



Canada-United States-Ontario-Michigan Border Transportation Partnership

Environmental Overview Paper– Canadian Existing Conditions Volume 2

Natural Sciences

June 2005

Introduction

For the purposes of discussion, review and comment the individual Working Papers documenting the secondary source data collection process for the Preliminary Analysis Area (PAA) have been compiled into this Environmental Overview Paper (EOP June 2005).

This Environmental Overview Paper is comprised of two Volumes. Volume 1 contains the Social, Economic, Archaeological, Cultural Heritage, Acoustic and Vibration, Air Quality, Waste and Waste Management and Technical Considerations existing conditions information, and Volume 2 contains information pertaining to the Natural Environment existing conditions.

The EOP June 2005 documents the focused secondary source data collection process (data collection/sources; study area conditions; feature significance/sensitivity; and identification of data gaps), and provides a snapshot of Preliminary Analysis Area features, opportunities, and constraints. The EOP June 2005 is intended serve as a reference for the use of the project team, public and agencies and ultimately, with updates added during the Detroit River International Crossing Environmental Assessment Process, provide input data to the existing condition component of Environmental Assessment documentation.

Background

The Canada - U.S. – Ontario - Michigan Border Transportation Partnership (The Partnership) is composed of the U.S. Federal Highway Administration and Transport Canada representing the federal levels of government, and the Ontario Ministry of Transportation and the Michigan Department of Transportation representing the provincial/state level. The purpose of the Partnership is to improve the movement of people, goods, and services across the United States/Canadian border within the region of Southeast Michigan and Southwestern Ontario.

The partnership is moving forward with technical and environmental work leading to the selection of a new or expanded border crossing, to address cross-border transportation demands for a 30-year planning period.

The Ontario, Ministry of Transportation (MTO) is leading the Canadian work program in coordination with Transport Canada. The Michigan, Department of Transportation (MDOT), in coordination with the Federal Highways Administration (FHWA), is leading the U.S. work program.

This international transportation improvement project will require approvals from governments on both sides of the border. The Partnership has developed a coordinated process that will enable the joint selection of a recommended river crossing location that meets the requirements of *Ontario Environmental Assessment Act* (OEA), *Canadian Environmental Assessment Act* (CEAA), and *National Environmental Policy Act* (NEPA).

The goal of the partnership is to:

- obtain government approval for a new or expanded crossing with connections to the provincial highway system in Ontario and the interstate freeway system in Michigan, including provisions for processing plazas to improve traffic and trade movements at the Windsor-Detroit border;
- completion of comprehensive engineering to support approvals, property acquisition, design and construction; and,
- submit environmental assessment documents for approval by December 2007.

The Partnership completed a *Planning/Need and Feasibility Study* (P/NF) in January 2004 to address cross-border transportation demands for a 30-year planning period. Included in the documentation for that study was an Environmental Overview Report (as Amended January 2005) which provided an inventory of the existing condition in

a Focused Analysis Area. Subsequently, in accordance with the *Ontario Environmental Assessment Act*, MTO prepared and submitted in May 2004 an environmental assessment Terms of Reference to the Ontario Ministry of the Environment for review and approval. The Terms of Reference was approved by the Ontario Minister of the Environment on September 17, 2004. The Terms of Reference outlines the framework that MTO and Transport Canada will follow in completing the Detroit River International Crossing Environmental Assessment (DRIC EA).

As an initial step in the DRIC EA process and to build upon the work completed during the preparation of the Environmental Overview Report (as Amended January 2005), further in-depth secondary source data collection has been conducted. This work has been focused within the Preliminary Analysis Area (PAA) identified in the Environmental Overview Report (as Amended January 2005). The noted data collection effort has been documented in a series of Working Papers. Working Papers have been prepared for the following topics: social impact assessment; economic assessment; archaeological resources; cultural resources; natural heritage; acoustics and vibration; air quality; waste and waste management; and technical considerations.

The purpose of the Working Papers was to document the secondary source data collection process carried out by: describing the data collection/sources used; providing an overview of study area conditions; identifying the significance/sensitivity of features in the study area; identifying gaps in study area data, and to develop Work Plans.

