

Township of King • Schomberg, Ontario

Dufferin Marsh Public Open Space Management Plan

November 2000

❖ Schollen & Company Inc. ❖ LGL Limited ❖

1.0 INTRODUCTION

In response to patterns of growth and change in the Village of Schomberg, the Township is undertaking the task of creating a plan to guide the long-term restoration, enhancement, and management of the Dufferin Marsh ecosystem in consultation with the residents of the community. The project site is an integral component of the community of Schomberg and centrepiece of the local open space system, providing opportunities to realize a range of ecological, recreational and educational objectives to the benefit of the community. The overall goal of the Dufferin Marsh Open Space Management Plan is to establish the Dufferin Marsh as a prominent local ecological and recreational amenity in Schomberg. This goal can be achieved by balancing environmental conservation, protection and enhancement of the wetland and significant adjacent lands with public access, recreation and interpretive initiatives.

The wetland feature and adjacent sensitive areas will be dedicated to the Township of King as a component of the approved proposal for residential development in the vicinity of the site. Conditions attached to the approval of the subdivision require that the proponents prepare an Open Space Management Plan for the Dufferin Marsh study site. The Management Plan will be subject to approval by the council of the Township of King and is focussed on generating a long-term plan to guide management of the wetland area to insure its long-term sustainability while providing recommendations related to recreational use and public education. In recognition of the prominence of the Dufferin Marsh within the community, the process to develop the plan was focussed on actively involving residents in the establishment of objectives and the exploration of design concepts. A summary of the direction received from the community, which provided a foundation for the Open Space Management Plan, is included as a component of this report.

Concurrent with the preparation of the Dufferin Marsh Open Space Management Plan, the Township of King has initiated the construction of the Dr. Kay Drive extension from Main Street to Highway #27 in accordance with an approved Environmental Study Report. In the process of generating the Dufferin Marsh Open Space Management Plan, the consultant team has provided recommendations to mitigate potential impact on the Marsh ecosystem during the construction process.

1.1 Approach

The approach to the project was focussed on developing an integrated plan for the marsh which achieves a range of ecological, social and practical objectives with the goal of enhancing the ecological integrity of the marsh and adjacent open space system. The initial stage of the study process was focussed on gaining an understanding of the natural heritage resources of the site and their interrelated functions in conjunction with the recreational, social and physical context of the site within the Schomberg community. This process

included a review of existing background documentation, supplementary field reconnaissance and consultations with local residents. Data was assessed and compiled to provide a base for the exploration of conceptual alternatives and the establishment of management targets.

Interviews with various stakeholders were undertaken as an integral component of the inventory to gain an understanding of site specific issues of concern to individual landowners and members of the community. The documentation of the inventory includes a summary of the comments received through the course of completing these interviews.

1.2 The Study Area

The study area is located in the Village of Schomberg between Main Street and Highway #27 and is roughly bisected by the alignment of the Dr. Kay Drive right-of-way. The site includes the Dufferin Marsh feature as well as adjacent sensitive areas and encompasses an area of approximately 10.2 hectares, 7 of which comprise the individual wetlands. At present, the lands are held in private ownership, however parts of the site will be dedicated to the Township of King as part of an approved residential development proposal. The Dufferin Marsh Open Space Management Plan addresses the study site specifically while providing recommendations to guide the implementation of initiatives and management practices on adjacent lands to achieve ecological and recreational benefits to the community-at-large.

The limits of the study area are illustrated on Figure 1.0 and are consistent with the limits of the wetland feature as mapped through the preparation of the Schomberg Community Plan. Through the course of conducting the inventory, field investigations were undertaken and site specific resources were catalogued in detail. Figure 1.1 illustrates the location of specific ecological units. Figure 2.0 illustrates the patterns of land ownership in the vicinity of the study area.

2.0 SITE CONTEXT

The Dufferin Marsh is a locally significant wetland feature in the central part of the historical Village of Schomberg in the Township of King and is identified as an Environmentally Sensitive Area in the approved Community Plan. The Dufferin Marsh is designated as an Environmental Constraint Area in the Schomberg Community Plan. This designation includes lands, which exhibit characteristics and limitations, which if developed upon, could result in the deterioration and/or degradation of the environment, and potentially cause property damage. These lands have been zoned primarily for preservation and conservation of the natural environment. Permitted uses of the area include conservation and preservation initiatives as well as outdoor recreational facilities. Uses and activities, which may adversely affect the site, are generally prohibited. The general principles of Council are to retain these lands in a natural state and link and integrate this environmentally sensitive area with natural vegetation corridors. The use of the lands shall respect the physical constraints and limitations in order to protect life and property while minimizing any alterations to the environment while maintaining the ecosystem and water capacity of the water courses and their related floodplain areas. The marsh represents an important cultural and natural heritage feature within the Village of Schomberg and is valued by the local community for its varied ecological functions, attributes and features.

The study site is located in the Village of Schomberg, southwest of the intersection of Highways #9 and #27 in the Township of King. Surrounding community lands have been developed for various uses, including agricultural, residential, industrial, commercial and institutional. The Marsh is currently divided into north and south components by the existing road allowance of Dr. Kay Drive. Dr Kay Drive was extended through the site during the summer of 2000. While the site is predominantly privately owned at present, local residents also regularly visit the Dufferin Marsh.

The Dufferin Marsh flows to the Schomberg River which drains into the Holland River; however there is no evidence of direct surface drainage from the marsh to the Schomberg River (LGL 1999). The Dufferin Marsh (as identified in the Schomberg Community Plan) encompasses an area of approximately 10.2 hectares (25.20 acres). The following Table 2.1 illustrates the approximate percentage of property ownership of the project site.

Table 2.1 – Dufferin Marsh Property Ownership

Property	Property Owner	Area	Units	Total Area Dufferin Marsh	Approximate % of Ownership
Roll No. 092-295	811880 Ontario Ltd.	0.35	ha	10.2	3.43%
Roll No. 092-100	Brownsville Junction Ltd.	0.64	ha	10.2	6.27%
Roll No. 091-900	Gabreyela Osin	2.65	ha	10.2	25.98%
Roll No. 092-372	Hilja and Maret Aun	1.06	ha	10.2	10.39%
Roll No. 092-346	Susan & Steven Pataki	0.312	ha	10.2	3.06%
Roll No. 092-344	Heico Bloem	0.103	ha	10.2	1.01%
Roll No. 092-340	Kirk & Kathryn Rimmer	0.112	ha	10.2	1.10%
Roll No. 092-338	Sherrall Brown	0.099	ha	10.2	0.97%
Block 121-Mason Homes	Mason Homes	3.604	ha	10.2	35.33%
Dr. Kay Road Allowance	Township of King	1.236	ha	10.2	12.12%
Roll No. 092-352	R. McNaughton	0.014	ha	10.2	0.14%
Roll No. 092-348	Bret Schneider / Cameron	0.006	ha	10.2	0.06%
Roll No. 092-090	Liquor Control Board of Ontario (LCBO)	0.024	ha	10.2	0.24%

Several adjacent communities surround Schomberg, including Maple to the east, Kleinburg to the west, and Woodbridge to the south. Also within the immediate area is the hamlet of Lloydtown, and located south of Schomberg is the Kortright Centre for Conservation, managed by the Toronto Region Conservation Authority (TRCA).

The Dr. Kay Drive right-of-way and the abandoned rail lines running east-west bisect the study area. The marsh feature is believed to have been formed as an abandoned meander of a tributary of the Holland River. A background data review was undertaken to identify physical and ecological characteristics on the subject property prior to field examination and to assess the ecological potential of the study area. Topography of the area is relatively flat with instances of rolling terrain, with the most significant marsh feature situated at the north and south sides of the former railway line. The site contains shallow deposits of silt and clay materials overlay several tens of meters of fine grained, compacted glacial till deposits over bedrock. Soils adjacent to the marsh consist of loam underlain by clay and silt. Soil investigations in the marsh indicated sand and gravel with silt/sand seams with a substrate comprised of a mix of mineral and organic material. Characteristically, the tableland is moderately soft and susceptible to erosion when exposed to surface run-off and wind.

The surface ranges from moderately to poorly drained soils. The drainage patterns follow the direction of the former river meander, contributing runoff to the marsh area from the surrounding lands on the south, east and partially from the north.

The site is frequented by local residents, and has been significantly affected by continuous human activity over time. It is these impacts which have shaped and continue to shape the future landscape of the Dufferin Marsh.

2.2 Future Growth

The Schomberg community has experienced steady growth in the past decade. The Schomberg Community Plan was adopted by Council in 1992, and was approved by the Ministry of Municipal Affairs and Housing in 1996. Based upon census data, the population of the Village of Schomberg was 1100 persons in the period from 1990 to 1998 with a forecasted population of 1600 by the year 2001. It is anticipated that the Schomberg Community Plan will reach build-out by the year 2011 with a residential population of 2600 persons. This growth rate will result in increased usage of the Dufferin Marsh for recreational purposes and increased impacts on the ecological health of the marsh. Consequently, one key objective of the Dufferin Marsh Open Space Management Plan is to develop a strategy to ensure that recreational use does not result in the degradation of the marsh ecosystem in order to protect the natural heritage resources of the Dufferin Marsh. Adjacent the Marsh, several new residential developments are proposed, including the following; (Refer to Figure 2.0)

- Proposed Osin Subdivision / Mason Homes is located south of the Dufferin Marsh on Part lot 33 and 34 in Concession #9. It is north and east of Main Street, and will be divided into west and east sections with the proposed Cooper Drive extension. As a component of this 118 lot development, a significant portion of the Marsh will be conveyed into public ownership as open space. Proposed stormwater management ponds will be located adjacent the residential development and south of the Dufferin Marsh site. These lands and the future dedicated park land to the south of the stormwater management ponds will be integrated into the open space system.
- Sycamore / Bayview Wellington Homes has registered a set of 89 lots with a projected occupancy of 3.1 persons per unit.

- 11 residential lots have been created through consent in recent years throughout the Schomberg community.
- An extension of Cooper Drive northward is proposed on the east side of the Marsh.
- The extension of Dr. Kay Drive eastward from Main Street to Highway #27 constructed in the summer of 2000.

The Open Space Management Plan for the Dufferin Marsh recognizes plans for future growth within the watershed with the objective of establishing open space linkages to achieve ecological and recreational benefits. Consequently, the plan identifies potential ecological enhancement opportunities and recreational linkages beyond the limits of the study site.

3.0 NATURAL HERITAGE RESOURCES

3.1 Documentation of Background Information and Existing Conditions

A review of the Natural Heritage resources was undertaken. The inventory process included the compilation of existing information, field investigations, and assessment and evaluation of both the primary and secondary source data gathered. Background information sources for environmental data respecting Dufferin Marsh and adjacent lands principally comprise two Reports prepared by the consulting firm of Cumming Cockburn Limited (1996 revised 1997; and 1997 revised in the same year), and one prepared by LGL Limited (1999). The CCL documents are titled:

- *Environmental Impact Statement C Osin Property Development and Cooper Drive Extension*
- *Environmental Study Report C Dr. Kay Drive Extension*

The LGL Report is titled:

- *Dr. Kay Drive Extension Fisheries Assessment*

Existing conditions are documented to varying degrees in all three Reports. Acquisition of information also included recent aerial photo coverage of the site; aerial photos were interpreted to confirm reported characteristics of natural features and to delineate cultural features (land use/land cover types). Wetland mapping was taken from Cumming Cockburn Limited (1997), which was adapted from the OMNR updated evaluation data record for the Dufferin Wetland Complex. The wetland complex was evaluated originally in 1994 and revised by OMNR in 1996. Work undertaken by LGL has further delineated the boundary wetland components. Information sources are listed at the end of this report.

Reconnaissance site visits were undertaken as a part of the current study (25 and 28 April 2, 5, 18 and 25 May, and June). Additional field observations were recorded on 10 May by the Schollen/LGL team during field meetings with representatives of the Dufferin Marsh Citizens Committee and other interested parties.

LGL Limited visited the Study Area in August 1998, December 1999 and on three occasions in 2000 to collect habitat and wildlife specific data and obtain information on human use of the area. Background information was also obtained from published and unpublished sources supplied by the Township of King, the Dufferin Marsh Committee and Cumming Cockburn Limited site investigations in May and June of 1996. Additional information was obtained from local committees, discussions with government/agency staff, non-government organization representatives, the Dufferin Marsh Committee members, and attendees at the June 2000 Public Workshop Session, and members of the community. Information from the above sources was compiled and assessed and the results evaluated. Findings are discussed and summarized in the following sections of this report.

