluvial to lacustrine transitional environment during the development of McKay Lake (A. J. Robinson 1980). The glacial deposits from oldest to youngest consist of till, a thick glaciofluvial sand and gravel, and thick clay deposits. The till forms a substantial reservoir of freshwater that acts as storage for the Pond and possibly even for McKay Lake. Clay underlies the northern, eastern and southern borders of McKay Lake and the Pond and consists of a medium grey calcareous very silty clay. The clay is at least five metres thick and occurs very close to the surface at most locations (A. J. Robinson 1980). Clay also occurs below the lacustrine deposits in the Lake.

The non-glacial deposits consist of a fluvial boulder layer, a gravel layer, a gritty sand, lacustrine sand, gravel and marl and bottom deposits. The gravel deposit are believed to represent the continuing erosive action of the plunging water of the early Ottawa River and deposition by

strong eddy currents as the pot-hole like carving of the McKay Lake basin continued (A. J. Robinson 1980). The clay "pebble" is direct evidence of the erosive ripping power of the plunging water and rapid deposition of material at this time. Pebbly sand and poorly sorted gravel up to five metres thick occupy a well-defined terrace along the south shore of the Pond and to the east of McKay Lake.

Extensive marl and sand excavation has occurred among these deposits. Remnants occur on the south side of the Pond where it is mainly a gravel with patches of marl. Marl, up to 1.6 metres thick formerly covered up to 100 acres rimming the eastern shore of McKay Lake. The marl was very pure and consisted mainly of very finely crystalline calcium carbonate and shells of tiny gastropods and pelecypods (A. J. Robinson 1980).

The bottom deposits of McKay Lake were studied by Whittaker (1922) and more recently by R. N. McNeely and colleagues at the Geological Survey of Canada (Lowden *et al*. 1971). The deposits consist of very fine colloidal materials laid down in response to the changing environmental conditions of the Lake. The lack of land-derived detritus apart from talus deposits along the western rock slope is particularly noteworthy (A. J. Robinson 1980). Materials sampled and described by McNeely in Lowden *et al*. (1971) include a basal organic layer dated at about 8000 years before present. Minor organic deposits still occur near the shore of McKay Lake but are mixed with recent fill material.

3.2 Vegetation and Wildlife Habitat

The terrestrial communities surrounding the east side of McKay Lake include an early successional dry-fresh deciduous forest associated with the fill area adjacent to the northeast shore, and a more mature dry-fresh deciduous forest along the south shoreline (Figure 1). The forest along the east side is the result of a decision by the Environment Committee and agreed to by the Village Council to allow natural regeneration to occur after the fill material was placed. Trembling aspen and b`alsam poplar are well established. To replace these early successional species and to speed succession in one area, many white pine, tamarack and white spruce have been planted. These plantings appear to be doing well. Other common tree species in this forested area are Manitoba maple, red maple, white elm, basswood and bur oak. Bittersweet is present along the fencing adjacent to the east shore. This vine will likely become well established on the newly replaced fence. The berries of the vine are a good food source for wildlife.

The forest surrounding the Pond is similar to the above early-successional forest. Common tree species are Manitoba maple, red maple, basswood, white elm, balsam poplar and white birch, with speckled alder, red-osier dogwood and choke cherry present in the understorey.

There are some large cottonwood, white birch, red ash, white pine and crack willow trees in the more mature dry-fresh deciduous forest along the south shoreline. Some of the willows are in poor condition, and these wildlife trees represent good habitat for cavity nesters. Basswood, sugar maple and silver maple are also common.

On the west side of McKay Lake, many areas between the trail along the closed portion of Lansdowne Road (known as the Dog Walk) and the Lake are forested. Common tree species are sugar maple and bur oak. Norway maple is invasive in some areas. One resident has established a fern garden. Several trees and shrubs, including white spruce, birch, hawthorn , sumac and red-osier dogwood, were planted along the trail, after reconstruction of a sewer in 1996.

Wetland marshes occur along the south and east shorelines of McKay Lake (Figure 1). Along the south shoreline, *Scirpus* and common cattails dominate the wetland vegetation, with royal fern, sensitive fern and speckled alder common at the shoreline. Other reported species are marsh fern and swamp milkweed (A. J. Robinson 1980). As in many areas, glossy and common buckthorn is widespread. The cattails marshes are maintaining their presence in the east-central portion of McKay Lake. In addition, cattails have expanded to the north along the east edge of the Lake adjacent to the area that was filled in the 1960s. Early aerial photographs indicate that the entire east portion of the Lake was marsh in the early-mid 1900s. Pockets of pickerelweed are present adjacent to the cattails. Other aquatic plants include water milfoil, the yellow pond-lily, lesser duckweed and greater bladderwort. Fragrant white water lily was reported by A. J. Robinson (1980). Another marsh area is located in the southwest corner of the Lake (Figure 1). Purple loosestrife is much more common in this area. The hummocks of this marsh area appeared to add greatly to its wildlife value. Painted turtles are commonly reported basking on the logs. The importance of this wetland is increased due to the hardened nature of much of the shoreline on the west side due to either natural terraces with no littoral zone or engineered efforts at stabilization and Lake access.

The Pond generally contains much fewer wetland areas and aquatic plants, likely a result of its artificial origin and steep sides with reduced littoral zone. The benefits of fencing adjacent to the trails in minimizing the extent of vegetation trampling and erosion is clearly evident in comparing present observations with those of 1980.

A. J. Robinson (1980) stated that numerous prominent areas of erosion are found along the shoreline and excessive trampling of vegetation has occurred in portions of the surrounding area. Such observations are not consistent with the current observations. In many areas of past erosion, shrubs and saplings have been planted in a terraced fashion to assist in bank stabilization. The debris referred to in A. J. Robinson (1980), such as bottles, cans, and tires, was also noticeably absent in 2000.