The Work Plans were developed to: fill identified gaps in data; provide a scope for future work requirements; provide a rationale for data collection methodologies, data sources and methods of assessment; provide criteria, indicators and measures; provide consultation strategies; and integrate the work plans of other environmental factors/activities.

The Work Plans have been developed based on current knowledge of existing conditions within the PAA and therefore, should be considered to be living documents which will be subject to agency and public review. The partnership is aware that the assessment and evaluation of alternatives at all phases will require applying the requirements of three pieces of legislation, the *OEA*, *CEAA* and *NEPA*. Therefore, in preparing the Work Plans, the partnership has sought to integrate the most rigorous requirements.

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Appendix A. Working Vascular Plant Checklist

1. ENVIRONMENTAL OVERVIEW

Transport Canada (TC) and the Ontario Ministry of Transportation (MTO), in partnership with the United States Federal Highway Administration (FHWA) and the Michigan Department of Transportation (MDOT), are conducting a Route Planning, Preliminary Design and Environmental Assessment Study for the Canadian side of a new or expanded Detroit River International Crossing with a connection to a provincial freeway

The purpose of this document is to establish the existing environmental conditions in the Preliminary Analysis Area (PAA) (Figure 1) that will define the potential social, economic, and environmental constraints which may preclude or otherwise constrain the generation of feasible transportation alternatives. It will describe information and data that have been acquired and will offer a summary review of that information. It should be noted that the information in this document was gathered from secondary sources.



FIGURE 1. KEY PLAN OF THE PRELIMINARY ANALYSIS AREA

1.1

Natural Environment

The natural environment consists of features including, but not limited to, rivers, streams, wetlands, woodlands, wildlife habitat, and groundwater. It may also include features which have been modified by human activity, such as soils (tilling) or groundwater (irrigation, contamination) and which may be the object of government programs to protect, preserve, or rehabilitate them. The existing environmental conditions within the PAA are embodied within the following disciplines:

- Fisheries and Aquatic Ecosystems;
- Vegetation and Vegetation Communities;
- Wildlife and Wildlife Habitats; and
- Designated Natural Areas.

A secondary source information review of existing environmental conditions permits the identification of natural heritage areas and features of environmental sensitivity/significance, as well as gaps in the secondary source data.

2. DESCRIPTION OF THE PRELIMINARY ANALYSIS AREA

The Preliminary Analysis Area (PAA) is centered on the Detroit River and adjacent land areas in Canada and the United States. The Canadian area is roughly bounded by 9th Concession Road in the Town of Lakeshore, County Road 18 in the Town of Amherstburg on its southern extent, and by the Detroit River on its western and northern extent. The United States area is roughly bounded by Sibley Road at its southern extent, State Highway 24 (Telegraph Road) to the west, Eight Mile Road to the north and the Detroit River on its easterly extent. The PAA encompasses over 400 square miles.

The Canadian side of the PAA consists primarily of the urban area of the City of Windsor, the neighbouring Towns of LaSalle, Tecumseh and Amherstburg and a surrounding fringe of rural land uses. It is characterized by both heavily urbanized and intensive agricultural land uses that are interspersed with a patchwork of remnant natural heritage features, including wetlands, prairies, and woodlots.

On the United States side of the Detroit River, the PAA is an intensively developed urban area consisting of intermixed residential, commercial, and industrial areas. There are public parks, playgrounds, recreational areas, public works, schools, cemeteries, and military properties scattered throughout the area.

Underlying both the Canadian and U.S. sides of the Detroit River at a depth of approximately 350 meters (1200 feet) are extensive geological deposits of pure salt. These deposits were mined on the U.S. side from the 1890s to the 1980s. Mining of salt on the Canadian side also began in the 1890s and continues to the present day.