3.2 Natural Heritage Overview

The Dufferin Marsh Area includes a diversity of natural heritage features and functions set within the Holland River watershed. The area is characterized by urban and near urban conditions, which support variable structured plant communities and a mix of aquatic and terrestrial wildlife habitat. The area is anchored by the Dufferin Marsh, which is fed by runoff from the surrounding catchment area and outlets to the Schomberg River via a storm sewer beneath Main Street. The area is largely comprised of agricultural and residential lands and includes some adjacent, non-riparian areas. The lands are a mix of remnant, regenerating, former urban, agricultural and constructed/planted habitats, with the highest quality conditions

being found west of Highway #27. The lands are considered by the Lake Simcoe Region Conservation Authority to be environmentally sensitive habitat. The Marsh has been evaluated by the Ontario Ministry of Natural Resources and was determined to be locally significant wetland habitat. Its location near an urban setting influences the mix of plant and wildlife species, which frequent the area. The presence of free roaming companion animals were confirmed (2 dogs and 2 cats) as a part of the current study.

3.2.1 Biological Conditions

Biological conditions are well described in CCL 1996, 1997 (the same 1996 field assessment is used in both Reports). The CCL study area was divided into units (34) based on ecological attributes: topography, soils, moisture/flooding regime, and vegetation. The 34 ecological sub-units were grouped into five (5) principal areas; two of which are pertinent to the current study: the wetlands, small old fields and adjacent woods to the south of the Dr. Kay Drive R.O.W.; and the wetlands, small old fields and adjacent upland woods to the north of the R.O.W. Refer back to Figure 1.1.

3.2.2 Vegetation Communities: Marsh Complex and Adjacent Lands

Vegetation communities located to the south of the Dr. Kay Drive R.O.W. comprise a mix of aquatic and terrestrial habitats, including open water areas of the old river channel, swamp, marsh (cattail and sedge), wet meadow, moist and dry old field, upland woods, fencerow, dug pond, and stormwater management facility. Together, they provide a relatively high diversity of habitat. Vegetation communities located to the north of the R.O.W. include a variety of wetlands, woods, shrub dominant features and fields; i.e. marsh and swamp, moist and upland woodlands, shrubby fencerows, moist old field and dryer, regenerating field. The interspersed wetlands and woodlands, in particular, provide a functional landscape mosaic which apparently attracts and supports a high diversity of wildlife. No evidence has been forthcoming from any of the studies reviewed by LGL, or from elsewhere, to confirm the presence of significant vegetation communities as defined under the Provincial Policy Statement.

3.2.3 Plant Species of Management Interest

Plant inventories undertaken by CCL in 1996 documented the presence of three vascular plant species of note: Hill's pondweed, manna grass (*Glyceria septentrionalis*), and a hawthorn species (*Crataegus submollis*). Only the pondweed and the hawthorn species are within the Open Space Management Plan area. The pondweed is the dominant species in the old river channel (Unit 1, see Figure 1.1). *Crataegus submollis* also occurs commonly on-site, growing in concert with another hawthorn species throughout units 11, 12, 13, 14, 18, 20, 21, 23 and 24 (Figure 1.1). The former of the two species is of national, provincial and local interest, the latter comprises a species of local concern (York Regional Municipality).

Neither reports prepared by CCL and reviewed as a part of this exercise included working, vascular plant lists; representative plant observations are noted in the field record sheets for each of the 34 ecological units.

3.2.4 Wildlife Habitat

The marsh and its adjacent lands provide a moderate complexity of habitat diversity in a relatively small area. Aquatic habitat investigations undertaken by LGL in 1998 and wetland and wildlife assessments in 2000 identified a high diversity of migrant and visitant birds and a moderate diversity of resident species. However, the site does not meet the criteria established for the definition of a significant wildlife habitat as set out in the Provincial Policy Statement.

The local habitat features provide a locally important stop over for spring and fall migrant birds and bats. The Dufferin Marsh also provides foraging, loafing and shelter functions for winter and summer resident birds and bats from the adjacent urban and agricultural lands.

Through extensive sampling efforts in permanent and seasonal water within Dufferin Marsh, LGL has found no evidence of fish using these areas. This status has been recognized by the Lake Simcoe Region Conservation Authority in review of the Dr. Kay Drive and Cooper Drive extensions. However, the marsh indirectly discharges to the Schomberg River which was documented as supporting a common warm water community of fish species.

3.2.5 Wildlife Species

Field inventories and surveys undertaken by CCL 1996, and LGL 1998 and 2000 have confirmed the use of the Dufferin Marsh Area by 129 vertebrate species of wildlife (plus three unidentified species). Fifteen additional species have been documented by members of the Dufferin Marsh Committee (CCL, 1996). The total number of vertebrate species reported, therefore, is 147.

Species diversity for frogs is exceptional, and is relatively high for mammals; selected salamander species should be present, as should several more snake species. It is unlikely that fish species would flourish if introduced to open water areas; however, invertebrate such as crawfish appear to have successfully colonized the area, notably *Cambarus fodiens*.

The low incidence of conifers is a restricting factor in attracting early songbird nesters to the area (and species which favour evergreens) and reduces the attractiveness and function of the area as a destination for shelter during leaf-off periods.

A list of wildlife species documented on-site is provided in Appendix A.

3.2.6 Wildlife Species of Management Interest

In spite of strong species diversity within the local wildlife community, CCL and LGL have not identified significant numbers of species of management interest. For instance, neither investigation confirmed resident or summer resident species designated by COSEWIC or COSSARRO as Vulnerable (V), Threatened (T), or Endangered (E) or by OMNR as VTE, or by the Natural Heritage Information Centre (NHIC) as Rare in Ontario. The only exception to this pattern is the number of locally important species (York Regional Municipality) which have been identified through the Bird Studies Canada (BSC) assessment of breeding bird species in regard for their conservation relevance on a municipal basis in the land use planning process. Twenty bird species which have been designated by BSC for the York Regional Municipality jurisdiction were documented on-site. These species are annotated in Appendix 1 of this Report. The BSC designations are not supported by Regulation, but they are endorsed by CWS and OMNR as reasonable and appropriate lists of bird species to target for planning purposes at the local level. Species of local significance are promoted in the Natural Heritage Reference Manual as being of importance in building a case for the presence of significant wildlife habitat. The Regional Municipality of York apparently recognizes the BSC designations.

CCL 1996 discusses the occurrence on-site of the following significant wildlife species reported by the Dufferin Marsh Committee: loggerhead shrike, Cooper's hawk and red-bellied woodpecker. We are unaware of the date or location of the shrike record and therefore, cannot comment fully; however, this species is designated in the Regulations as Endangered in the Province, and as such, planning and management authorities generally must protect individual birds and their habitat where they occur, in

accordance with the Regulation. That aside, the habitat on-site is not optimum quality for nesting, and is not unique in its offering of foraging opportunities for migrants; additionally, the species has declined to such low numbers in the province that the probability of a re-occurrence is very remote. Accordingly, it seems reasonable to treat this record as an anomaly and simply deal with the loggerhead shrike issue, if and when the species demonstrate a regular pattern of occurrence and some reasonable measure of dependence on the site.

The Cooper's hawk recently has been de-listed nationally and provincially and is no longer considered Vulnerable in the province.

The red-bellied woodpecker observation is discussed in CCL, 1996. We have reviewed the text and we agree with the conclusion reached by the consultant: the occurrence of this species in this part of the province is sporadic and the individual in question appeared to be wandering on the landscape.

Table 3.1

Dufferin Marsh¹ Wildlife Summary

<i>Species Group</i>	<i>Reported</i>
Amphibians	10
Birds ²	106
Mammals ³	19
Fish ⁴	7
Reptiles	5
<i>Totals:</i>	<i>297</i>

1. The Dufferin Marsh wildlife reporting zone includes the Dufferin Marsh area designated by the Township of King.
2. Includes migrants, permanent residents, summer residents and visitants;
3. Includes migrant bat species.
4. The list of fish does not include crayfish species.
5. Data reflects the findings of Cumming Cockburn Ltd., The Dufferin Marsh Committee and the LGL Limited.

3.3 Summary of Findings

A review of background sources and recent field investigations confirms that the site and environs have been significantly affected by anthropogenic landuses over a prolonged period. The site continues to be influenced by human activity, e.g.: background (extraneous) light and noise, stormwater run-off, pedestrians, cyclists, companion animals and the ongoing assault from non-indigenous plant species, and to a lesser extent, non-indigenous wildlife. The anthropogenic impacts are an important factor in shaping the landscape and will continue to have an impact in that regard. The positive management of this factor should be an important consideration in the Open Space Management planning process.

It is also important to recognize that we have very little emperical data respecting productivity in the marsh complex. The area hosts a diverse and, in some cases high, number of predators as well as plentiful numbers of the brood parasite, brown-headed cowbird. As such, it may be prudent to shape expectations for success at practical and reasonable levels.

3.4 Natural Heritage Opportunities

The Dufferin Marsh presents ample opportunities for habitat management, which will enhance natural heritage and ecological attributes and attract and support increased community use of the area.

The Dufferin Marsh in many ways is central to enhancement directions for wildlife, and also poses the most pressing problems respecting wildlife management. This system accommodates a mix of native and exotic species. Accommodating these species at critical times in a fashion that maintains the recreational experience is an important aspect of the long-term human use of the marsh. Of particular concern is the protection and restoration of the perimeter of the marsh lands and the exclusion of pedestrians from sensitive or unstable areas of the site. The exclusion of humans from restoration zones is critical to ecological recovery and maintenance and will be an important component of the Management Plan.

Refer to Appendix B for additional information and the Photographic Inventory of existing site conditions from the Public Open House presentation boards.

4.0 COMMUNITY CONSULTATION

4.1 Background

The successful realization of the Dufferin Marsh Open Space Management Plan project is contingent on the ability to involve residents of the Schomberg community in the design, implementation and ownership of the plan to enhance the marsh area. In response, the Dufferin Marsh Advisory Committee was assembled to provide input to the consultant team throughout the course of the project. In addition, the inventory process included consultation with stakeholders and the community-at-large to gain an understanding of the issues, clarify objectives and provide a framework for the exploration of design solutions. Two key tasks undertaken at the inventory stage included interviews with stakeholders and a workshop session with the community. The following sections provide a summary of these tasks.

4.2 Stakeholder Interviews

Stakeholder interviews were conducted on May 24th, 2000 at the offices of the Township of King, with some telephone interviews with other stakeholders unable to attend this date. The committee and the consultant team compiled a list of stakeholders, including key landowners, agency representatives and members of the community. Individuals on the list were invited to attend a one-on-one interview with a member of the consultant team to discuss issues, confirm background information and identify objectives, which could be addressed within the design for the marsh lands. Comments are summarized in the following sections.

- **Mr. Devine**
Goodman & Carr representative for Ms. Gabreyela Osin
Owner of the Osin Lands

Mr. Devine of Goodman & Carr represents the interests of Ms. Gabreyela Osin. During this stakeholder telephone interview, a summary of the events which had taken place up to date were discussed and several key points were addressed. Mr. Devine expressed some concerns regarding the development of plans for the Osin lands north of Dr. Kay Drive and how these facilities would be implemented given that the Osin lands are privately owned. He stressed that to implement any of the proposals on these lands they would have to be acquired by the municipality and that the Osin's had no intention of dedicating the land to the municipality free of charge. He was informed that as a component of the Open Space Management Plan project, the consultant team would prepare an implementation strategy which would address issues related to land acquisition and the construction and maintenance of the various components of the concept plan. In response, it was mentioned that based on public input, the concept would focus on passive recreation, interpretation and habitat enhancement. This may include the development of trails, observation areas and interpretive facilities. The activities directly adjacent his client's land would likely include trails around the perimeter some observation structures. Upon completion of this interview, Mr. Devine requested that he receive a copy of the background report once it is completed and be kept apprised of the progress of the project as well as on public meetings or other events.

- **Mr. Donald Marchant**
Adjacent Property Owner

Mr. Marchant owns property adjacent the west limit of the marsh. Mr. Marchant discussed the history of the marsh and previous use of the study site as agricultural land, a stockyard and railway station and other aspects of the evolution of the wetland. Mr. Marchant has been exploring the potential to develop his property and expressed concerns about access to the rear of his property from Dr. Kay Drive. Historically,

a laneway provided access southward from Dr. Kay Drive to the Marchant property, however in recent years, the construction of the pumping station and other land ownership changes have eliminated the access to the laneway. He inquired that through the process, provision could be made to make the laneway accessible. Mr. Marchant would consider the possible purchase of the land required to achieve access. It was agreed that this issue would be brought to the Advisory Committee for consideration.

- **Mr. Walter Fischer**
Schomberg Parks Committee

Mr. Fischer is a member of the Schomberg Parks Committee and the Dufferin Marsh Management Plan Advisory Committee. Mr. Fischer has participated in implementing a number of recreational projects in the Schomberg community. He identified a number of potential open space linkages which could be developed to better integrate the marsh site as part of a comprehensive open space network which would link existing and potential future open spaces. Mr. Fischer sketched some of these potential linkages on an overlay on the aerial photograph. The potential to incorporate these linkages will be explored in the course of developing the concept plan. Mr. Fischer also identified the need to establish a strong identity for the village and the marsh at the intersection of Highway #27 and the extension of Dr. Kay Drive to ensure that the road does not appear to be an extension of the plaza.