The vegetation contains several invasive non-native species. Members of the Environment Committee are attempting to control the spread (and to eradicate if possible) glossy and common buckthorn. The buckthorn is especially common in the disturbed areas, such as the areas of fill and adjacent to the trails. Many black locust trees are located near the south entrance to the trails, on the west side of the trial. The sharp thorns associated with this species are of potential concern. A few other potentially invasive plants appear to have relatively small present populations. Dog-strangling vine (black swallow-wort), a serious invasive species in southern Ontario, is located off the main trail just south of the purple martin house. Garlic mustard is

present near the south end of the trails. White sweet clover and Norway maple are other invasive species with a few populations becoming established. There are other non-native, but less invasive, species, such as purple coneflower, snowberry, burning bush, Amur maple and Jerusalem artichoke.

Wood ducks and hooded mergansers nest in the boxes provided and maintained by a local Rockcliffe resident. Black ducks, mallards, black-crowned night herons, great blue herons, green herons, ring-billed and herring gulls, red-winged blackbirds and double-crested cormorants are all frequently observed on McKay Lake. The wetlands and adjacent forests provide suitable habitat for reptiles and amphibians. Bullfrogs, green frogs, toads, spring peepers, painted turtles and snapping turtles are all well represented. During the 2000 autumn field surveys, many interesting migrating birds were observed in a quick 'snap-shot' of the wildlife. These included winter wren, clay-coloured sparrow, Swainson's thrush, golden-crowned kinglet and white-throated sparrow.

A. J. Robinson (1980) concluded that the:

> *area surrounding McKay Lake, although not containing any apparent unusual or rare species or assemblages of species, nevertheless is quite diverse in habitat forms, and supports a number of well developed community types. Because of this diversity, several species of plants and animals are present which are of local interest. Aesthetically, bird and plant communities provide the greatest appeal to most observers. From a more scientific perspective the greatest importance of the area lies in its provision of wetland habitats for reptiles and amphibians*.

3.3 Aquatic Habitat and Water Quality

3.3.1 McKay Lake

Scientific interest in the natural landscape of the area first occurred during the nineteenth century, when the white marl bed on the estate land was noted by the Geological Survey in 1845. Further studies, focussing on the unusual characteristics of McKay Lake and its flora and fauna, were carried out by the Geological Survey and the Ottawa Field-Naturalists' Club during the late-nineteenth century and early twentieth centuries (Village of Rockcliffe Park1997).

McKay Lake is a relatively small, deep lake with a long residence time for water exchange. Evaporation is generally balanced with the limited surface water input to augment groundwater spring input (A. J. Robinson 1980. The Lake is fed by an intermittent stream entering from the southeast. The inlet is on private land north of Hemlock Road. Sediment input from the inlet has likely been reduced with the addition of gravel and cobbles along the inlet. In the summer, flow is present following large storms only. A marsh area surrounds the creek mouth and likely aids in nutrient uptake. The outflow stream from McKay Lake is intermittent and is piped north towards the Ottawa River. The groundwater contribution to the Lake is small relative to the size of the basin. The hydraulic connection between the

Pond and McKay Lake is reported to be limited (A. J. Robinson 1980). Thus nutrients introduced into McKay Lake would likely not reach the Pond and vice-versa.

The total area of the McKay Lake drainage basin is approximately140 hectares. The drainage area contributing flow to the south end of McKay Lake is approximately 31 hectares, with approximately 9.3 hectares north of Hemlock Road and the remainder in the Beechwood Cemetery area south of Hemlock Road (A. J. Robinson 1980).

McKay Lake is a finely balanced system in a high state of eutrophication, which is accentuated by the slow exchange rate of water. The Lake is thermally stratified in the summer, meaning that a temperature barrier is formed preventing mixing between warm surface waters and cool bottom waters. The thermocline was evident at depths between 3 and 6 metres (A. J. Robinson 1980). Oxygen depletion in the hypolimnion (bottom layer) occurs by early summer in McKay Lake. Anaerobic decomposition of organic material at the bottom of McKay Lake uses up oxygen at a rapid rate and gives waters from this depth a strong hydrogen sulphide odour. There is a layer of pink sulphur-eating bacteria at the sediment-water interface. The enriched nature of the Lake ensures a continuous supply of dead plant and animal matter that eventually sinks to the bottom to decay.

Nutrient levels, temperature/oxygen profiles and chlorophyll "a" values are all typical of enriched lakes (A. J. Robinson 1980). Bacteria levels are generally not elevated. The phosphorus and nitrogen supplies permit the development of spring and fall pulses or blooms of plankton. Historical water quality data indicated that much of the available phosphorus is incorporated into algal growth. The inflow to McKay Lake from surface runoff contains total phosphorus in concentrations equivalent to those in the hypolimnion, a level twenty times greater than that required to maximize algal blooms. The algae are adapted to grow well in cool temperatures with low light at the thermocline or metalimnion levels. The algal blooms reduce the water clarity in late spring and autumn, and reduce the aesthetic values for some individuals. Aside from excess nutrient levels, water quality conditions appear to be quite good for most uses. Suspended solids values are low, and total dissolved solids concentrations increase with depth, as does conductivity (A. J. Robinson 1980).

The wetland habitats and aquatic vegetation of the Lake are discussed in Section 3.2. A variety of aquatic habitats is afforded by the deep parts, reaching 11 metres or more, and the extensive shallow littoral areas along the north and east shores. Some marl deposits remain at the north end of the Lake.

Minnows can be observed feeding at the surface and in vegetation beds in great numbers. Muskrat are present in the marsh area on the east side of the Lake. Mussels and crayfish appear to be less abundant than in previous years. Snapping and painted turtles are commonly reported. Other predators utilizing the small fish community include several species of herons and kingfisher. Otters and mink have been noted historically by residents.

Small brown bullhead fish are common in the shallows, with larger specimens occurring offshore

(A. J. Robinson 1980). A variety of shiners, chub and sunfishes such as pumpkinseed occur in the warm surface waters. Common carp, goldfish and largemouth bass are other common fish species. There is a tradition of burbot fishing.