2.1 Brief History of the Preliminary Analysis Area

Canada

The Canadian side of the PAA is a mix of urban and agricultural uses and contains only a small percentage of its original natural features. During the mid to late 1600s, early records of European explorers described the area as characterized by open meadows (prairies), parklands, forest groves, and wetlands along the Detroit River. This diverse habitat exhibited an abundance of wildlife including elk, white tail deer, black bear, wild turkey, passenger pigeons, trumpeter swans and greater prairie chicken. In the early 1700s permanent European colonization began within the PAA on the west bank of the Detroit River with the construction of Fort Ponchartrain. Colonization on the south shore of the Detroit River (Canadian side) ensued in the mid 1700s at what was known as La Petite Cote, where the open terrain was an attraction for farming. Land grants continued into the 19th century and settlers were required to clear the forested land for farming. This requirement continued the alteration of the landscape of the Essex Region.

The arrival of the railroad in the mid 1800s accelerated the urbanization and development of the area. Many wildlife species were extirpated by the end of the century due to loss of habitat and harvest. Extensive loss of natural features continued into the 1900s; over 140,000 acres of forested land were cleared in Essex County by the 1950's. As a result, by the early 1980s approximately 96% of the regional wetlands and 95% of the original forest (Oldham 1983) had been lost.

United States

The City of Detroit dominates the PAA on the United States side. Beginning as a frontier fort over 300 years ago, the city evolved into a regional trade and commerce center. It began to develop heavy industries in the 1870s and became a center of manufacturing. Over the centuries it has been the site of many significant historical events, experienced extensive immigration, and has been the center of many sociological, technological, and economic developments. As a result Detroit, and the portions of adjoining municipalities that make up the PAA, are rich in cultural features of various types and significance.

As this cultural and economic development has progressed, the original natural environment has been extensively modified. Many of the original features such as wetlands, woodlands, wildlife habitat, floodplains, and streams have been very adversely affected or completely obliterated. A growing recognition of the degradation of these resources has led to increasing efforts by the federal, state, and local governments and citizens' groups to protect and rehabilitate those remaining

2.2

Context

The citizens and governments of Canada and the U.S. share many of the same environmental concerns and goals. At the national level, they have designated the Detroit River as a natural resource deserving of the attention and protection of both countries. The objectives of many of their environmental regulatory programs are the same or quite similar in most cases, though the approach and emphasis may differ in some aspects. Some of these differences in approach and emphasis are significant and may present both challenges and opportunities.

The geographical makeup of the PAA is also both similar and different. The Canadian PAA is dominated by a mix of urban and agricultural development. Remaining natural features have been identified or are being identified for protection. The U.S. side consists of an intensely developed urban and industrial area in which few natural features remain, but contains a large number of densely located cultural features.

2.3

Limitations

The information contained in this document was derived from a variety of available secondary sources, including public laws and agency guidelines, public agencies and local units of government, compilations of lists of facilities and features available on the Internet, and books and publications available from the public library. The level of detail available through these sources is deemed appropriate for the purposes of this paper. Those purposes are to identify social, economic, and natural environmental features in the PAA, to identify potential constraints represented by those features, and to assist in the evaluation of any cross border transportation alternatives which may be developed. It is recognized that the information gathered and documented in this overview is not sufficient for identifying and assessing impacts and potential mitigation measures for an environmental assessment/environmental impact study.

3. NATURAL ENVIRONMENT

The natural environment consists of features including, rivers, streams, wetlands, woodlands, wildlife habitat, soils and groundwater. It may also include features which have been modified by human activity, such as soils (tilling) or groundwater (irrigation, contamination) and which may be the object of government programs to protect, preserve, or rehabilitate them. The number of different types of natural environmental features is extensive, as is the number and variation of government programs to protect them. The magnitude, extent, and significance of any impact to a particular natural feature impact will depend upon the specific type of feature involved.

4. EXISTING DOCUMENTATION

A summary of the documentation made available to LGL Limited prior to April 4, 2005 for the preparation of this report is provided below.

City of Windsor. 2004a. The City of Windsor Official Plan. Volume 1: The Primary Plan. Office Consolidation: September 1, 2004. This document is the Official Plan of the City of Windsor. It provides general information about the plan and the City of Windsor, and outlines strategic directions, key management elements, civic image, and implementation of the plan. It provides a number of land use schedules for the city.