- **Ms. Mary Asselstine**
Dufferin Marsh Committee

Ms. Asselstine is a member of the Dufferin Marsh Committee and also is a participant on the Advisory Committee for the Management Plan. Ms. Asselstine expressed concerns about the timing and details for construction of the Dr. Kay Drive extension related to the preservation of hydrological patterns, impact on wildlife and disturbance during construction. She inquired about the timing of construction and the extent of involvement of the Dufferin Marsh Management Plan consultant team in the design of Dr. Kay Drive. Ms. Asselstine also inquired if the consultant team had been forwarded a copy of a letter outlining the concerns of the Dufferin Marsh Committee pertaining to the design of Dr. Kay Drive. It was agreed that this issue would be tabled at the subsequent Advisory Committee meeting. In addition, Ms. Asselstine discussed the need to establish specific management targets aimed at sustaining the diversity of the marsh complex as it exists. She suggested that the potential to recreate habitat on the east side of the marsh with the west side of the extension of Cooper Drive be explored in the process of developing the concept plans. Specific targets should focus on increasing biodiversity, maintaining the species which have been identified as significant including hawthorn, marina grass, pond weed and chimney crayfish. Ms. Asselstine supports active management as a means to ensure that targets are achieved.

- **Mr. Angelo DiRezze**
Adjacent Property Owner

Mr. DiRezze owns a property on the east side of Main Street which abuts the marsh. The property includes a pond which was excavated by a previous property owner. Mr. DiRezze has concerns about the pond related to public safety, mosquitoes and the quality of water in the pond. The area around the pond is weedy and unsightly. He would like to investigate the potential to fill the pond or at a minimum, remove vegetation around the pond area to make it more accessible and cleaner looking. It was suggested that Mr. DiRezze contact the Township and the Conservation Authority to seek advice about this course of action. Alternatively, Mr. DiRezze suggested that he may wish to sell the portion of the property with the pond to a public agency so that it could be integrated into the Dufferin Marsh site. It was agreed that this possibility

would be presented to the Dufferin Marsh Advisory Committee for consideration at a subsequent meeting with respect to the Dufferin Marsh area. Beyond the limits of his property, Mr. DiRezze suggested that extensive tree planting be part of the plan.

- **Ms. Julie Thompson**
Local Resident

Ms. Thompson is a resident of the Village of Schomberg and lives on Main Street south of Dr. Kay Drive. Ms. Thompson was contacted by telephone to discuss the project. She suggested that the wetland area should incorporate walking trails and that the concept plan should be focussed on enhancing the natural attributes of the area.

- **Mr. Bachly**
Brownsville Junction Commercial Site

On Monday June 19, 2000, Mr. Bachly was interviewed by telephone, he had inquiries were related to the progress of the project and the community design workshop. The issue of possibly modifying the alignment of Cooper Drive and the opportunity to establish commercial frontage on Cooper Drive and the marsh was discussed. Mr. Bachly stated that he was not interested in re-opening the Cooper Drive debate and would prefer to see the Cooper Drive project proceed as previously approved. Mr. Bachly was otherwise supportive of the Dufferin Marsh project.

- **Mr. Jim Okawa**
Brutto Consulting representative for Mr. Angelo DiRezze

On Monday September 11, 2000, Mr. Okawa of Brutto Consulting contacted our office. Mr. Okawa was retained by Mr. DiRezze to represent his interests in response to the proposed Dufferin Marsh Public Open Space Management Plan. Mr. Okawa stated that Mr. DiRezze instructed him to oppose the plan as it relates to the inclusion of their property. Specifically, his client questioned the marsh designation on his property and therefore any features traversing the property as they relate to the Plan. Mr. Okawa informed us that they would be engaging an Environmental Consultant to review the interpreted boundary of the Dufferin Marsh as it relates to his client's property. In addition, an independent Environmental Assessment was to be undertaken by his client in the near future, at which time, Mr. Okawa would inform the Township of King of the results. He then requested that Mr. DiRezze's property and any notations related to the Dufferin Marsh be excluded from the proposed plan.

In response, the Consultant Team directed Mr. Okawa to Mr. Dan Stone of the Township of King regarding these issues of concern. It is noted that Mr. DiRezze's lands were previously designated as an Environmental Constraint Area in the Schomberg Community Plan and removing that designation would require an Official Plan Amendment. The staff at the Township of King advised that there are no such formal application filed with the Township in this regard and that such application would require detailed environmental support material and the necessary Public Meeting process in accordance with the Planning Act. Until such an amendment is approved, the lands in question will remain a component of the study area for the purposes of generating the Dufferin Marsh Public Open Space Management Plan.

4.3 Workshop Session

The Dufferin Marsh is an important natural and cultural heritage feature with recreational amenities within the community of Schomberg. The successful implementation of the project will be contingent on the ability of the plan for the marsh to complement and enhance both the character and function of the Village and the quality of life of its residents. In order to ensure that this is achieved, it is necessary to gain an understanding of the basic values and qualities, which define the Village of Schomberg. To this end a Workshop Session was orchestrated with the objective of identifying values, issues of concern, objectives and finally, a list of attributes that should be addressed in the concept.

The Community Workshop was held at the Schomberg Community Hall where approximately 14 people attended and participated in the sessions. Comments received were generally supportive and only a few participants expressed an interest in volunteering to assist with various aspects of the project. The Community Workshop included a brief presentation of the objectives of the project, a review of the inventory information and four working sessions.

For the working sessions, attendees were subdivided into five working groups with 5-6 people per group. Groups were asked to respond to four questions in successive sessions and were instructed to short-list their responses to a specific number. This process ensures that responses are concise and are considered in order of importance and discussed within the group. The questions posed to the working groups were:

- What do you value about the Schomberg community? (5 responses requested)
- What do you value about the Dufferin Marsh? (3 responses requested)
- What are the key issues of concern that need to be addressed in the design of the Dufferin Marsh initiative. (5 responses requested)
- What amenities or components would you like included in the plan for the marsh lands? (5 responses requested)

At the end of each session, responses were displayed and where commonalities emerged, were grouped and recorded. The resulting lists of values, issues and components will be used to guide the design process and as a means to check the concept plan against the comments, input and concerns received from the community. A list of attendees of each session are provided in Appendix B.

Overall, the Workshop Session provided the team with the input and ideas required to proceed with the development of a preliminary Open Space Management Plan for the study area. The following provides a summary of the sessions conducted with participants of the workshop.

- **Session #1**

What do you value about the Schomberg community? (5 responses requested)

Values

Small Town Atmosphere / Quality with Pedestrian Access to Services

Sense of Community – Close knit, Strong Community Spirit

Nature – Local Wildlife and Clean Environment

Small Rural Community in a Rural Setting, its Country Setting is Quiet and Peaceful

Safety and Security / Friendliness

- **Session #2**

What do you value about the Dufferin Marsh? (3 responses requested)

Values

Wild / Wilderness
Biodiversity of the Wild Flora / Fauna
Sacred Space – the Intrinsic Value of a Wetland
Accessible Greenspace Corridor which Provides Protection Between Commercial and Residential
Outdoor Recreation Opportunities
Species Learning Centre

- **Session #3**

What are the key issues of concern that need to be addressed in the design of the Dufferin Marsh initiative. (5 responses requested)

Issues

Nature Trails / Safe Community Access
Education and Interpretation Opportunities
Community Image
Protection from Overuse and the Impacts of Increased Human Use
Protect Against Deterioration and the Longterm Viability of Island Biogeography Size and Linkages of the Dufferin Marsh
Control of Invasive species
Water, Noise and Light Pollution
Parking
Management
Water Drainage

- **Session #4**

What amenities or components would you like included in the plan for the marsh lands? (5 responses requested)

Components

Ecology / Information / Interpretive Centre
Small Amphitheatre and Seating areas
Linkages to other Natural Areas and Trails
Planting for Habitat Restoration and Access Control
Reforestation and Enhancement through Restoration and Rehabilitation
Educational Signage
Trails and other Interpretive Activities
Management Supervision and On-going Monitoring

4.4 Summary of Questionnaires

4.4.1 *Dufferin Marsh Public Open House, June 13, 2000*

In order to provide additional opportunities for residents to provide input into the process, questionnaires were distributed at the workshop session and made available at the Township offices and at other sites throughout the community. A total of 20 questionnaires were received, the following provides a summary of the responses.

1. *What are the things that you value about the Dufferin Marsh?*
 - Natural Space
 - Wilderness – safe place to be
 - Environmental issues
 - Preservation of wildlife / wildlife habitat
 - Ecological and water issues, hydrological function
 - Presence and sounds of birds and frogs
 - Marsh grasses, diversity
 - Noise buffer,
 - Intrinsic value – the character it adds to the local community-impact it can have on locals living near it
 - Skating pond
 - Function to purify Water

2. *What, if anything, do you not like about Dufferin Marsh?*
 - The valley rim segment of the marsh
 - Swamp area is not usually used in best way
 - “The cesspool of sluggish water collecting at the edge of the plaza because of runoff.”
 - “Nothing really-however I believe in order to preserve education and an understanding of how delicate this system is”
 - Roads, especially Cooper Drive
 - Runoff from Brownsville Plaza
 - motor bikes-use of motorized vehicles
 - mosquitoes
 - surrounding area is an eyesore
 - slow destruction due to development pressures

3. *Do you visit the Marsh? If so, why?*
 - House looks onto marsh
 - Walk from Hwy. # 27 / Main Street
 - Peaceful
 - Meditate
 - Visit, Walk trails
 - Watch Wildlife / birds, check frog populations
 - Skating, cross country ski, walking, catching wildlife
 - Short cut to plaza

4. *In what activities do you presently participate at the project site?*

- None
- Birdwatching (birdwatching in spring)
- Skating / skiing in the winter
- Walking, hiking
- Check what is being dumped behind the Plaza
- Private new year's party

5. *What other activities do you feel are appropriate in the Dufferin Marsh Study Site?*

- Education and community events that are educating families
- Walking trails
- Birdwatching
- Organized education
- Nature hikes
- Anything non-motorized

6. *What environmental elements of the park are valuable to you?*

- The pond, its unmanicured natural state / greenspace
- Wildlife, habitat diversity for various amphibians, reptiles and birds
- Vegetation / balance of ecological plant and wildlife
- Water issues
- "The moist, sheltered conditions that encourages the preservation of as many wildlife species as possible."

7. *Which elements of the site do you feel could be improved?*

- Appearance – unsightly waste / garbage
- Walkways
- Expand the area, not diminish it.
- Add more native plants
- Runoff from the plaza should be stopped
- More trees
- Protection from degradation by poor/over use
- Buffer/screen behind the plaza
- Control exotic species
- Service access yet replace/restore planting
- No roads through the marsh – threat to wildlife
- Clean up surrounding area

8. What do you feel are the most important objectives that must be addressed by the enhancement initiative? Please rank the importance of the following objectives by circling a number from 1 to 5 for each objective:

(The following illustrates the # of responses – not the rank – under the appropriate columns)

	Very Important				Not at all Important
Rank According to Importance	5	4	3	2	1
Appearance of the pond and marsh areas.....	8	0	3	0	1
Management of dumping / littering.....	9	3	2	0	0
Water quality improvement.....	8	2	3	0	0
Opportunities for recreational facilities.....	1	1	5	4	3
Improvement of wildlife habitat.....	5	7	2	1	0
Provision of educational facilities.....	7	3	2	1	0
Enhancement of existing wetland areas.....	5	6	2	0	0
Provision of trails and walking paths.....	2	3	5	1	0
Provision of sitting / passive areas.....	5	4	2	2	1
Establishment of native vegetation.....	8	4	1	0	0
Improve the linkage to the surrounding community.....	3	1	4	2	1

The majority of those surveyed, felt strongly about the appearance of the pond, including dumping issues, water quality, improvement of wildlife habitats, provision of educational activities, provision of passive seating areas, enhance existing areas and establish more native vegetation.

Those surveyed were ambivalent regarding recreational facilities, additional walking paths and trails, and linkage improvements to the surrounding community.