The ecosystem of McKay Lake and its marsh became the focus of a major conflict which continued over a period of twenty years, from 1963 to 1981. Infilling of the marsh for the purpose of development resulted in an extended legal battle between the developer and a group of Villagers. This prompted the formation of the Rockcliffe Park Conservation Association in 1968 (Parcher 1990). Approximately twenty percent of the Lake was filled in along the eastern marshy shore. This area of filling is likely more susceptible to erosion.

3.3.2 The Pond

The Pond was an industrial sand pit in the 1930s and 1940s. Excavation continued in the Pond until the floor of the Pond was lowered by approximately 28 metres. The Pond's catchment area of 7.2 hectares is bounded by Birch Avenue, Hemlock Road and Pond Street (A. J. Robinson 1980). The surface geology of the catchment area is a combination of fill-sand and clay. Like McKay Lake, the Pond is spring fed. Surface runoff in the form of swales or streams is not present. During spring snowmelt, and very heavy rainfall events some contribution from surface runoff immediately adjacent to the Pond would occur. However, on an annual basis it forms a very small percentage of the total water budget.

The Pond has many characteristics in common with McKay Lake, in that it is deep for its diameter, and has undergone considerable nutrient enrichment. The Pond also has a slow exchange rate of water which tends to accentuate nutrient enrichment (A. J. Robinson 1980). However some differences exist. Algal blooms are not as abundant. The water has a distinct green colour, but this would appear to be related to fine suspended material or chemical constituents, rather than green algae (A. J. Robinson 1980). Oxygen depletion in the hypolimnion occurs, but progresses at a slower rate than in McKay Lake, so that bottom waters could likely be used by some fish species until mid-summer. The steeper slopes reduce the proportion of littoral zone relative to the Lake. Fathead minnows and other minnows are fairly common in the nearshore zone. Other fish species observed by A. J. Robinson (1980) included brown bullhead and carp. As in McKay Lake, bullfrogs and green frogs are often heard.

Stratification in the Pond is quite well developed by June and fully established by July. A similar but less extreme example of a metalimnion oxygen maximum was observed in the Pond relative to McKay Lake, but oxygen depletion in the hypolimnion was only slight and only approaching zero at the sediment/water interface in late July (A. J. Robinson 1980). In contrast to water samples collected from the bottom of McKay Lake, hypolimnetic waters from the Pond did not exhibit any hydrogen sulphide odour which is indicative of anaerobic microbial decomposition of organic matter (A. J. Robinson 1980). The Pond is clear for an urban lake. Historically, phosphorus levels, algal blooms and other primary production are much less than in the Lake. Groundwater appears to be a significant source of nutrients to the Pond, as the sand and gravel material on the east side of the Pond has little ability to retain these materials. Less

oxygen depletion in the hypolimnion is likely due to the relatively young age of the Pond and the limited build up of organic bottom sediments with a high oxygen demand.

Algal blooms have not appeared as frequently in the Pond as A. J. Robinson (1980) predicted, suggesting that the levels of enrichment and incoming nutrients have moderated. The success of vegetation adjacent to the Pond may have helped as the roots of the shrubs and trees will take up some of the nutrients.

Deep wells were installed as a condition of the condominium building in the 1980s. The wells were installed to replenish surface water inputs to the Pond that would be lost as a result of the redirection of the surface water runoff to the municipal services. However the use of the wells has not been required.

3.4 Activities and Uses

There is a 1-2 metre stone dust walking trail paralleling the east side of McKay Lake through the C-CCA with access at the south end to the Pond at Bittern Court. Two access points are also provided at Pond Street and one at Hillsdale Road (Figure 1). Gates at the access points are designed to prevent use of bicycles and ATVs along the trails. In addition, there are steps at the Bittern Court entrance to facilitate access down a long slope.

Memorial benches are placed adjacent to the trails throughout the McKay Lake and Pond areas, including the Pond swimming area. Secondary trails provide closer views of the Lake and wetland areas as well as 'mown' paths through the C-CCA woodland. In particular, the lower trail along the central-east portion of the public side provides an interesting vantage of the marshes. Two boardwalk lookouts provide excellent observation platforms for the wetland areas.

There is a break at the north end of the fence bordering the east side of the Lake that allows for access to the Lake near Hillsdale Road for winter activities such as skating and cross-country skiing. The slope to the water is not as great at this location and thus erosion concerns are reduced. Swimming access from this area (although prohibited from the eastern shore of the Lake) is not considered a major concern due to the muck nature of the sediments and shallow water at the north edge of McKay Lake. However, continued unauthorized dog entry to the water (swimming) continues to be a concern

Swimming (access from the east end of the Pond) is permitted by Bylaw from 7:00 am to 2:00 pm. Fishing, primarily in the form of ice fishing, is done in McKay Lake but not the Pond.

4.0 COMMUNITY INPUT

To assist in the development of a vision statement and the general orientation of the Plan, all private landowners on McKay Lake were invited to a consultation to discuss future management of the McKay Lake area and surroundings. Representatives of the Village's Environment

Committee and the Rockcliffe Park Conservation Association also attended. A second meeting to review the draft Plan was held with the Environment Committee.

Meetings were held on an individual basis and in groups in the form of resident meetings. Input obtained from the participants was used to supplement information on existing and historical conditions of McKay Lake, identify issues of concern, and discuss the different options and priorities for habitat enhancement and rehabilitation, as well as opportunities for uses and activities.

4.1 Summary of Views Expressed

In general, there was consensus among the participants on the following points:

- the greatest threats to the natural environment features of the McKay Lake area are from changes to shoreline vegetation, direct intrusions into the water in association with development on the private lots, and adjacent activities and uses on the public side of the Lake and the Pond;
- there is a need to maintain the existing opportunities for passive activities and uses in the C-CCA and within its Corridor of Public Passage, while conserving the features and functions of the natural environment;
- the Plan should provide the guidelines for the protection and enhancement of the features of the C-CCA and the private lands adjacent to the Lake;
- the Vision and Goals for the area should be recognized though the adoption of this Plan by the Village Council.