City of Windsor. 2004b. The City of Windsor Official Plan. Volume 2: Special Policy Areas and Secondary Plans. Office Consolidation: September 1, 2004. This document includes Special Policy Areas and Secondary Plans not covered in the City of Windsor Official Plan, Volume 1. It provides information on the City of Windsor Special Policy Areas and discusses the Secondary Plans for East Riverside, North Roseland, South Cameron, Spring Garden and Forest Glade North Planning Areas. Land use and zoning maps are provided for each of these Secondary Plan Areas.

City of Windsor. 1992. City of Windsor Candidate Natural Heritage Site Biological Inventory Evaluation Report. Prepared by Essex Region Conservation Authority and the City of Windsor Department of Planning and Department of Parks and Recreation. December 1992. 212 pp. The City of Windsor initiated a Natural Heritage Site Inventory Study in response to a request from Windsor City Council that a city-wide inventory of all remaining private and public natural areas be undertaken to determine if these natural areas should be designated and retained as open space. This report outlines the evaluation criteria used for this inventory and provides a summary and map for each of the 38 Candidate Natural Heritage Sites that were established as a result of this inventory.

COSEWIC. 2004. Canadian Species at Risk, November 2004. Committee on the Status of Endangered Wildlife in Canada. 58 pp. This document provides a summary of the COSEWIC mandate, COSEWIC membership, current definitions for species status and outlines the status of species in Canada current to November 2004 for Extinct, Extirpated, Endangered, Threatened, Special Concern, Not at Risk and Data Deficient species. In addition this document provides the records of status reassessments for each species that has been reassessed by COSEWIC and provides current common names and/or scientific names for species that have recently had their names changed.

Corporation of the Town of Amherstburg. 1999. The Corporation of the Town of Amherstburg Official Plan. Prepared by Monteith Zelinka Priamo Limited. Office Consolidation: July 6, 1999. This document is the official plan for the Town of Amherstburg. It provides general information about the plan, land use management strategy, land use policies, transportation policies, development policies and implementation and interpretation of the plan. It provides a number of land use schedules for the Town.

Detroit River Canadian Cleanup Committee. 1999. Detroit River Update Report. Great Lakes Institute for Environmental Research. Windsor, Ontario. November 1999. This report summarizes the progress that has been made on the Detroit River since the production of the Detroit River Remedial Action Plan (RAP) Stage 2 report. It provides an overview of the environmental state of the Detroit River, summarizes known pollutant inputs, and provides an assessment of the water quality and sediment in the river as well as the contaminant levels in fish and birds.

Detroit River Management Strategy Committee and the Essex Region Conservation Authority. 2001. A Management Strategy for the Detroit River As A Canadian Heritage River. October 2000. 37 pp. This report provides information on the management strategy for the Detroit River as a Canadian Heritage River within the Canadian Heritage River System. It discusses the benefits of designation, the vision for the Detroit River and implementation of strategies for the Detroit River as a Canadian Heritage River.

Detroit River Management Strategy Committee and the Essex Region Conservation Authority. 1998. Detroit River Background Report. 149 pp. + appendices. This report provides information on the Detroit River, including a geographical description, historical summary of the human heritage associated with the Detroit River, current recreational values, and the natural heritage surrounding the Detroit River. This document also includes an extensive summary of references for the Detroit River. Information is also provided on the process by which a river becomes a Canadian Heritage River and shows the Canadian Heritage River System across Canada.

Essex Region Conservation Authority. 1994. Environmentally Significant Areas Status Update. Unpublished report. Essex Region Conservation Authority. This document serves as an update to Oldham (1983), and provides details on additional Environmentally Significant Areas in Essex Region. These ESAs met at least two of the ten evaluation criteria during 1991/1992 field surveys. Evaluation criteria included: significant landforms; linkage systems; migratory stopover; significant communities; hydrological significance; diversity; number of significant species; research/education; aesthetic/historical value; and, size.

Government of Canada. 2005. Species at Risk Act Public Registry. Government of Canada. http://www.sararegistry.gc.ca/gen_info/default_e.cfm. Last updated March 1, 2005. This website provides details on species regulated under the *Species at Risk Act*, including information on which of the three schedules the species is listed under.