9. *Are there specific elements that you would like to see into the Open Space Management Plan for the Marsh?*

- Educational Interpretive Centres
- Parkland for community uses
- More use of clear day access
- Education and preservation of life
- Pathways situated on areas where paths cross ie: boardwalks over marsh areas
- Paths with information signage throughout / walking trails (not hard paths)
- Rehabilitation plantings to maintain water levels
- Lookout or viewing areas / amphitheatre
- Protection of regionally significant species already identified

- Information packages to inform the public
- Would like to see it protected, not developed/managed

10. *What other issues should be addressed or ideas incorporated into the concept plan?*

- Parking for #9
- Natural landscaping – preservation and flourishing plant/animal life
- Water improvements
- Long term protection goals
- Proper lighting along road
- No spraying and fertilizing lawns near the marsh
- Long term monitoring of ecosystem health
- Long term monitoring and management of the marsh and adjacent sites to maintain a high diversity of features and functions

11. *Would you like to become more involved in the implementation of the Management Plan?*

5 persons responded Yes, they would like to be involved

3 persons responded No, they would not like to be involved

3 persons responded that they may want to be involved based on various factors of time

9 persons provided no response

1 person responded that Yes, he would like to be involved by assisting financially

Other issues and concerns identified during the workshop session include the following:

- Will the existing municipal servicing have the ability to accommodate the new homes being built?
- How will the plan affect local service and quality of the drinking water?
- The social sense of a small town community was essential to maintain while the convenience of its location in relation to the city was ideal.
- Maintaining the open space of the Marsh and enjoyed the wildlife associated with the area was essential.
- Would like to create and maintain pedestrian access to services in the area.
- While they enjoyed the unspoiled natural state of the marsh, the community would like a trail system which is easily accessible, however completely natural, unmanicured and wild.
- Many were worried about the security of the wildlife and its area.
- Many also expressed concerns regarding potential overpopulation with new subdivisions which may cause some human impact problems on the Marsh-minimizing human footprint.
- As a response to recent news, there was a serious concern regarding water quality, water testing, and potential groundwater contamination, and in turn, health issues to humans.
- Will the increase of recreational amenities require additional parking, and if it does, will it compromise the integrity of the Marsh?
- What will be used as interpretive opportunities? Educating the local community vs. visitors to the area.

The workshop session conducted in Schomberg indicated community support for Dufferin Marsh Management Plan. It provided clear direction related to issues of concern to residents as well as their

aspirations related to the types of amenities that should be considered for incorporation into the Open Space Management Plan.

4.4.2 Dufferin Marsh Public Open House, August 23, 2000

Once the Open Space Management Plan was generated, participants in the workshop session were invited to participate in a review of the design to ensure that input received and direction provided were reflected in the Dufferin Marsh Open Space Management Plan.

There was a general consensus that the plan was satisfactory and met the needs and aspiration of the community. Many were impressed with the environmental sensitivity of the concept plan and the educational and recreational opportunities throughout the design. The plan provides protection of significant features while providing access from the surrounding community. Further comments from the residents were submitted to the Consultant Team. Various concerns expressed included the responsibility of maintenance and the implementation of the design. Specific design concerns included maintaining the marsh in its natural state as a natural playground for year round use, the provision of parking opportunities along Dr. Kay and Cooper Drive as well as lighting for safety concerns.

5.0 DESIGN DIRECTIONS

Through the course of completing the inventory, analysis and consultation processes, a number of issues and opportunities were identified, which will direct the development of conceptual design alternatives. This section provides a summary of design directions as they relate to natural heritage, social and functional objectives.

5.1 Natural Heritage Objectives

The following recommendations are made to direct the development of a Open Space Management Plan for the Dufferin Marsh study site to achieve objectives related to natural heritage conservation and ecosystem enhancement within the lands. Recommendations are grouped under the following headings for convenience only:

- General
- Wildlife
- Fisheries
- Vegetation

5.1.1 *General*

- Develop a public awareness package for Schomberg residents that alerts landowners and visitors equally to the environmental sensitivities and recreational opportunities related to the marsh;
- Retain and enhance surface water contributions to the marsh system;
- Direct new trails away from environmentally sensitive areas and re-route existing trails to avoid the sensitive areas;
- Address concerns related to the impacts imposed by free ranging companion animals;
- Design restoration plantings in areas adjacent to streets to minimize attractiveness to such areas by species which may move between the marsh area and the built environment, therein creating potential road safety issues;
- Involve non-government organizations (NGO) based in the community, and NGOs based elsewhere (where such expertise is not locally available) in the management and monitoring of ecological restoration initiatives.
- Position the Dufferin Marsh as an integral component of the open space system within the Village of Schomberg.

5.1.2 *Wildlife*

- Acknowledge the nature of the Dufferin Marsh and understand that resident and summer resident terrestrial and semi-aquatic wildlife are significantly habituated to anthropogenic conditions;
- Recognize that the area currently is frequented by transient wildlife, including migrant birds and bats, which may not be accustomed to existing conditions;
- Appreciate that changes to the existing Marsh and surrounding habitats may precipitate changes in the resident and non-resident wildlife populations, and that not all changes will result in positive impacts for all species;

- Initiate the enhancement of both section of the Marshes (north and south of Dr. Kay Drive) to attract and accommodate wildlife species which have been identified by government authorities to be of management concern;
- Design terrestrial wildlife habitat restoration initiatives to support the existing wildlife population (resident and migratory); marsh enhancements designed to attract new species could be undertaken provided that they do not impinge on the existing wildlife uses and are not implemented at the expense of the existing wildlife population;
- Recognize that wildlife habitat restoration efforts within the marsh may be expected to improve conditions for urban tolerant wildlife, including species that currently conflict with human occupation and activities in adjacent areas; e.g. raccoon, gray squirrel, striped skunk;
- Wildlife enhancement can be achieved in areas which are more appropriate for recreational and interpretive use by integrating artificial habitat enhancement structures into the design of recreation or interpretive facilities;
- Recognize that a degree of long-term active management will be required to show that the ecological diversity of the marsh is sustained.

5.1.3 *Vegetation*

- Native coniferous and deciduous tree species should be given priority around the perimeter of the marsh site as a means to buffer the marsh from the potential impacts of adjacent land uses and increase the biodiversity of the site;
- Where ecologically feasible, develop the marsh as a receptor for native plant species which can be/are salvaged from lands outside of the Study Area which are being converted to other uses;
- Include tree and shrub species that maximize nesting and foraging opportunities and provide winter roosting habitat for resident species in the design of restoration planting initiatives in existing active recreation zones.
- Implement initiatives to manage non-native invasive species within and in the vicinity of the marsh.

5.2 *Social Objectives*

Addressing issues related to recreation, education, public safety and interface with the surrounding community will be a fundamental component of the Open Space Management Plan. The following recommendations are made;

- Address a range of passive recreational activities while minimizing potential impacts on the natural heritage feature and functions of the site.
- Explore opportunities to encourage passive recreational use of appropriate areas throughout the seasons.
- Locate and design nodes to accommodate specific uses with a recognition of the sensitivity of the site and context within the community.
- Provide for both recreational and utilitarian use of the trail network.
- Accommodate a variety of passive uses for a range of generations in the marsh.

- Focus key nodal areas south of the Dr. Kay Drive extension and around the perimeter of the marsh.
- Strengthen physical and interpretive connections between the marsh and Schomberg.
- Implement techniques to maximize public safety and deter dumping, vandalism, trespassing and nuisance crime as a fundamental component of the Open Space Management Plan.
- Respect the rights and address the concerns of existing property owners within and adjacent the lands.
- Strive to involve schools, youth and the community in the implementation and management of the project.
- Address fundamental issues related to circulation, policy and maintenance in the design of the trail network and interpretive facilities.
- Achieve the requirements of relevant regulatory agencies and landowners, Township of King, Lake Simcoe Region Conservation Authority, the Ministry of Natural Resources and landowners on the design of trails, crossings and amenity areas.
- Address issues related to free range companion animals as a component of the plan and management recommendations.
- Explore opportunities to link parks, open spaces, and schools with the marsh lands and integrate these connections with the plan.

The Open Space Management Plan should be designed to accommodate a range of uses within a framework that recognizes the significance of natural and cultural resources as well as context within the community.

5.3 Functional Objectives

- Explore opportunities to improve water quality within the marsh.
- Address maintenance access in the design of trails and facilities.
- Address maintenance issues related to snow removal etc. on Cooper Drive and Dr. Kay Drive.
- Ensure adequate conveyance of stormwater in the design of trails and other features.
- Recommend appropriate erosion protection techniques where required. Apply bioengineering methods.
- Address issues related to parking, traffic movement and public safety in the development of the concept plan.
- Address issues related to unauthorized and illegal dumping from adjacent urban sources.
- Address multi-season use and maintenance in the design of trails and facilities.
- Accommodate the maintenance and operational requirements of the adjacent plaza, Township of King Public Works Department and Hydro in the design of amenities.
- Ensure adequate police access.

- Address stormwater management and the mitigation of other potential impacts on the design of trails and facilities.
- Design amenities to be durable over the long term.
- Maximize barrier free access to the Dufferin Marsh site.

5.4 Generation and Refinement of the Concept Plan

With the findings of the site inventory and evaluation, and the direction provided by the public as a product of the Community Design Workshop, the Consultant team initiated the process of generating a Concept Plan for the Dufferin Marsh Site. A preliminary version of the Concept Plan was prepared and presented to the Advisory Committee for review and comment prior to embarking on the preparation of the more detailed plan. This was to ensure that the various members of the Advisory Committee supported the general approach and key elements of the plan. The preliminary Concept Plan was endorsed by the Advisory Committee and comments and recommendations received were addressed in the process of developing the detailed Concept Plan. The detailed Concept Plan and supporting information were presented to the community for consideration at an Open House, which was held in the Village of Schomberg on July 23, 2000. This event was well attended and participants were invited to review the Concept Plan and provide any additional comments or ideas. A list of attendees and a summary of comments received is provided in Appendix C. Following this public meeting, the Concept plan was amended to reflect comments received and a detailed cost estimate and implementation strategy were prepared. A description of the various components illustrated on the Concept Plan is provided in the following section 6.0. The Implementation Strategy is provided in Section 7.0 of this document.

5.5 Management Initiatives

The Concept Plan illustrates a suite of physical components proposed to be constructed or implemented with the Dufferin Marsh site and on adjacent lands to achieve a range of ecological, recreational, interpretive and practical objectives. However, to ensure that these objectives are achieved over the long term, the physical components of the Concept Plan must be supported by the coincident implementation of a number of management initiatives in recognition that the marsh ecosystem will evolve over time. In response, recommendations to direct the management of the marsh and adjacent lands are provided. Recommendations for the allocation of primary responsibility for the implementation of the various management initiatives are also provided.

5.5.1 *Vegetation Management*

- a) Undertake a detailed Inventory of the Vegetation Community to Create a Database which can be Utilized to:
 - Identify the location and condition of native vegetation and species of management interest.
 - Identify the specific location of invasive alien species to assist in eradication.
 - Identify indicators of stress and disease in order to determine if management protocols should be modified.
 - Track the success of restoration, infill and buffer plantings.
 - Identify candidate species for propagation in the proposed on site nursery.

Refer to Section 5.6 Monitoring Initiatives, for recommendations related to monitoring and updating of the database.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Township of King
Lake Simcoe Region Conservation Authority

b) Initiate a Program of Staged Removal of Invasive Alien Vegetation

Once identified through the course of completing the inventory, a program aimed at eradicating an invasive alien species should be implemented. Initiatives should be focussed on total removal of invasive plants using hand or mechanical means where practical. In situations where removal of root systems are anticipated to damage the surrounding vegetation community or contribute to erosion, cutting to ground level and treating with a spot application of glyphosate is the preferred technique.

Primary Responsibility: Township of King
Supporting Partners: Dufferin Marsh Committee
Schomberg Parks Committee
Local Residents
Local Schools

c) Infill and Buffer Plantings

Based upon the findings of the inventory and monitoring programs and as illustrated on the Concept Plan, the staged planting of vegetation to create and expand buffers, enhance habitat and increase biodiversity is recommended. The success of these plantings will be determined in part by the management of newly planted areas with respect to watering, removal of competing vegetation, provision of rodent protection, pruning and replacement of dead material. Active management will be required on a periodic basis to ensure the maximum rate of survival of newly planted areas.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Township of King
Lake Simcoe Region Conservation Authority
Ministry of Natural Resources (re: supply of plant materials)
Local Residents

d) On-Site Nursery

As the proposed on site nursery is envisioned to provide an ongoing source of native, indigenous shrubs, trees, and wildflowers and emergent and aquatic vegetation for transplantation into the Dufferin Marsh. Operational requirements will include:

- Collecting seed and/or cuttings as a source of native vegetation
- Stratifying seed
- Propagating seedlings and plugs
- Watering and routine maintenance
- Harvesting and transplanting plant material into the marsh
- Securing the nursery area

The implementation and operation of the nursery will require a long term commitment and will involve, at times, a significant amount of labour.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Township of King
Lake Simcoe Region Conservation Authority
Ministry of Natural Resources
Local Schools

5.5.2 *Water Management*

- a) Manage water levels within the marsh with the objective of sustaining and enhancing the diversity and productivity of the wetland. Water levels will be able to be altered utilizing the proposed adjustable weirs at the outlets of the north and south marsh area. Water level adjustments should be made based upon the findings of the monitoring program.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Township of King
Lake Simcoe Region Conservation Authority

- b) Stormwater Management

The influx of stormwater runoff into the marsh possesses the potential to negatively affect the quality of water in the marsh and consequently, the viability of species that inhabit the marsh. Consequently, it is important that initiatives be implemented to manage the quality of runoff entering the marsh from the adjacent stormwater management facilities as well as from the surfaces of adjacent roads and localized tributary drainage areas. The following recommendations are provided.