5.0 VISION for the McKAY LAKE AREA

This vision for the McKay Lake area is a reflection of those values the Village residents feel the area should represent in the future. It provides guidelines for the stewardship for the future of the McKay Lake area by defining the means to develop goals and implementation steps, in order to achieve the vision.

McKay Lake and the Pond provide a unique natural landscape character within an existing residential setting. The biological conditions and opportunities for activities that exist today are the result of proactive conservation themes developed and implemented by past and current Village Councils and residents. The Heritage Conservation District Study notes that the preservation of these features has been of particular interest to local residents, whose conservation activities have been continuous since the 1920s. A conservation approach has also guided local improvements that have been carefully planned to interfere as little as possible with the existing trees and landscape. Prior to the Heritage designation, a Zoning Bylaw was in place that zoned the land around the Lake and the Pond as “Conservation Land”. This designation was fairly effective in maintaining the rural character of the private shoreline. The retention of features and functions is all the more impressive given the general degradation of aquatic habitat and wetlands that usually occurs in residential settings.

Important themes in development of the vision for McKay Lake include retention and enhancement of the existing natural areas, passive activities and uses such as maintenance of trails through the wooded areas, controlled swimming in the Pond and winter activities on the Lake.

The Plan aims to ensure the viability of the area for present and future generations. The Management Plan aims to preserve the natural state of the Lake, Pond, wetlands and terrestrial environments while maintaining the interpretative opportunities and public enjoyment of the area. To attain these objectives, the Plan will spell out the need to maintain existing protection measures and provide the framework for future management activities.

The following vision statement has been developed from the above discussions and was utilized in developing the goals and implementation steps of the McKay Lake Management Plan. The vision is of ***a lake and surroundings (including the Pond) that retain their natural and "rural" character and of a Management Plan that respects the conservation status and involves local people in the implementation of that plan.*** From this vision, goals and associated implementation steps to develop and implement the vision have been outlined in the following section.

6.0 GOALS of the McKAY LAKE MANAGEMENT PLAN

The goals are statements of intent that represent direct management activities required to realize the vision of the McKay Lake Management Plan. Many of the following goals overlap and the success of one is based on one or many of the other goals.

The overriding Vision in the Plan is the retention of the dramatic features of the earlier natural landscape, which formed the basis of the rural character of the Village of Rockcliffe Park. The Heritage Conservation District Study noted that concern for the protection of natural resources has been a long-standing theme in the history of the Village, and is reflected in the early 20th Century designation of the Village as a provincial Game Preserve and in the evolution of the Rockcliffe Park Conservation Association and the Village Environment Committee (Village of Rockcliffe Park 1997). A combination of public and private initiatives has been used to help ensure the survival of natural features and habitat, particularly in the C-CCA area, and to provide access and education.

Four general goals for the Lake and the Pond have been identified. For each goal, recommended activities are provided. There is considerable overlap among the goals, and implementation steps can often be applied to more than one goal. The Official Plan and the Heritage Conservation District Study provide many guidelines to assist in the implementation of these goals and implementation steps.

The management guidelines of the Heritage Conservation District Study (Village of Rockcliffe Park 1997) are not prescriptive; rather, they outline the principles to be applied to future

development, based on past experience. The qualities of the Village as it exists today are the result of a consistent application of ideals rather than a consistent application of rules. This distinction is maintained and carried through to this Management Plan.

The following goals are consistent with the policies for the Conservation Area lands of the Village identified in the Official Plan (Village of Rockcliffe 1993). The General Policy of the Conservation Area states that:

> *The conservation and preservation of the scenic features, the natural vegetation, soil, wildlife habitat and the maintenance of the quality of the water bodies are particularly encouraged in areas designated as Conservation. The Conservation designation is applied to those areas with special environmental quality, including physical conditions such as steep slopes erosion, flood susceptibility, organic soils, and subsoils with poor drainage. The lands so designated should be maintained so as to protect them from adverse physical change, and from the effects of continued development.*

6.1 Goal No. 1: Maintain and Enhance the Aquatic Habitat, Wetlands and Water Quality of the C-CCA and McKay Lake

This goal refers to both the physical structure of the Lake and wetlands and the birds and other wildlife that utilize the habitat offered by these features.

Activities conducted directly in McKay Lake can easily have immediate and long-lasting impacts on the water quality and habitat. The potential impacts are magnified by the environmentally fragile nature of the Lake, which is in a recovering state from the deposition of sediments during the landfill operations. It is for this reason that the management guidelines of the Heritage Conservation District Study state that special attention should be given to the protection and enhancement of the Lake and the Pond environment, with an appropriate ecological approach to preserving the natural and historical features of this area (Village of Rockcliffe Park 1997).

Dock extensions, other infrastructure or sand placement can remove fish spawning habitat and wetland vegetation. Removal of shoreline vegetation will reduce the available nursery habitat and increase erosion and sediment loadings to the Lake. If engineered solutions are used to attempt to control the erosion and loadings, the aquatic and wetland shoreline habitat is still lost, as is the surface treatment of the loadings before they enter the Lake. Furthermore, the use of 'hard' engineered solutions will often create erosion and sediment problems at the transition points between the natural vegetation and the hard shoreline. At these transition points, the vegetated shoreline may be unable to accommodate the increases in erosive forces deflecting from the hard shoreline, with loss of cover and exposed soil resulting in erosion.

The use of motorized watercraft would increase hydrocarbon inputs to the Lake, resulting in a lowering of water quality and would disturb the traditional tranquility of the area. Similar impacts on the aquatic features may occur if paint and protective coatings from docks release

contaminants into the water column.

The water quality of the Lake can also be impacted directly through access by dogs and people, and indirectly by the trampling of shoreline vegetation.