MDNR and MOE. 1996. 1996 Detroit River Remedial Action Plan Report. Sarnia, Ontario and Lansing, Michigan. 420 pp. This report is a draft of the Detroit River Remedial Action Plan Stage 2 report, which was never officially adopted as RAP Stage 2. It provides a summary of the Detroit River areas of concern, outlines the RAP process and water use goals, provides recommendations, and discusses implementation of the

RAP. Detailed information is provided on Detroit River Habitat, Contaminated Sediments, Point/Non-Point Source and Combined Sewer Overflows.

MDNR and MOE. 1991. Detroit River Remedial Action Plan. Stage 1. Sarnia, Ontario and Lansing, Michigan. June 3, 1991. 504 pp. This report is Stage 1 of the Detroit River Remedial Action Plan (RAP). It outlines the Remedial Action Plan process, provides an environmental description of the Detroit River and discusses the impairment of beneficial uses of the Detroit River, including restrictions on fish consumption, tumors in fish, degraded benthic communities, contaminants in sediments, taste and odor problems, bacteriological water quality, contaminants in ambient water, degradation of aesthetics, loss of fish and wildlife habitat, and the causes of these use impairments.

NHIC. 2004. Species Lists. Natural Heritage Information Centre, Ministry of Natural Resources. http://nhic.mnr.gov.on.ca/species/species_list.cfm. Last updated December 7, 2004. This website provides details on the current COSEWIC and MNR rankings as well as tracking information on species in Ontario.

Oldham, M. J. 1999. Presence of rare vascular plants in Essex County ESA sites. Natural Heritage Information Centre, Peterborough. Unpublished list. 9 pp. This document provides a list of vascular plant species that occur in the County of Essex and provides a local ranking for each species. Species ranks include 'Common', 'Uncommon', 'Very Uncommon' and 'Rare' for species native to the County and a similar set of ranks for species introduced to the County.

Oldham, M. J. 1994. Spring Garden Road Plant List. Natural Heritage Information Centre, Peterborough. Unpublished list. 7 pp. This document provides a preliminary list of vascular plant species that occur in Spring Garden Road ANSI.

Oldham, M. J. 1983. Environmentally Significant Areas of the Essex Region. Essex Region Conservation Authority, Essex, Ontario. 426 pp. This document provides a summary of all of the Environmentally Significant Areas of Essex Region that met at least two of the ten evaluation criteria during 1981/1982 field surveys. Evaluation criteria included: significant landforms; linkage systems; migratory stopover; significant communities; significant habitats; diversity; number of significant species; research/education; aesthetic/historical value; and, size.

OMNR. 2004a. Natural Resources and Values Information System. Digital data for the City of Windsor and the Towns of LaSalle, Tecumseh and Amherstburg. Provided to LGL Limited on April 4, 2005. This data provides information on the names, locations and boundaries of Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs) in the study area.

OMNR. 2004b. Species at Risk in Ontario List, April 26, 2004. Ontario Ministry of Natural Resources, Species at Risk Section. 8 pp. This document provides a list of official status designations assigned to native Ontario species by the Ontario Ministry of Natural Resources as well as clarification on the process involved in assigning status to species. This document also provides information on the *Endangered Species Act* and *Planning Act* with regards to the listed species. A summary of species with differing federal and provincial status is also provided.

OMNR. 2002. Ojibway Prairie Park Management Plan. Ontario Ministry of Natural Resources, Chatham Area Office. 9 pp. This document outlines the management plan for the Ojibway Prairie Park Nature Reserve in the City of Windsor and the Town of LaSalle. It discusses the park boundary, objectives, zoning, resource stewardship

policies, operations policies, development policies and implementation priorities for the park.

OMNR. 1998. Natural Resources and Values Information System. Digital data for the City of Windsor and the Towns of LaSalle, Tecumseh and Amherstburg. Provided to LGL Limited on April 4, 2005. This data provides information on the names, locations and boundaries of Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs) in the study area.