- Management of Stormwater Management Ponds
Management of the proposed Mason Homes stormwater management pond and the existing pond at the Brownsville Junction site should include the following:
 - Periodic removal of accumulated sediments from forebay and pond areas.
 - Periodic cleaning of oil grit separators to remove accumulated pollutants.
 - Replacement of dead or dying vegetation.
 - Removal of litter and debris.
 - Maintenance of outlet structures to ensure performance.

Primary Responsibility: Brownsville Junction Pond – Township of King
Mason Homes Pond – Prior to assumption: Mason Homes
Mason Homes Pond – After assumption: Township of King

- c) Management of De-icing Compounds, Fertilizers and Pesticides

De-icing salt, fertilizers and pesticides are highly soluble in runoff and are difficult to remove from stormwater and stormwater runoff. Consequently, management to mitigate the impact of these elements must be focussed on reducing the release of these compounds at the source. Management recommendations include:

- De-icing Salt

- Minimize the use of de-icing salt where possible on the road network which contributes runoff to the Dufferin Marsh. Explore the feasibility of utilizing alternative de-icing techniques.

Primary Responsibility: Township of King
Brownsville Junction Plaza and other private properties

- Fertilizers, Pesticides and Domestic Chemicals:
 - Develop and distribute a homeowner's education manual aimed at educating existing and future homeowners in the vicinity of Dufferin Marsh about the potential impacts of household chemicals, fertilizers and pesticides on the Marsh. This manual should also provide practical advice to homeowners related to alternative, ecologically responsible techniques to control weeds and insects and maintain a healthy lawn on their property.
 - Investigate alternative practices to reduce the use of fertilizers and pesticides by the Township of King's operations and maintenance department for parkettes in the vicinity of which are tributaries to the Dufferin Marsh (particularly Block 119).

Primary Responsibility: Mason Homes Subdivision: Mason Homes
Township of King
Village of Schomberg: Dufferin Marsh Committee
Supporting Partners: Lake Simcoe Region Conservation Authority

5.5.3 *Habitat Management*

- a) Implement a program to install and maintain nesting boxes and shelter boxes for birds and bats. Ensure that habitat structures are situated in species appropriate environments and away from human use areas.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Local Schools
Local Community Groups

- b) Implement a program aimed at protecting nesting and breeding sites and managing the movement of people in the vicinity of these sites to minimize disruption of breeding activities. Management actions may include erecting temporary barriers, temporary trail closures or the installation of signage to advise people to avoid sensitive areas.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Township of King
Lake Simcoe Region Conservation Authority
Ministry of Natural Resources

- c) Managing Companion Animals

Roaming dogs and cats can have a significant impact on the sustainability of various sensitive species of birds and wildlife in the Marsh. Consequently, it is important that companion animals be deterred from roaming freely in the marsh area. Management recommendations include:

- Erecting signage to inform pet owners that pets must be on a leash in the marsh.

- Enforcing leash by-laws.
- Distributing literature to inform area residents of the potential impacts resulting from free roaming dogs and cats in the marsh.
- Monitoring the site to document the presence of stray cats.
- Removing stray cats from the marsh.
- Enforcing 'stoop and scoop' by-laws.

Primary Responsibility: Township of King
Supporting Partners: Dufferin Marsh Committee

5.5.4 *Managing Human Induced Impacts*

a) Litter Removal

- Undertake a clean up of the Marsh on a seasonal basis:

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Schomberg Parks Committee
Township of King

b) Deterring Dumping

- Erect signage to discourage dumping.
- Erect temporary barrier fencing to deter dumping in problem prone areas of the site.
- Remove any dumped debris promptly.
- Strictly enforce dumping by-laws.

Primary Responsibility: Township of King
Supporting Partners: Local Residents
Brownsville Junction Plaza

c) Manage Trail Overuse and Trespassing

Implement a program that is focussed on encouraging landowners in the vicinity of the Marsh to implement stewardship initiatives on their own properties. Key components of the program would include:

- Preparation and distribution of literature to inform landowners about the stewardship program. Describe stewardship initiatives and appropriate property management techniques.
- Offer incentives to landowners to encourage them to implement stewardship activities.
- Assist property owners in the implementation of stewardship initiatives.

Primary Responsibility: Dufferin Marsh Committee
Supporting Partners: Township of King
Lake Simcoe Region Conservation Authority
Ministry of Natural Resources
Local Residents

The successful implementation of the above management initiatives is important to the long-term viability of Dufferin Marsh. The active involvement of the community is essential to the success of the Management Plan.

d) Mitigate Encroachment from Adjacent Landowners

Although it is an objective to establish Dufferin Marsh as a recreational amenity within the Schomberg community, it is important that trail use does not result in degradation of the wetland resource. Trail widening and the creation of ad-hoc trails are two problems that are common to heavily used natural areas. Consequently, in conjunction with monitoring of the trail system, initiatives should be implemented which are focussed on monitoring the trail network and addressing trail overuse. The following recommendations are provided:

- Regrade and maintain trail surfaces to eliminate depressions, wet spots and rills.
- Define edges of trails using logs, rocks and vegetation where the potential for widening is evident.
- Where appropriate, close trails on a seasonal basis to protect trails surfaces and foundations from degradation during periods of heavy precipitation or frost movement.
- Erect access barriers to deter development and continued use of ad-hoc trails and short cuts.
- Implement localized trail improvements as required in response to patterns of use.

Primary Responsibility:	Dufferin Marsh Committee
Supporting Partners:	Township of King Schomberg Parks Committee

5.6 Monitoring Initiatives

To ensure that ecological targets are achieved over the long term, it is important that various indicators of the health of the marsh are monitored on an ongoing basis. Furthermore, the information gathered through the course of monitoring must be evaluated and used to refine time management procedures over time. Coincident with the implementation of each component of the Concept Plan, related monitoring activities should be initiated. The following recommendations are provided to guide the implementation of a monitoring program for the Dufferin Marsh.

- Monitoring sites should be identified and monumented at strategic locations, for example at the outlets of the south marsh and north marsh areas, at the outlets of the stormwater management ponds, etc. Sites should be located to correspond with existing known monitoring or data collection sites. Monitoring sites should also be easily accessible and visible to afford opportunities for a range of participants to be involved, including school children and older adults.
- Site locations should be surveyed and documented on a map database.
- The monitoring program should be coordinated with other monitoring activities being undertaken throughout the watershed.
- The monitoring program should be implemented with a confirmed commitment of funding and participation for a number of years to ensure that the program will be sustainable over time.
- The findings of the monitoring program should be reviewed on an annual basis with the objective of identifying trends in the evolution of the marsh ecosystem. Findings should be used to direct the implementation of management initiatives.

5.6.1 *Monitoring Program Components*

a) Water Resources

Monitoring activities for this component should include:

- Monitoring of the quality of water discharged from the Mason Homes and Brownsville Junction stormwater management ponds. Parameters should include temperature, dissolved oxygen, nutrients, metals and turbidity. This may require a Development Agreement between Mason Homes and the Brownsville Junction to ensure that monitoring reports are provided in accordance with a defined schedule with information related to specific parameters prior to assumption of the Mason Homes stormwater pond by the Township of King.
- Monitoring of the quality of water in the marsh with a minimum of one station in the north marsh area and one station in the south marsh area.
- Monitoring of water levels in the marsh including water depth and duration.

b) Vegetation Resources

Vegetation communities should be monitored using seasonal observation and photographic records. The initial stage of the monitoring program should include a comprehensive inventory of vegetation resources including mapping and field tagging to provide a baseline to guide management practices. Monitoring parameters should include:

- Presence and location of invasive alien species and severity of colonization.
- Seasonal growth records.
- Observation of evidence of disease or decline.
- Location of new infill and restoration plantings.
- Nursery inventory.
- Observation of change in the composition of the vegetation community.

Data gathered as part of the monitoring program can be used to guide the selection of plant material for infill planting, identify issues of concern related to water level fluctuations and fine tune the management program.

c) Habitat Resources

Monitoring quantity and distribution of birds, mammals, reptiles, fauna and invertebrates is important to determine trends in the evaluation of the marsh ecosystem. Monitoring for this component should include seasonal counts of specific species of birds, wildlife and insects. Observations should be documented and locations identified on mapping to form a database that can be updated over time. Where possible, a photographic record should accompany the inventory data. The following factors should be considered in the course of implementing the monitoring program for this component:

- Specific populations of birds and wildlife.
- The presence and extent of breeding and nesting habitat.
- The presence of non-native vegetation or undesirable species of birds and wildlife
- Increases in overall biodiversity.

5.6.2 Implementing the Monitoring Program

Implementation of the monitoring program will require a significant effort over time, however, many of the basic tasks are well suited to be undertaken by volunteers from the local community and school groups. Key to the success of the program will be the establishment of a simple methodology for documenting finding and assembling and analyzing data. Once this framework is in place, data collection and documentation should be relatively straight forward for most components. However, the accurate identification of vegetation, birds and wildlife does present a challenge, requiring that monitoring personnel possess some experience in species identification. Fortunately, members of the Dufferin Marsh Committee have expertise in identifying species of reptiles, birds, wildlife and herpetiles. For this reason, it is recommended that the Dufferin Marsh Committee take on primary responsibility for the implementation of the monitoring program. The Dufferin Marsh Committee should be supported by the Township of King, Ministry of Natural Resources and the Lake Simcoe Region Conservation Authority, who should contribute staff expertise, mapping assistance, technical support and funding to establish monitoring stations, provide equipment and pay for laboratory analysis (related to water quality monitoring). It is important that all of the partners work together to finalize the protocols for monitoring programs and establish a standard format of recording data.

6.0 THE CONCEPT PLAN – DESIGN BRIEF

The Concept Plan was designed to achieve the natural heritage, social and functional objectives established through the course of completing the inventory, assessment and public consultation processes. The Concept Plan is comprised of a suite of interrelated components proposed to be implemented within the limits of and or lands adjacent to the Dufferin Marsh site in recognition of the context of the marsh as an integral element in the Schomberg Open Space System. Figure 3.0 illustrates both the context of the Marsh site within the Village of Schomberg and recommended off site initiatives such as linkages to adjacent open spaces and the establishment of visual features to enhance the prominence of the marsh as an important element within the Schomberg community. The Concept Plan for the Marsh site is illustrated on figure 4.0. The Concept Plan was developed with a focus on preserving and enhancing the ecological integrity of the Marsh while providing opportunities for recreation and interpretation. The underlying approach to development of the Concept Plan was directed by four principles:

- Confine areas for human use to the perimeter of the marsh areas to maintain a consolidated core habitat area, minimize fragmentation and limit disturbance.
- Provide opportunities to experience the marsh through observation and interaction utilizing a sequence of strategically sited 'windows' to the marsh which are confined to appropriate areas around the perimeter of the marsh.
- Provide for the active management and enhancement and monitoring of the health of various components of the marsh ecosystem over time.
- Mitigate potential disturbance to the Marsh by establishing physical and functional buffers between adjacent land uses and activity areas, and sensitive features of the marsh.

On the basis of these principles, a Concept Plan with a number of interrelated components was developed. These various specific components are described below. Each component is identified with a number that is cross-referenced to a key on figure 4.0.

1. Heritage Plaza – This feature is located on the south side of Dr. Kay Drive on the west side of the Marsh. The Heritage Plaza is envisioned as a gateway feature that will include a pavilion structure, paved areas and seating areas. It will encompass an outdoor classroom, interpretive signage and orientation signage describing the local trail network. The Heritage Plaza will be at the head of the Discovery Trail. Access to the trail will be controlled by lockable gates to allow for closure of the trail to limit access during periods when wildlife may be sensitive to disturbance. The Heritage Plaza pavilion should be designed with an architectural character which reflects the former railway station which was situated in this vicinity.
2. Northern Marsh Interpretive Station – This feature is located on the north side of Dr. Kay Drive and is proposed as a boardwalk and platform which will extend out into a portion of the northern Marsh area. The platform will incorporate a monitoring station including staff gauge to measure water levels in the marsh and provision for water quality and temperature monitoring. The boardwalk and platform structure will incorporate interpretive messaging and seating areas. A deep pond is proposed to be excavated around the platform as a measure to deter people from venturing into the marsh from the boardwalk during times of lower water. Along the frontage of Dr. Kay Drive, a wall is proposed as a gateway to the boardwalk. The wall is envisioned to incorporate images and text describing the species which inhabit Dufferin Marsh while limiting public access to the edge of the marsh.