Removal of tree cover and other vegetation around the periphery of the Lake leads to greater and more rapid input of surface water and there will be an increase in sedimentation and contaminant levels that can impact habitat through a reduction in water quality. The potential effect on water quality is heightened by the presence of large amounts of contaminated fill on the east side of McKay Lake. According to Parcher (1990)

> *The fill came from numerous areas, including the Eastview dump…Land fill also came from various downtown developments and often consisted of broken bottles, old tin cans, car mufflers, old washing machines and rubber tires.*

Other potential impacts are related to increased algae and plant growth due to elevated nutrients from fertilizers and other runoff, and elevated levels of bacteria, organic compounds and metals from pesticides, road runoff and fertilizers. Levels of phosphorus in the Lake are of particular concern, as historical observations from around the world would indicate that this nutrient is primarily responsible for the periodical algal blooms noted throughout the Lake. Fertilizers and prior and current seepage from septic tanks may represent a primary source of phosphorus. In 1980, the Village of Rockcliffe Park examined all the septic tank installations (six) on the east side of Lansdowne Road using dyes, and found no sign of leakage to the Lake (A. J. Robinson 1980). Dyes introduced to sanitary sewers and the force main did not detect cracks or seepages.

Based on its gradual recovery from the filling activities of the 1960s and 1970s, it appears that the wetland vegetation of McKay Lake has shown the ability to respond to changing environmental conditions. Cattail marshes that were greatly reduced by the filling are increasing in area along the public side.

6.1.1 Implementation Steps

To protect the shoreline, the natural vegetation along the shoreline needs to be retained. The Official Plan (Village of Rockcliffe 1993) does not permit any main or accessory residential use buildings in areas designated as Conservation. Landowners along the private side of McKay Lake indicated an understanding of the need to retain a natural shoreline. The width of vegetation to be left in a natural state is a function of the topography and adjacent land use. In the residential setting around the west side of McKay Lake, the natural vegetation buffer at the shoreline should be a minimum of ten metres. This is a setback within which no mowing or extensive maintenance activities are recommended. This is consistent with the following Special Policies for the McKay Lake Conservation area within the Official Plan (Village of Rockcliffe 1993):

- encourage the naturalization of lands within 10m of the shoreline in order to create natural wildlife habitat and to act as a natural filter to stormwater runoff. This naturalization may include the planting of natural, indigenous plant species;

- discourage the cutting of trees or disturbance of vegetation within 30m of the shoreline; and,

- discourage manicured lawns on private property within 10m of the shoreline.

As discussed in Section 6.2, selective thinning of trees can be considered to improve views of the Lake. However, this is exclusive of removal of entire stands of vegetation.

In existing areas where the extent of natural vegetation is currently less than ten metres, where possible, the grasses and shrubs should be allowed to regenerate without mowing. The buffer zone along the public side of the Lake has been reinforced with new fencing installed along much of the east side. This will continue to prevent access to the Lake and allow the vegetation to re-establish in areas where it had been trampled. In locations of previous erosion, plantings have been made in a terraced fashion to encourage regeneration and minimize future erosion.

The potential for nutrient control is focused on reduction of nutrient inputs (treatment of surface inflow water and source controls) rather than intervention of the Lake ecosystem through means such as aeration.

- pesticide and fertilizer use should continue to be restricted on the public side of the Lake;

- residents should be encouraged to use alternatives to pesticides and fertilizers and to use pesticides and fertilizers only in specific locations requiring treatment rather than broadcast applications. This is consistent with Special Policy (3) for the McKay Lake Conservation area within the Official Plan (Village of Rockcliffe 1993) that prohibits the use of artificial lawn fertilizers, pesticides, and chemicals, or any materials that would increase nutrient (especially phosphorous) input into the water, thereby leading to accelerated eutrophication.

Control of nutrient input is considered the primary way to address periodic algae concerns. It is very important to note that wetland vegetation assists in algae control through uptake of phosphorus and other nutrients on the biofilm layers of the wetland vegetation. Removal of wetland vegetation will likely intensify the algae problems. Algaecides have been used in other municipalities but are not recommended here due to potential effects on the aquatic habitats of McKay Lake and the receiving waters and the desire to avoid the use of chemicals.

Additional control of nutrient inputs is possible through increased vegetation within and along the surface inlet to McKay Lake. The inlet is almost entirely on private property and thus cooperation of the landowners would be required.

- no motorized watercraft should be permitted on McKay Lake. All watercraft used on the Lake should be thoroughly cleaned before transfer from other water bodies to decrease the potential for introduction of zebra mussels, algae or other non-native and invasive flora and fauna. Watercraft entry into the marsh area should be restricted during the waterfowl breeding season.

- the populations of non-native and invasive species such as purple loosestrife, Eurasian water milfoil and frog's-bit should be monitored. Control for these species at this stage should be restricted to harvesting loosestrife prior to seed germination.

Active introduction of wetland vegetation is not considered necessary at this time. If the need arises for intervention in the form of planting of wetland material, the use of small pieces of intact wetland material, referred to as plugs, with an existing seed base is the recommended type of introduction based on its efficiency and good value. Small plugs could be taken randomly from existing marshes with little impact on the existing vegetation.

The privately installed and maintained bird nesting boxes for ducks and tree swallows are valuable additions to the wildlife habitat. Beaver control should be continued on an as-needed basis. Although beavers have been absent from the area for the past two years, they can have a significant impact on the drainage from a safety and habitat perspective.

- an on-going monitoring program should be implemented to establish trends for phosphorus levels, distribution of wetland marshes and non-native plants and shrubs, and to monitor for leaks in septic tanks. Scientific and education studies, such as the sediment study conducted by Queen's University and the Geological Survey of Canada in the early 1990s and work done by junior and upper school students at Ashbury College, should be encouraged.

6.2 Goal No. 2: Maintain and Enhance the Adjacent Terrestrial Environment

The woodland area in the C-CCA provides many benefits including support of the rural picturesque setting of the area, wildlife habitat, nature enjoyment and treatment of surface water prior to entering the Lake.