OMNR. 1997. Resource Management Plan for Ojibway Prairie Provincial Nature Reserve (Ontario Parks). Ontario Ministry of Natural Resources, Chatham Area Office. 26 pp. + maps. This document outlines the resource management plan for the Ojibway Prairie Nature Reserve in the City of Windsor and the Town of LaSalle. It discusses site history, vegetative features, prairie management techniques, management prescriptions, data collection and maintenance, fauna, the public awareness program, seed collection and future studies within the park.

Parker, B. and J. Dawson. 1984. Wetland Data Record and Evaluation – Canard River. Second Edition. Ontario Ministry of Natural Resources. 1984. Manuscript. 12 pp. + 2 pp. supplement. The manuscript provides qualitative and quantitative details of the biological, social and hydrological features of this wetland, as well as details on the rarity and/or scarcity of the wetland type based on the presence of significant species, breeding and/or feeding areas, migratory stopovers, etc., and includes the wetland mapping derived from fieldwork.

Town of LaSalle. 2003. Town of LaSalle Official Plan. Prepared by Prince, Silani and Associates Limited. Office Consolidation: November 4, 2003. This document is the Official Plan for the Town of LaSalle. It outlines the basis of the plan, general development policies, land use, secondary plans, land division policies, municipal services, and implementation and interpretation of the plan. It provides a number of land use schedules for the Town.

Town of LaSalle. 1996. Candidate Natural Heritage Area Biological Inventory and Land Use Planning Policy Direction Discussion Paper No. 1. Prepared by Prince, Silani and Associates Limited. April 1996. 103 pp. The Town of LaSalle initiated a comprehensive biological inventory of the town's remaining natural heritage areas in response to a request from Council that an inventory of all remaining private and public natural areas be undertaken to determine if these natural areas should be designated and retained as open space. This report outlines the evaluation criteria used for this inventory, and provides a summary and map for each of the 27 Candidate Natural Heritage Sites that were established as a result of this inventory.

Town of Tecumseh. 2004. St. Clair Beach Official Plan. Prepared by the Town of Tecumseh. Office Consolidation: April 2004. This document is the Official Plan for the former Village of St. Clair Beach, now a part of the Town of Tecumseh. It outlines the purpose and basis of the plan, general development policies, land use, municipal services, land division policies, community improvement policies, and implementation and interpretation of the plan. It provides a land use schedule and shows flood susceptible locations in this former village, and is a portion of the current Town of Tecumseh Official Plan.

Town of Tecumseh. 2003. Sandwich South Official Plan. Prepared by the Town of Tecumseh. Office Consolidation: July 2003. This document is the Official Plan for the

former Township of Sandwich South, now a part of the Town of Tecumseh. It outlines the purpose and basis of the plan, general development policies, land use, land division policies, municipal services, and implementation and interpretation of the plan. It provides a number of land use schedules for this former township and is a portion of the current Town of Tecumseh Official Plan.

Town of Tecumseh. 2000. Tecumseh Official Plan. Prepared by the Town of Tecumseh. Office Consolidation: January 2000. This document is the Official Plan for the former Town of Tecumseh, now a part of the new Town of Tecumseh, which also includes the former Township of Sandwich South and the Village of St. Clair Beach. It outlines the goals and objectives of the plan, land use policy, transportation policy, municipal services policy, development policy, community improvement, and implementation and interpretation of the plan. It provides a number of land use schedules for this former town and is a portion of the current Town of Tecumseh Official Plan.

URS Canada Inc. 2005. Canada - United States - Ontario - Michigan Border Transportation Partnership Planning/Need and Feasibility Study: Environmental Overview Report (Amended). Prepared by URS Canada Inc. January, 2005. This document provides a general description of the existing environmental conditions of the Preliminary Analysis Area, including socio-economic details, air quality and noise, cultural environment, natural environment, and the locations of landfills and hazardous waste.

Woodliffe, P. A. 1994. Spring Garden Road Prairie. OMNR, Chatham. Unpublished letter. 3 pp. + map. This letter provides a summary of the features of the Spring Garden Road Prairie.