3. Discovery Trail – This trail system is proposed to be located on the west side of the marsh, south of Dr. Kay Drive. The trail is designed as an interpretive walk which will provide observation nodes at key points along the route. The Discovery Trail is envisioned as a granular surfaced trail with a width of approximately 2.4m. The trail will connect a number of amenities design to heighten public awareness of the features and functions of the marsh, facilitate the enhancement of the marsh and afford opportunities for passive recreation. The following elements are proposed as components of the Discovery Trail System:
- a) A native wildflower and shrub nursery
 - b) A wildflower garden
 - c) A butterfly garden
 - d) An aquatic plant nursery
 - e) A sedge nursery
 - f) A maintained lawn area for gathering, picnicking and passive recreation
 - g) An outdoor classroom
 - h) A supply shed to support the nursery areas.

The trail system will include two footbridges and two outdoor classroom/ observation decks . The nursery area will be delineated and secured using paige wire fencing and lockable gates. A small stormwater management cell is proposed to detain and treat runoff from the hard surfaced areas associated with the Heritage Plaza area. Interpretive messaging along the Discovery Trail will be focussed on herpetile habitat and aquatic and the emergent vegetation of Dufferin Marsh along the information related to the propagation of vegetation in the various nursery areas.

4. Trail Network – A comprehensive trail network is proposed to link the various components illustrated on the concept plan as well as providing linkages to the adjacent open space system. Trails are sited and designed to minimize impact on the marsh and, where possible, are combined with existing or proposed sidewalks, maintenance access routes and existing disturbed areas. A seasonal trail is proposed on the lower ridge around the north marsh area. This trail will be open when soil conditions permit in the summer time and will be closed in times corresponding with wildlife breeding or nesting periods. Interpretive nodes area proposed at key points along the trail corresponding with exceptional viewing opportunities as proximity to key features of the marsh.
5. Wetland Expansion and Diversification – New areas of open water are proposed to be created at strategic locations throughout the site. Deep pools will be added to the north marsh area and a new wetland will be constructed on the eastern edge of the south marsh area to improve hydraulic connectivity, expand the marsh area and provide an enhanced buffer along the west side of the proposed extension of Cooper Drive. Plantings are proposed at various locations throughout the marsh area to provide nesting and overwintering opportunities for birds and wildlife. Infill and buffer plantings should be comprised predominately of coniferous species to optimized nesting and overwintering opportunities. Species such as Tamarack, Eastern White Cedar, Hemlock and White Spruce are preferred for moist areas. Cedar, White Pine and Tamarack are proposed for buffer areas on the western side of the site. A mix of deciduous shrubs and trees are proposed to be interspersed with the coniferous plantings. Fruit bearing shrubs such as Amelanchier, Chokecherry, Hawthorn and Elder are preferred since they provide a source of food for birds or wildlife. Ash, Birch, and White Oak are proposed in perimeter buffer areas.
6. Stormwater Management Pond Enhancement – The existing stormwater management pond on the western edge of the Brownsville Junction Plaza site is not functioning effectively, consequently

improvements are proposed to improve the quality of water discharged into the marsh. The pond is proposed to be expanded and reconfigured to function more effectively and appear more natural. The existing oil grit separators should be cleaned out and the existing wet pond cell reconfigured to function as a sediment forebay and discharge into and enlarged wet pond/wetland area. Extensive plantings should be installed around the perimeter of the pond to deter dumping.

7. Streetscape Improvements – A number of improvements are proposed to make the marsh more of a dominant yet integral feature of the Village of Schomberg. Streetscape treatments are designed to provide defined gateways to the marsh and to establish Dr. Kay Drive as a more pedestrian-oriented street. These traditional streetscape treatments are proposed for the segments of Dr. Kay Drive and Cooper Drive which extend outwards from the Marsh. Changes in surfacing materials or the introduction of raised speed humps are proposed where pedestrian crossings are required at key locations along Dr. Kay Drive and Cooper Drive. The existing Crimson King Maples which have been planted along Dr. Kay Drive east of Main Street should be replaced with native trees such as Sugar Maples to avoid the potential for the colonization of the marsh with invasive Crimson King Maples through seed dispersal.
8. Ecosystem Management and Enhancement Amenities – Adjustable weirs are proposed to afford the opportunity to modify components of the marsh ecosystem with the goal of enhancing biodiversity and improving the overall health of the marsh. Adjustable weirs are proposed at two locations:
 - the culvert beneath Dr. Kay Drive west of the proposed Cooper Drive extension
 - the outlet from the south marsh on the north side of Dr. Kay Drive at the western edge of the north marsh area.

Both weirs are proposed as simple structures comprised of an adjustable steel weir or a riverstone and clay control weir. The weirs will allow for water levels in the marsh to be altered to compensate for alterations in local drainage characteristics of meteorological phenomena or as a means to achieve habitat objectives related to species composition, succession and wildlife life-cycle requirements.

The tree, wildflower and sedge nursery provides the opportunity to collect seed stock and propagate material for use in the enhancement of marsh areas. Monitoring stations associated with observation areas and other components of the Concept Plan provide a means to gauge the health of the marsh ecosystem and determine appropriate required management actions in response.

Although it is recognized that the implementation of the various initiatives illustrated on the Concept Plan is an ambitious undertaking, the implementation of all the components of the plan is anticipated to be undertaken over a number of years with the involvement of many participants. With this in mind, the Concept Plan should be regarded as a blueprint which sets out a vision for the future of Dufferin Marsh. The implementation strategy described in the following section is designed to guide the process of realizing this vision.

7.0 IMPLEMENTATION DIRECTIONS

The Implementation Strategy set out in the following sections was developed to direct the phasing of construction of the various components of the Dufferin Marsh project based upon specific priorities and a recognition that much of the work may be undertaken by volunteer efforts. However, it must also be recognized that there are a number of variables that will affect the staging of work as well as the extent of work that can be completed within each stage. These variables include:

- Land ownership, and the strategy and schedule for acquisition of lands.
- Availability of funding.
- Timing and availability of in-kind contributions of materials, equipment and labour.
- Requirements for approval from landowners and regulatory agencies.
- Relative timing of work of adjacent lands, most significantly, the extension of Cooper Drive and the construction of the Mason Homes subdivision.
- Changing priorities within the community over time.
- Requirements to ensure public safety objectives are achieved.
- The objectives of the various groups within the community related to specific areas of interest. For example, the restoration and enhancement of habitats as the focus of the Dufferin Marsh Committee or the implementation of trails to provide recreational benefits to the community as an area of interest for the Schomberg Parks Committee.

Consequently, the implementation strategy should be regarded as a guideline document that will require periodic review and undergo evolution as shifts in the above variables occur over time. The specific implementation of the development, management and monitoring recommendations will be subject to the regular review and budgeting considerations of the Township of King Operations Department. All grading and construction works to be undertaken within the Dufferin Marsh will be subject to review and approved by the Lake Simcoe Region Conservation Authority and other relevant regulatory agencies prior to the initiation of construction.

The following sections set out the priorities for implementation and describe the various works to be undertaken in each phase of the project. It should be recognized that it may take several years to complete each individual phase of the project. Refer to Figure 5.0 for a graphic depiction of each recommended implementation phase.

7.1 Implementation Priorities

To provide a foundation for the development of the Implementation Strategy for the Dufferin Marsh Public Open Space Management Plan, a sequence of priorities were defined. Priorities were established based upon the findings of the inventory and consultation processes combined with a recognition of logistical factors and practical issues related to the staging of construction. Implementation priorities are identified below in sequential order.

1. Consolidate Land Holdings

In recognition of the fact that significant portions of the Dufferin Marsh Study site are held in private ownership, it is of primary importance that the municipality initiate the process of consolidating the lands encompassed by the Concept Plan for the purposes of implementing the various initiatives proposed. Options to facilitate the consolidation of land holdings are provided in Section 7.2.

2. Implement Initiatives which are Focussed on Mitigating Existing Degradation in the Dufferin Marsh.
In its present situation, the marsh has been impacted or continues to be adversely affected by several factors, including inappropriate recreational use, dumping and stormwater runoff. Initiatives proposed in the Concept Plan to mitigate ongoing impacts on the marsh or restore areas degraded in the past are a priority.
3. Implement Ecosystem Enhancement Initiatives
The installation of buffer plantings, initiatives designed to enhance biodiversity and enhance the ecological health of the marsh area a priority. However, the staging of implementation of these initiatives should be integrated with the timing of construction of amenities aimed at enhancing public awareness of the marsh and controlling pedestrian movement in the vicinity of the marsh.
4. Implement Public Access and Education Initiatives
In conjunction with the implementation of ecosystem enhancement initiatives, it is also a priority to install selected segments of trails, interpretive structures and environment focussed amenity areas.
5. Establish Linkages to the Surrounding Community
An ongoing priority is the process of implementing the Concept Plan is to further the establishment of linkages to the community wide open space system including connections to Main Street and the trail system paralleling Schomberg Creek.
6. Strengthening Visual Identity
The implementation of streetscape improvements along Cooper Drive and Dr. Kay Drive along with the establishment of prominent gateway features at the intersections of Dr. Kay Drive and Main Street; Dr. Kay Drive and Highway #27; and Cooper Drive and Dr. Kay Drive, will help to strengthen the visual prominence of the Dufferin Marsh within the community.

Although these priorities are listed chronologically in accordance with their relative importance, the priorities need not be addressed in sequential order, rather, it is recommended that various initiatives designed to address any or all the priorities be initiated concurrently with the objective of expediting the implementation of the Concept Plan. For example, trails and buffer plantings can be installed in areas of the marsh site which are already held in public ownership while at the same time, alternatives to bringing existing privately owned lands into public ownership are pursued.

7.2 Options for Consolidating Land Holdings

Two key areas of the Dufferin Marsh Concept Site are held in private land ownership (refer to figure 2.0 Property Ownership)

- The area of the marsh north of Dr. Kay Drive (2.4525 ha – Gabreyela Osin)
- The area west of the proposed Mason Homes stormwater management pond (0.77ha – 811880 Ontario Ltd.)

In addition, portions of the marsh areas are encompassed in the rear lots of the residential properties which front on the east side of Main Street north of Dr. Kay Drive.

In order to implement some of the key initiatives illustrated in the Concept plan, it is required that these lands be consolidated as part of the Dufferin Marsh Open Space block. Several options are available to achieve this objective.

7.2.1 Acquisition of Lands by the Township of King

Public ownership is generally regarded as the preferred option to facilitate the protection enhancement and management of environmentally sensitive lands in perpetuity. Consequently, it is recommended that the Township of King initiate negotiations with key landowners with the goal of bringing all Dufferin Marsh lands into public ownership. Several approaches are available.

- Outright purchase on a willing buyer / willing seller basis.
 - This approach would require the Township to enter into discussions with landowners, negotiate an equitable price, acquire funding and execute a purchase of key private properties.
- Acquisition through the Development Approvals Process
 - If the opportunity exists to do so, the Municipality may negotiate for the dedication of key lands into public ownership as a condition of approval for development on adjacent lands owned by the applicant elsewhere in the municipality. Alternatively, it is recommended that the policies of the Schomberg Community Plan be reviewed by the municipality may entertain opportunities to offer incentives or bonuses such as higher density housing in exchange for the dedication of Dufferin Marsh lands.

Failing the above, if the Township of King is intent on bringing the lands into public ownership, the option of expropriation is available to the Municipality.

7.2.2 Options for Implementing the Concept Plan in Partnership with Private Landowners

Notwithstanding the fact that public ownership of the Dufferin Marsh lands is the most desirable approach to achieve the objectives of the management plans, the option of entering into agreements with private landowners presents another alternative to implement the Concept Plan. Several options are available:

- Long Term Lease
The municipality or a community group may negotiate with a landowner to lease all or a portion of the lands. The specific terms of the lease would determine the types of amenities which could be constructed, management protocols, provision for public access, liability, extent of land areas encompassed and duration of lease.
- Access Agreement
In the situation where a landowner supports the Dufferin Marsh initiative and will allow works to be undertaken on his / her land, but has concerns about potential liability, an access agreement can be employed. The access agreement will identify the limits of the lands encompassed but the agreement, terms of use, provisions for repair of damage and allocation of responsibility for public liability.
- Easement
In exchange for development approvals or permits for property improvements, the municipality may seek to enter into an easement agreement with a landowner. The limits of the easement along with the provisions for use of lands within the easement would be registered on title of

the property. The easement can be defined to accommodate a specific use or provide for the construction of a specific work.