Retention of the natural vegetation has always been a priority for the Village. The Heritage Conservation District Study (Village of Rockcliffe Park 1997) provides an indication of this from the 1930s. In the Annual Report of the Village Council of 1934, it was stated that:

> *It has been necessary from time to time to cut down certain trees in connection with the rounding of corners at dangerous intersections, and others which were considered unsafe. The rate payers may, however, rest assured that no tree was taken down without the most careful consideration, and where a fine tree could be saved by*

> *employing tree surgeons, this has been done. It is in the highest degree desirable that the rural character of the Village should be preserved to the fullest possible extent*.

This philosophy is continued in the guidelines of the Heritage Conservation District Study that state that the existing topography should be maintained, without any major excavation, filling, or regrading. Any development should respect and enhance the picturesque quality of the natural environment. In addition, the guidelines note that

> *existing trees, shrubs and other plantings should be protected and enhanced through appropriate maintenance, protection, and replacement. This responsibility must be extended to those undertaking construction and excavation projects in the public rights of way, as well as those carrying out pruning and maintenance activities for various public utilities* (Village of Rockcliffe Park 1997).

Another guideline states that retention of existing mature trees and other significant plant material and hard landscape features should be encouraged. In public areas, removal should be recommended for approval only where it does not compromise heritage character, or if required for reasons of public safety.

The removal of vegetation to improve sight lines from adjacent residences or public footpaths is another impact on the terrestrial environment. The management guidelines of the Heritage Conservation District Study address this concern by noting that

> *new buildings, fences and other landscape features, or alterations and additions to existing buildings and features, should be designed and sited so as to protect and enhance significant qualities of the existing landscape*.

There are also many non-native shrub and plant species established in the area. These invasive species can displace native species, especially in areas experiencing disturbances. Members of the Village's Environment Committee have been active in removing non-native invasive plants with emphasis on common and glossy buckthorn, purple loosestrife, and garlic mustard.

6.2.1 Implementation Steps

Maintenance on the trees, understorey and ground flora in the wooded areas should be minimized. In keeping with the philosophy of the Village, the wooded area in the C-CCA has had a historically low level of maintenance. Natural regeneration (succession) following the clearing of the existing maple beech woodland and subsequent land-filling has been allowed to proceed. Broken branches and trunks of trees that needed to be removed for safety reasons or as part of trail maintenance have been left on the ground to provide wildlife habitat and a natural appearance as well as to contribute to humus and soil building. It is not recommended as part of the Plan that additional maintenance of the wooded area occur with the following exceptions:

- removal of non-native species is beneficial for the long-term sustainability of the wooded area, including vegetation diversity. This item is discussed below;

- also as discussed below, vegetation thinning may be appropriate for sight line purposes;

- selective planting of additional native trees and shrubs to improve habitat where required;

- selective addition of soil or compost around planted trees as conditions dictate;

- removal of trees and other vegetation which are deemed to be a safety hazard;

- periodic walling back of vegetation for trail maintenance as discussed in Section 6.3; and,

- the removal of non-native invasive vegetation needs to be continued. Emphasis should be placed on the common and glossy buckthorn in general, along with garlic mustard at the south end, dog-strangling vine on the east side near the purple martin house and purple loosestrife among the cattail marshes and at the south end of McKay Lake. Black locust control should also be considered as it is invasive and contains sharp thorns. Norway maple control should be considered on the east side of the Dog Walk. The vines along the fence in the C-CCA should be examined to ensure they are bittersweet and not the invasive matrimony vine. Invasive vegetation control should be restricted to hand removal prior to seed germination.

Although control of purple loosestrife in the winter may be considered since access to the plants would be easier, it is not recommended as the vast majority of seeds are not retained in the over-wintering stalks. There likely is an extensive collection of seeds of non-native species already in the seed banks present in the soil and sediments. Although control measures will ultimately be helpful, initial results may appear disappointing due to the germination of these seeds.

- the growth of the planted and regenerating tamarack, white pine, sugar maple and white cedar along the Corridor of Public Passage and in the wooded area should be encouraged through gradual thinning of competing adjacent vegetation;

- gradual thinning of poplar trees growing over the planted white pines and tamarack would be particularly beneficial;

- any trees that are considered unsafe should be removed. Trees in poor condition and not in proximity to the trails should be retained to provide wildlife habitat as long as public safety is not comprised. The trees provide important habitat for woodpeckers and other cavity nesters. Trees should be left to rot on the ground to provide cover for amphibians and insects. The concept is to provide selective assistance to regenerating native vegetation while maintaining natural conditions suitable for wildlife as would be

anticipated in a conservation area rather than as in an urban park.

Although large-scale (i.e. clear cutting) tree removal is not appropriate, it is recognized that there have been and will be instances that require thinning of vegetation to maintain sight lines from residences and the public areas so that residents and walkers may see the water. This maintenance should be thought of as selective thinning. The review and approval process for such requests should consist of an application to the Environment Committee. The current and proposed future role of the Environment Committee is documented in Section 7. A site visit will identify locations for vegetation thinning. Emphasis should be made on removal of the buckthorn vegetation first. On a preliminary level, in many cases it appeared that removal of buckthorn would go a long way to provide the necessary sight lines for viewing. In the vicinity of the trails on the public side, with emphasis on the bench locations, the need for vegetation thinning to provide views of the Lake should be considered on an annual basis in the autumn. Once again it is possible that control of the buckthorn, black locust and selective removal of individual poplars will be sufficient to provide the appropriate sight lines. In addition to residents adjacent to McKay Lake and the Pond, views of the Lake and the Pond should be retained from the trails and sitting areas associated with the Dog Walk and the C-CCA.

- when fencing is vandalized in the C-CCA, the fencing should be repaired as soon as possible to minimize trampling of vegetation, erosion and further vandalism; and,

- as recommended in the Heritage Conservation District Study, information should be provided to the private landowners of McKay Lake by the Environment Committee on early design intentions, ongoing evolution, use of native material and current conditions as they relate to residential landscapes.