The most appropriate approach to consolidating private land holdings to facilitate implementation of the recommendations of the Management Plan will need to be determined by the municipality based on a number of considerations including:

- Availability of funding
- Potential for partnering with other public sector agencies
- Willingness of the landowner to participate in negotiations
- Presence of opportunities to negotiate land acquisitions as a condition of development approach
- Potential for partnerships with community based groups or the private sector

It is recommended that the Municipality enter into negotiations with the affected landowners with the objective of exploring the various options and determining a preferred option to facilitate the consolidation of necessary lands as an important first step in the process of implementing the Management Plan.

7.2.3 Potential Funding Opportunities

The implementation of the Dufferin Marsh Concept Plan is an ambitious undertaking which will require a commitment of funding from a number of sources. Certainly the Township of King will be the most significant contributor to the process. However, the implementation of a number initiatives will be beneficial to specific groups, such as the Dufferin Marsh Committee, Mason Homes, the school board, and the community at large, and therefore opportunities may exist to secure funding in whole or in part through these partners.

However, apart from these partners in the community, funding sources from beyond the community should be sought. These may include environmental organizations, corporate donors, special interest groups interested in environmental, recreational and educational projects, as well as groups focused on the restoration of wetlands. The status of the Dufferin Marsh Committee as a registered charitable organization positions this group as a vehicle to apply for funding from a variety of sources which may not be otherwise available to the municipality or other partners.

The following is a list of potential funding sources which are relevant to the Dufferin Marsh project. Where the information was available, typical funding amounts are provided.

- i) Township of King*
 - a) Consideration for funding through the Township's capital works annual budgeting process.
 - b) Potential for the development industry to implement various elements of the plan as a Development Charge credit subject to the Township's Development Charge by-laws and studies.
- ii) Private Sector*
 - a) Financial donations or donation of materials in exchange for recognition.
 - b) Sponsorship of specific components of the plan.
 - c) In-kind contributions of labour or equipment to facilitate construction.

- d) Sponsorship of fundraising events to benefit the marsh initiatives (ie. the provision of food and drinks, donation of prizes for raffles through service clubs or the Dufferin Marsh Committee.

iii) Community Charitable Organizations and Service Clubs

The Dufferin Marsh Committee and local service clubs, because of their charitable status, can implement fundraising initiatives or solicit donations for use in implementing various components of the Concept Plan. Elements of the plans such as the Heritage Plaza are well suited to be stand-alone projects which can be “adopted” by local service clubs such as the Lions Club.

iv) Private and Public Sector Funding Programs

- a) Science and Culture Canada – Science Program Branch
This program provides funding for projects aimed at increasing awareness of science and technology, and may be appropriate for the educational components of the works, including the outdoor classrooms and monitoring equipment. Grants range from \$5,000.00 to \$60,000.00, with an average grant being approximately \$25,000.00.
- b) Canada Trust – Friends of the Environment Program
Funding for local environmental and restoration projects is available through this program. Grants are typically less than \$10,000.00 and are administered through the local community branch.
- c) Shell Canada – Environment Fund
This fund is available for a wide range of environmental projects, with grants of up to \$5,000.00.
- d) Global ReLeaf Fund
This fund provides assistance in purchasing tree stock for tree planting projects. This program would be well suited to the street, home or park planting components of the project.
- e) Environmental Partners Fund
This program funds community based projects aimed at restoring and enhancing the environment. The program encourages the formation of partnerships. Matching funding is available up to \$200,000.00. Projects are to be completed over a maximum duration of three years.
- f) Environment Week Program
An average grant of \$1,900.00 is available for community based restoration projects.
- g) Habitat 2000
Aimed at enhancing awareness through education, this grant is primarily available to schools. The funding maximum is \$200.00.
- h) Heritage Canada – National Heritage Grant Program
Grants of up to \$50,000.00 are available for land stewardship projects that increase awareness, appreciation and protection of Ontario’s natural heritage.
- i) Ministry of Environment and Energy
Grants are available for environmental education projects, including signage and flyers. Projects must be undertaken by individuals or non-profit groups in order to qualify. The maximum grant is \$2,500.00.
- j) Ministry of Natural Resources CWIP Funding

This program makes funding available to local community groups for watershed improvement projects. Grants are to be applied to the purchase of materials with the partner providing labour for the project. The MNR also provides seedling trees and bare root shrubs at a nominal cost for watershed improvement projects.

- k) Lake Simcoe Region Conservation Authority
LSRCA may provide funding and/or contribution of materials to assist in the implementation of naturalized plantings, slope stabilization and erosion protection.

7.3 Description of Implementation Phases

To facilitate the long-term implementation of the various management, construction and monitoring activities, the various initiatives were subdivided into a succession of five Implementation Phases. The phases were defined on the basis of the Implementation Priorities set out in section 7.1 and are illustrated on figure 5.0, Implementation Phasing Plan.

The components of each Phase are described on the following pages. Each phase includes a suite of management initiatives, construction initiatives, and monitoring initiatives. A cost breakdown related to each phase is also provided.

Phase 1

Management Initiatives

- Remove dumped refuse
- Remove invasive alien vegetation
- Install initial stage of infill plantings
- Litter clean up

Construction Initiatives

- 1a) Adjustable weirs at culvert and wetland outlet.
- 1b) Retrofit of existing stormwater management pond at Brownsville Junction site.
- 1c) Buffer plantings along Dr. Kay Drive (confine to limit of Dr. Kay Drive R.O.W. on north side of the road).
- 1d) Shallow embayments at outlet of herpetile crossings beneath Dr. Kay Drive.
- 1e) Buffer plantings along west property line of south marsh area.

Monitoring Initiatives

- Wildlife populations
- Water levels
- Location and extent of invasive plant material
- Dumping
- Water quality
- Vegetation community inventory

Phase 2

Management Initiatives

- Litter Clean up
- Ongoing removal of invasive vegetation
- Infill planting

Construction Initiatives

- 2a) Heritage Plaza and pavilion
- 2b) Discovery trail
- 2c) Tree nursery
- 2d) Aquatic plant nursery
- 2e) Butterfly Garden and maintained turf area
- 2f) Wetland extension and stormwater management cell
- 2g) Textured pavement crossing at Dr. Kay Drive

Monitoring Initiatives

- Wildlife population
- Water levels in wetlands
- Success of infill and buffer planting
- Quality of water discharged from retrofitted stormwater pond
- Invasive alien plant material

Phase 3

Components of this phase are contingent on:

- Construction of Mason Homes Stormwater Management Pond
- Permission of private landowners or acquisition of private lands
- Construction of Cooper Drive extension

Management Initiatives

- Tree nursery
- Shrub / wildflower nursery
- Emergent vegetation nursery
- Litter removal
- Invasive vegetation removal
- Infill planting on north slope

Construction Initiatives

- 3a) Trail and Interpretive Station at the stormwater management pond
- 3b) North marsh observation and interpretive area and associated deep pool and plantings
- 3c) South marsh viewing platform
- 3d) Textured pavement crosswalk at Dr. Kay Drive
- 3e) Kiosk / Orientation signage – Dr. Kay Drive at Cooper Drive
- 3f) Observation Area – Dr. Kay Drive at Cooper Drive
- 3g) Textured paving crosswalk – Dr. Kay Drive at Cooper Drive
- 3h) Deep pools – north marsh area
- 3i) Ridge Trail and viewing areas
- 3j) Seasonal trail loop

Monitoring Initiatives

- Wildlife population
- Water levels in wetlands

- Water quality discharged from stormwater facilities
- Tree nursery
- Success of infill and buffer plantings
- Levels of use of trails / evidence of over use and degradation

Phase 4

Components of this phase are contingent on:

- Construction of Mason Homes Stormwater Management Pond
- Permission of private landowners or acquisition of private lands
- Construction of Cooper Drive extension

Management Initiatives

- Tree nursery
- Shrub / wildflower nursery
- Emergent vegetation nursery
- Litter removal
- Invasive vegetation removal
- Infill planting on north slope

Construction Initiatives

- 4a) Buffer planting at Cooper Drive
- 4b) Buffer planting on north side of western limit of marsh
- 4c) Overlook interpretive station at Cooper Drive
- 4d) Cooper Drive streetscape improvements
- 4e) Dr. Kay Drive streetscape improvements
- 4f) Naturalized buffer south of Mason Homes stormwater pond

Monitoring Initiatives

- Wildlife population
- Water levels in wetlands
- Water quality discharged from stormwater facilities
- Tree nursery
- Success of infill and buffer plantings
- Levels of use of trails / evidence of over-use and degradation

Phase 5

Components of this phase are contingent on:

- Construction of Mason Homes Stormwater Management Pond
- Permission of private landowners or acquisition of private lands
- Construction of Cooper Drive extension

Management Initiatives

- Tree nursery
- Shrub / wildflower nursery
- Emergent vegetation nursery
- Litter removal
- Invasive vegetation removal
- Infill planting on north slope

Construction Initiatives

- 5a) Trail links – Ridge Trail to the Highway #9 and #27 intersection and Ridge Trail to Main Street
- 5b) Trail link – Stormwater pond to Mason Homes subdivision
- 5c) Trail link – Discovery Trail to Main Street
- 5d) Trail link – Discovery Trail to Cashway site.

Monitoring Initiatives

- Wildlife population
- Water levels in wetlands
- Water quality discharged from stormwater facilities
- Tree nursery
- Success of infill and buffer plantings
- Levels of use of trails / evidence of over use and degradation

7.4 Implementation Roles and Responsibilities

The consultation process associated with the project revealed that there is strong support for the restoration and enhancement of Dufferin Marsh for the residents of Schomberg and the community at large. In addition, the Dufferin Marsh Committee has been very active and has successfully mobilized groups of volunteers to implement restoration and monitoring initiatives in the Dufferin Marsh over the previous years. Consequently, it can be concluded that both the Dufferin Marsh Committee and the residents of the Village of Schomberg will be an important volunteer resource which can be relied upon to undertake a range of management, construction and monitoring initiatives in partnership with the Township of King. Further, the Schomberg Parks Committee has proven experience in overseeing and orchestrating the implementation of projects aimed at enhancing recreational opportunities in the Village of Schomberg. This Committee has worked in partnership with the Township and is also anticipated to take an important role in realizing the implementation of various components of the project working with the Dufferin Marsh Committee and the community at large.

Prior to initiating the Management Plan recommendations, the Township of King staff should meet with the Dufferin Marsh Management Plan Advisory Committee and other identified stakeholders to discuss the implementation guidelines in more detail with regard to financial, administrative and phasing matters.

Some initiatives illustrated on the Concept Plan will be implemented as a component of the construction of various projects by others. For example, it is anticipated that the trails illustrated around the proposed stormwater management pond, which is part of the Mason Homes project, will be implemented when the maintenance access road around the pond is constructed. Table 7.1 provides a breakdown of each sub-project within each phase. Opportunities for in-kind contributions of materials are also indicated in the matrix.

Table 7.1 – Potential Partnerships by Project Phases

Legend:

S.C. – Local Service Clubs
P.S.- Private Sponsors

L.S. – Local Schools
DMC – Dufferin Marsh Committee

MNR – Ministry of Natural Resources
SPC – Schomberg Parks Committee

Phase/Component Description	Partner Township of King	Partner Volunteer Groups	Partner Mason Homes	Partner Other	Funding/In-kind Contribution Opportunities
1a) Adjustable weirs at culvert and wetland outlet.	✓	DMC			
1b) Retrofit of existing SWM pond at Brownsville Junction site.	✓	DMC			
1c) Buffer plantings along Dr. Kay Drive	✓	DMC		MNR	TREE SUPPLY
1d) Shallow embayments at outlet of herpetile crossing beneath Dr. Kay Drive.	✓				
1e) Buffer plantings along west property line of south marsh area.	✓	DMC		MNR	TREE SUPPLY
2a) Heritage Plaza and pavilion.	✓	DMC/SPC		S.C./P.S.	MATERIALS
2b) Discovery trail.	✓	DMC/SPC		S.C./P.S.	MATERIALS
2c) Tree nursery.		DMC		MNR	TREE SUPPLY
2d) Aquatic plant nursery.		DMC		MNR	PLANT SUPPLY
2e) Butterfly Garden and maintained turf area.	✓	DMC			
2f) Wetland extension and SWM cell	✓				
2g) Textured pavement crossing at Dr. Kay Dr.	✓				
3a) Trail and Interpretive Stations at SWM pond	✓	DMC/SPC	✓	SCHOOLS/S.C./P.S.	MATERIALS
3b) North marsh observation and interpretive area and associated deep pool and plantings.	✓	DMC/SPC		SCHOOLS/S.C./P.S.	MATERIALS
3c) South marsh viewing platform.	✓	DMC/SPC		S.C./P.S.	MATERIALS
3d) Textured pavement crosswalk at Dr. Kay Drive.	✓				
3e) Kiosk/Orientation signage - Dr. Kay Drive at Cooper Drive.	✓	DMC/SPC	✓	L.S. / S.C. / P.S.	MATERIALS
3f) Observation area – Dr. Kay Drive at Cooper Drive.	✓	DMC/SPC		L.S. / S.C. / P.S.	MATERIALS
3g) Textured paving crosswalk Dr. Kay Drive at Cooper Drive.	✓				
3h) Deep pools – north marsh area.	✓				
3i) Ridge Trail and viewing areas.	✓	DMC/SPC		P.S.	MATERIALS
3j) Seasonal trail loop.	✓	DMC/SPC			
4a) Buffer plantings at Cooper Drive	✓	DMC	✓	MNR	TREE SUPPLY
4b) Buffer planting on north side of western limit of marsh.	✓	DMC		MNR	TREE SUPPLY
4c) Overlook interpretive station at Cooper Drive.	✓	DMC/SPC	✓	L.S. / S.C. / P.S.	MATERIALS
4d) Cooper Drive streetscape improvements.	✓		✓		
4e) Dr. Kay Drive streetscape improvements.	✓				
4f) Naturalized buffer south of Mason Homes SWM pond.			✓		
5a) Trail links – Ridge Trail to Highway #9 and #27 intersection and Ridge Trail to Main Street.	✓	DMC/SPC		P.S.	MATERIALS
5b) Trail link – SWM pond to Mason Homes subdivision.			✓		
5c) Trail link – Discovery Trail to Main Street.	✓	SPC		P.S.	MATERIALS
5d) Trail link – Discovery Trail to Cashway site.	✓	SPC		P.S.	MATERIALS

7.5 Implementation Cost Estimates

This section provides a breakdown of the costs associated with each implementation phase. Cost estimates have been further subdivided to indicate both:

- A total cost based upon recent tender prices for all materials and labour using contractor forces.
- An estimated cost of volunteer labour can be utilized and where indicated, in-kind contributions of materials are anticipated.