6.3 Goal No. 3: Provide for Suitable Activities and Uses

The existing activities and uses on the public side described in Section 3.4 do not appear to be significantly impacting the features and functions of the natural environment. The trails provide a pattern of use that strengthens the connections between the Village and adjacent parkland, and between public and private space. Trails connect to the north to NCC Parklands through the ravine and to the south to Beechwood Cemetery.

The trail program is consistent with management guidelines of the Heritage Conservation District Study that states that visitors should be encouraged to travel through the Village on foot (Village of Rockcliffe Park 1997). Activities and uses specific to the Pond are covered under Section 6.4.

6.3.1 Implementation Steps

The recommendations for suitable activities and uses must be consistent with the Official Plan policies for Conservation areas (Village of Rockcliffe 1993) that state:

Public and private recreational activities may be permitted in Conservation areas, provided such uses will not adversely affect the natural landscape including trees and ground cover, rock outcroppings and watercourses, and other vegetation, the wildlife and the general quality of the environment.

This is the underlying principle for the following recommendations:

- no bicycles along the trails due to the narrow nature and limited trail foundations. Heavy bicycle use may cause rutting in the trails and increase erosion;
- no launching of watercraft (boats, canoes, rafts or floating devices) from the public side of McKay Lake or the Pond;
- as indicated in Section 6.1, no use of motorized watercraft in either McKay Lake or the Pond;
- no picnicking due to refuse generation;
- no swimming in the public portion of McKay Lake. As discussed in the following section, continuation of swimming is recommended for the Pond;
- winter activities continue to play an important role in the area activities. Skating, cross-country skiing and ice fishing are all popular winter uses and should continue;
- to reduce potential erosion and contamination, dogs are not permitted in the Pond or in McKay Lake at any time;
- dogs must be on leashes at all times. Dogs must be confined to trails, with the exception of winter activities on McKay Lake and the Pond when dogs must still be on leashes; and,
- all dog waste must be picked up by the owners and removed from the area. This applies during all seasons including the winter to avoid water contamination in the spring surface runoff.

In terms of trail maintenance, there is a difference in treatment and philosophy between the stone dust trials and the "mown" path through the wooded area. It is recommended to wall back the vegetation along the stone dust path once a year, increasing to twice a year as required. The stone dust should be renewed every two years or as needed and fallen leaves and woody debris should be swept from the path as needed and especially in the Spring. The path through the forested area should be maintained with a mower or scythe annually.

There was wide spread acceptance among all participants in the development of the Plan that the

use of clear signs to guide permitted and not permitted activities was very important. Furthermore, the rationale for the guidelines and recommendations should be reinforced with interpretative signs. This 'human touch' should encourage responsible use and increase appreciation for the guidelines. Some examples include the responsibility of dog owners, how to maximize enjoyment from winter activities, the disruption that even canoes can cause on the marsh ecosystem including disturbance to breeding birds, and why the fencing exists along the public side of McKay Lake.

6.4 Goal No. 4: Maintain the Existing Habitat and Settings Associated with the Pond

As indicated in Section 3.3.2, the aquatic habitat of the Pond is less sensitive due to the artificial nature of the Pond, the lack of wetlands and very few aquatic plants. The lower sensitivity of the Pond, clear waters and coarser substrate provides a better location for swimming than McKay Lake. To avoid potential disruptions to adjacent landowners, swimming is only permitted between 7:00 am and 2:00 pm.

The forest surrounding the Pond is early-successional and similar to the forests in the north part of the C-CCA. Common tree species are Manitoba maple, red maple, basswood, white elm, balsam poplar and white birch, with speckled alder, red-osier dogwood and choke cherry frequent in the understorey. Like other portions of the study area, the common and glossy buckthorns dominate the understory in some areas. There may often be a need to maintain views of the Pond from the public areas, Condominium lands and adjacent residents.

6.4.1 Implementation Steps

As for McKay Lake, the potential for nutrient control to maintain water quality is focused on reduction of nutrient inputs (treatment of inflow water and source control) rather than intervention of the pond ecosystem through means such as aeration. The stability and enhancement of shoreline vegetation in recent years around the Pond has likely assisted in removal of nutrient levels in ground water towards the Pond.

- in existing areas where the extent of natural vegetation is currently less than ten metres from the edge of the Pond, where possible the grasses and shrubs should be allowed to regenerate without mowing. Tree removal within 30 metres of the Pond should be discouraged.

The Condominium Association now has an easement over the land owned by the Village on the south side of the Pond. The buffer zone along the public side of the Pond has been reinforced with new fencing installed along much of the east and north sides. This will continue to minimize access to the Pond and allow the vegetation to re-establish in areas where it had been trampled. Current vegetation disruption appears much less than that reported by A. J. Robinson (1980).

- pesticide and fertilizer use should continue to be restricted on the public side of the Pond, with minimal use on the private side. A covenant on the deed for the Condominium owners and the new single-family dwellings around the Pond specifies that no pesticide or fertilisers are to be used on lawns. Residents should be encouraged to use alternatives to pesticides and fertilizers and to use pesticides and fertilizers only in specific locations requiring treatment rather than broadcast applications.

As discussed in Section 6.2, it is recognized that there have been and will be instances that require thinning of vegetation to maintain sight lines from the condominiums, other residences and the public areas so that residents and walkers may see the water. This maintenance should be thought of as selective thinning.

- invasive shrub removal should be a priority. All requests for tree thinning should be submitted to the Environment Committee as described in Section 6.2.2; and,

- swimming should be allowed only in the one location on the public side of the Pond, with the swimming confined to between 7:00 am and 2:00 pm. This location is well stabilized with armour stone and has a shallow entry into the water.

As indicated in the above sections, no motorized watercraft should be permitted on the Pond. No launching of boats, canoes, rafts or floating devices from the public side of the Pond is permitted. All watercraft and other floating devices should be thoroughly cleaned before transfer from other water bodies to decrease the potential for introduction of zebra mussels, algae or other non-native and invasive flora and fauna.