Table 7.2 – Implementation Cost Estimates by Phase

Phase / Component Description	Estimated Total Costs	Potential Volunteer / In-kind Contributions	Net Estimated Costs
1a) Adjustable weirs at culvert and wetland outlet.	\$3,000.00		\$3,000.00
1b) Retrofit of existing SWM pond at Brownsville Junction site.	\$47,080.00		\$47,080.00
1c) Buffer plantings along Dr. Kay Drive	\$25,000.00	Labour (\$10,000.00)	\$15,000.00
1d) Shallow embayments at outlet of herpetile crossing beneath Dr. Kay Drive.	\$8,000.00		\$8,000.00
1e) Buffer plantings along west property line of south marsh area.	\$15,000.00	Labour (\$5,000.00)	\$10,000.00
SUBTOTAL FOR PHASE ONE	\$98,080.00		\$83,080.00
2a) Heritage Plaza and pavilion.	\$53,000.00		\$53,000.00
2b) Discovery trail (bridges, signage, benches, observation decks)	\$45,000.00	Labour (\$8,000.00)	\$37,000.00
2c) Tree nursery (and supply shed)	\$20,000.00	Labour (\$5,000.00)	\$15,000.00
2d) Aquatic plant nursery.	\$8,000.00		\$8,000.00
2e) Butterfly Garden and maintained turf area.	\$15,000.00	Labour (\$5,000.00)	\$10,000.00
2f) Wetland extension and SWM cell	\$7,000.00		\$7,000.00
2g) Textured pavement crossing at Dr. Kay Drive	\$7,000.00		\$7,000.00
SUBTOTAL FOR PHASE TWO	\$155,000.00		\$137,000.00
3a) Trail and Interpretive Stations at SWM pond	\$25,000.00		\$25,000.00
3b) North marsh observation and interpretive area and associated deep pool and plantings.	\$78,000.00	Labour Planting (\$4,000.00)	\$74,000.00
3c) South marsh viewing platform.	\$8,500.00		\$8,500.00
3d) Textured pavement crosswalk at Dr. Kay Drive.	\$9,000.00		\$9,000.00
3e) Kiosk/Orientation signage - Dr. Kay Drive at Cooper Drive.	\$15,000.00		\$15,000.00
3f) Observation area – Dr. Kay Drive at Cooper Drive.	\$7,000.00		\$7,000.00
3g) Textured paving crosswalk Dr. Kay Drive at Cooper Drive.	\$9,000.00		\$9,000.00
3h) Deep pools – north marsh area.	\$8,000.00		\$8,000.00
3l) Ridge Trail and viewing areas.	\$12,000.00		\$12,000.00
3j) Seasonal trail loop.	\$6,000.00		\$6,000.00
SUBTOTAL FOR PHASE THREE	\$177,500.00		\$173,500.00
4a) Buffer plantings at Cooper Drive	\$25,000.00	Labour (\$10,000.00)	\$15,000.00
4b) Buffer planting on north side of western limit of marsh.	\$10,000.00	Labour (\$3,000.00)	\$7,000.00
4c) Overlook interpretive station at Cooper Drive.	\$13,000.00		\$13,000.00
4d) Cooper Drive streetscape improvements.	\$10,000.00		\$10,000.00
4e) Dr. Kay Drive streetscape improvements.	\$12,000.00		\$12,000.00
4f) Naturalized buffer south of Mason Homes SWM pond.	\$20,000.00		\$20,000.00
SUBTOTAL FOR PHASE FOUR	\$90,000.00		\$77,000.00
5a) Trail links – Ridge Trail to Highway #9 and #27 intersection and Ridge Trail to Main Street.	\$14,300.00		\$14,300.00
5b) Trail link – SWM pond to Mason Homes subdivision.	\$3,500.00		\$3,500.00
5c) Trail link – Discovery Trail to Main Street.	\$2,600.00		\$2,600.00
5d) Trail link – Discovery Trail to Cashway site.	\$1,500.00		\$1,500.00
SUBTOTAL FOR PHASE FIVE	\$21,900.00		\$21,900.00
TOTAL FOR ALL PHASES	\$542,480.00	\$50,000.00	\$492,480.00

7.6 Summary

The implementation of the Dufferin Marsh Public Open Space Management Plan is an ambitious undertaking, which will be realized over a period of a number of years. Critical to the long-term success of this project is the continued support for residents of the Village of Schomberg, the Dufferin Marsh Committee, the Schomberg Parks Committee, the Lake Simcoe Region Conservation Authority, private sector partners, private landowners and the Township of King. The most important short-term task is the process of implementing the plan in the consolidation of land holdings which comprise the Dufferin Marsh site. Concurrently, initiatives to rehabilitate existing degraded areas and mitigate deterioration of the marsh resource should be a priority.

The establishment of cooperative and effective partnerships between the Township of King, the Dufferin Marsh Committee, the Schomberg Parks Committee, landowners and the community at large is essential to the realization of the Concept Plan and implementation of long term management and monitoring initiatives. This is the key to sustaining the Dufferin Marsh as an important natural and cultural heritage resource in the Village of Schomberg.

APPENDIX A

**Dufferin Marsh Open Space Management Plan
Natural Heritage Background Review**

**Prepared by
LGL Limited
June 2000**

APPENDIX B

Photographic Inventory

APPENDIX C

Workshop Session Attendees

APPENDIX D

Workshop Presentation Panels

APPENDIX E

Bibliography

Bibliography:

Chapman, L.J., and D.F. Putnam

1973 *The Physiography of Southern Ontario*. Second Edition. Toronto: University of Toronto Press.

Charlesworth Associates

1996 *Hydrogeological Investigation – Osin Subdivision*.

Couturier, A.

1999 *Conservation Priorities for Birds of Southern Ontario*. Prepared for Bird Studies Canada for the Canadian Wildlife Service and the Ontario Ministry of Natural Resources.

Cumming Cockburn Limited

1996 *Revised in 1997. Environmental Impact Statement-Osin Property Development and Cooper Drive Extension*

1997 *Environmental Study Report C Dr. Kay Drive Extension*. Prepared for the Township of King. York Regional Municipality.

Gáspárdy, G.N. and J. Cavallo

1999 *Dr. Kay Extension C Fisheries Assessment*. Prepared by LGL Limited for Ainley & Associates Limited.

Government of Ontario.

1999 *Natural Heritage Reference Manual*. OMNR. Peterborough.

1996 *Provincial Policy Statement*. OMMAH. Toronto.

Natural Heritage Information Centre.

2000 *Working Lists of the Birds, Mammals, Reptiles and Amphibians of Ontario*. Peterborough.

Ontario Municipal Board Order P1980763.

1999 *Draft Plan of Subdivision Approval and Zoning By-law 99-75*.

Queens Printer of Ontario.

1992 *Royal Commission on the Future of the Toronto Waterfront, Regeneration*.

Rayburn, Alan.

1994 *Place Names of Ontario*; University of Toronto Press Incorporated.

Township of King

1999 *Schomberg Community Plan. (Amendment No. 47 to the Township of King Official Plan) Township of King Planning Department (Approved as Modified December 1996)*.

1993 *Township of King Design Criteria Manual – Totten Sims Hubicki Ltd.*

1994 *Future 2000 – Township of King Strategic Plan*.

Community Profile

1999 *Official Plan*

FOREWORD

The Dufferin Marsh Open Space Management Plan was generated over a seven month period commencing in March of 2000. The process of generating the Dufferin Marsh Public Open Space Management Plan was one of evolution and refinement, rooted in the consensus of the community. The Dufferin Marsh Public Open Space Management Plan was presented to the Committee of the Whole on October 16th, 2000, and the recommendations of the plan were adopted by the Council of the Township of King on October 23, 2000. This milestone is an important first step towards the long-term implementation of the development, management and monitoring recommendations set out in the Dufferin Marsh Public Open Space Management Plan.

*Dufferin Marsh Public Open Space Management Plan
Final Edition November 2000
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Dufferin Marsh Public Open Space Management Plan
Township of King • November 2000

TABLE OF CONTENTS

Foreword	Page
1.0 Introduction.....	1
1.1 Approach.....	1
1.2 The Study Area	2
2.0 Site Context	3
2.2 Future Growth	4
3.0 Natural Heritage Resources.....	6
3.1 Documentation of Background Information and Existing Conditions	6
3.2 Natural Heritage Overview	6
3.2.1 Biological Conditions.....	7
3.2.2 Vegetation Communities: Marsh Complex and Adjacent Lands.....	7
3.2.3 Plant Species of Management Interest	7
3.2.4 Wildlife Habitat	7
3.2.5 Wildlife Species.....	8
3.2.6 Wildlife Species of Management Interest	8
3.3 Summary of Findings.....	9
3.4 Natural Heritage Opportunities	10
4.0 Community Consultation	11
4.1 Background	11
4.2 Stakeholder Interviews	11
4.3 Workshop Session.....	14
4.4 Summary of Questionnaires	16
4.4.1 Dufferin Marsh Public Open House, June 13, 2000	16
4.4.2 Dufferin Marsh Public Open House, August 27, 2000	20
5.0 Design Directions.....	21
5.1 Natural Heritage Objectives.....	21
5.1.1 General	21
5.1.2 Wildlife	21
5.1.3 Vegetation.....	22
5.2 Social Objectives.....	22
5.3 Functional Objectives	23
5.4 Generation and Refinement of the Concept Plan	24
5.5 Management Initiatives.....	24
5.5.1 Vegetation Management	24
5.5.2 Water Management.....	26
5.5.3 Habitat Management.....	27
5.5.4 Managing Human Induced Impacts.....	28
5.6 Monitoring Initiatives.....	29
5.6.1 Monitoring Program Components	30
5.6.2 Implementing the Monitoring Program	31
6.0 The Concept Plan – Design Brief.....	32

7.0 Implementation Directions.....	35
7.1 Implementation Priorities.....	35
7.2 Options for Consolidating Land Holdings	36
7.2.1 Acquisition of Lands by the Township of King.....	37
7.2.2 Options for Implementing the Concept Plan in Partnership with Private Landowners	37
7.2.3 Potential Funding Opportunities.....	38
7.3 Description of Implementation Phases.....	40
7.4 Implementation Roles and Responsibilities	43
7.5 Implementation Cost Estimates.....	45
7.6 Summary	46

Appendix A: Dufferin Marsh Open Space Management Plan Natural Heritage Background Review – LGL Limited, June 2000
Appendix B: Photographic Inventory
Appendix C: Workshop Session Attendees
Appendix D: Workshop Presentation Panels
Appendix E: Bibliography

SCHEDULE OF FIGURES AND TABLES

Figure 1.0: The Study Site.....	2a
Figure 1.1: Ecological Sub-Units	2b
Table 2.1: Dufferin Marsh Property Ownership	3
Figure 2.0: Property Ownership.....	3a
Table 3.1: Dufferin Marsh Wildlife Summary	9
Figure 3.0: Concept Plan / Context Plan	34a
Figure 4.0: Concept Plan.....	34b
Figure 4.1: Phasing Plan	34c
Table 7.1: Potential Partnerships by Project Phase	44
Table 7.2: Implementation Cost Estimates by Phase.....	45