7.0 IMPLEMENTATION of PLAN'S RECOMMENDATIONS UNDER the NEW CITY of OTTAWA

The Heritage Conservation District Study recommended that natural resource conservation continue to be a shared public and private responsibility (Village of Rockcliffe Park 1997). The mechanism for decision by consensus that has been developed to ensure community input into any decisions affecting the natural resources and ecosystems in the McKay Lake area should be continued under the new City of Ottawa. This consensus is expressed as much through informal mechanisms and individual initiatives as through formal regulations and public dictates. There has been a wide spread acceptance of rural character within a larger urban setting, of individual architectural expression within a shared landscape, and of seeking a proper balance between development and conservation (Village of Rockcliffe Park 1997). Because the community has enjoyed the benefits of local government at a neighbourhood scale, it has been able to pursue its objectives more directly than most urban neighbourhoods that exist within larger municipal jurisdictions. Even when it lacked direct political control during the period up to its incorporation as a Village in 1926, Village residents managed to exercise considerable influence

on the nature and scope of its development. This Plan is designed to form part of the basis for allowing this influence to continue into the future.

Through the Environment Committee, or its successor as a committee of the Rockcliffe Park Conservation Association, the Village should continue to play an active role in maintaining public properties, providing local input on maintenance plans, and in providing services, technical advice and resources in support of private initiatives. The recommendations of the Voluntary Sector Group reporting to the Transition Board include provision for a Regional Environment Committee that is comprised of representatives of each of the Environment Committees from the existing municipalities and of members appointed by the new City of Ottawa Council. Thus a representative of the current Environment Committee for Rockcliffe Village should be eligible for a position on the Regional Environment Committee. It is understood that the existing lower tier committees will continue to be recognized although no funding has been allocated specifically for their operation. As discussed below, funding should be made available for activities and enhancements through a program similar to the current environment grant funding program.

Prior approval from the Environment Committee should be required to remove vegetation in the Conservation Zone. Permits for infrastructure development e.g. docks or sheds, in the Conservation Zone would continue to be required from the appropriate authorities in the new city. Any municipal activities in implementing this plan should be done through prior consultation with the Environment Committee. Volunteer work to implement the Plan should be encouraged. The new City of Ottawa should respect and encourage the extensive private initiatives that have occurred and continue in the McKay Lake area, with respect to responsibilities for the care and enhancement of public lands.

Another important element of local initiative that should continue in the future is the hiring of students to provide important input on enforcement, interpretation, vandalism and vegetation control in the Village. As part of community funded programs, such as the current environment grant funding, support for these positions should be sought under the new City structure. This on-going dialogue on a one to one basis has proven to be an effective method in relying the benefits of local guidelines and recommendations.

8.0 CONCLUSIONS

McKay Lake, the Pond and the Carver-Caldwell Conservation Area provide a unique natural landscape character within an existing residential setting. The biological conditions and opportunities for activities that exist today are the result of proactive conservation themes developed and implemented by past and current stakeholders.

Important themes in development of the vision for the C-CCA and McKay Lake include retention and enhancement of the existing natural areas, passive activities and uses such as maintenance of trails through the wooded areas, controlled swimming in the Pond and winter activities on the Lake.

The greatest threats to the natural environment features of the McKay Lake area are from changes to shoreline vegetation, direct intrusions into the water in association with development on the private lots, and adjacent activities and uses on the public side of the Lake and the Pond.

This Management Plan has developed goals and implementation measures to maintain the existing positive attributes of the aquatic habitat, wetlands, water quality and terrestrial habitats of the C-CCA, McKay Lake and the Pond, mitigate the potential natural environment and social impacts and enhance the features and functions of the area. Emphasis has been placed on passive measures, avoiding use of chemicals or extensive vegetation removal. The existing opportunities for passive activities and uses in the C-CCA and within its Corridor of Public Passage are maintained, while conserving the features and functions of the natural environment.

Through the Environment Committee, the Rockcliffe Park Conservation Association and representation on the Regional Environment Committee, the residents of the area should continue to play an active role through a consensus process in maintaining public properties, providing local input on maintenance plans, and in providing services, technical advice and resources in support of private initiatives.

9.0 REFERENCES

A. J. Robinson and Associates Inc. 1980. Environmental, Hydrological, Terrain and Storm Water Management Study of McKay Lake and Pond. Completed in conjunction with Geo-analysis Ltd. and the Environmental Applications Group. Three sections.

Lowden, J.A., Robertson, I.M. and W. Blake. 1971. Geological Survey of Canada Radiocarbon Dates XI. Geological Survey of Canada, Paper 71-7, 324 p.

Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. 68 p.

Mansell, W.D., L. Christl, R. Maher, A. Norman, N. Patterson and T. Whillans. 1998. Temperate Wetland Restoration Guidelines. Ontario Ministry of Natural Resources, Environment Canada and Ducks Unlimited Canada. ISBN 0-7778-7290-0.

Parcher, G. 1990. Rockcliffe Park Conservation Association: A History 1968 – 1990. 39 p.

Regional Municipality of Ottawa-Carleton. 1997. Official Plan. Regional Municipality of Ottawa-Carleton. 170 p & schedules & annex.

Regional Municipality of Ottawa-Carleton. 1998. Distributionally Significant Vascular Flora of the Regional Municipality of Ottawa-Carleton, Ontario. DRAFT. 30 p.

Village of Rockcliffe Park. 1993. The Official Plan of the Village of Rockcliffe Park. 35 p & append.

Village of Rockcliffe Park. 1997. Heritage Conservation District Study. 71 p & append.

Whittaker, E. J. 1922. Bottom deposits of MacKay Lake, Ottawa. Proceedings and Transactions of the Royal Society of Canada, Third Series – Volume XVI, Meeting of May, 1922. pp 141-159.