Wormington, A. and D. Fraser. 1985a. Wetland Data Record and Evaluation - Detroit River Marshes. Second Edition. August, 1985. Ontario Ministry of Natural Resources. Manuscript. 22 p + 15 maps + 27 pp supplement. The manuscript provides qualitative and quantitative details of the biological, social and hydrological features of this wetland, as well as details on the rarity and/or scarcity of the wetland type based on the presence of significant species, breeding and/or feeding areas, migratory stopovers, etc., and includes the wetland mapping derived from fieldwork.

Wormington, A. and D. Fraser. 1985b. Wetland Data Record and Evaluation – Fighting Island. Second Edition. August 1985. Ontario Ministry of Natural Resources. Manuscript. 22 pp. + 1 map + 6 pp. supplement. The manuscript provides qualitative and quantitative details of the biological, social and hydrological features of this wetland, as well as details on the rarity and/or scarcity of the wetland type based on the presence of significant species, breeding and/or feeding areas, migratory stopovers, etc., and includes the wetland mapping derived from fieldwork.

Wormington, A. and D. Fraser. 1985c. Wetland Data Record and Evaluation – Turkey Creek. Second Edition. August 1985. Ontario Ministry of Natural Resources, Chatham. Manuscript. 22 pp. + 2 maps + 3 pp. supplement. The manuscript provides qualitative and quantitative details of the biological, social and hydrological features of this wetland, as well as details on the rarity and/or scarcity of the wetland type based on the presence of significant species, breeding and/or feeding areas, migratory stopovers, etc., and includes the wetland mapping derived from fieldwork.

5. EXISTING CONDITIONS

The following section outlines the existing environmental conditions within the PAA and identifies natural heritage areas and/or features of environmental sensitivity and/or significance based on secondary source information made available to LGL Limited prior to April 4, 2005. This section will be updated regularly as more secondary source information is made available.

5.1. Fisheries and Aquatic Ecosystems

The study area encompasses a very large area of Essex County and, in addition to the Detroit River, includes the five main subwatersheds:

- Pike Creek;
- Little River;
- Turkey Creek;
- Big Creek; and,
- Canard River.













The locations of these watercourses are presented in Figures 2A through 2F.

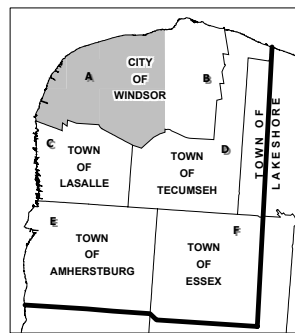
Heavy impacts associated with agricultural and/or urban development affect all of these subwatersheds (URS 2005). These impacts include both physical (e.g., channelization, barriers) and chemical (e.g., metals, organic compounds, nutrients) factors (URS 2005; MDNR and MOE 1991). Despite these impacts, the fish communities in these subwatersheds are relatively diverse and most stations sampled historically were found to contain fish (URS 2005). The fish communities found in each of these subwatersheds, as well as in the Detroit River, are discussed below.

Fish species found in the Detroit River are documented by Manny et al. 1988 (in MDNR and MOE 1991). A summary of the fish species known to inhabit the Detroit River is presented in Table 1. Fish communities in the subwatersheds of the Detroit River have been sampled historically by the OMNR (1978; 1979; 1980; 1984), the ERCA (1999; 2000; 2001) and others (Gartner Lee 2001). Fish occurrence records for the five inland watersheds and one municipal drain that were provided by the Essex Region Conservation Authority (ERCA) are summarized in Table 2.

The Detroit River and the inland subwatersheds within the study area fall under the jurisdiction of the ERCA and the Ontario Ministry of Natural Resources (OMNR) Aylmer District.

LEGEND

-  Study Area Boundary
-  Municipal Boundary
-  Warmwater Aquatic Habitat
-  Potential Warmwater Aquatic Habitat
-  Watercourse
-  Waterbody
-  Provincially Significant Wetland
-  Candidate Natural Heritage Site
-  Environmentally Significant Area
-  Environmental Policy Area
-  Area of Natural and Scientific Interest
-  Fish Sampling Location



Data Sources: Essex Region Conservation Authority, City of Windsor, Town of LaSalle, Ontario Ministry of Natural Resources.

**NATURAL HERITAGE
CITY OF WINDSOR (WEST)**















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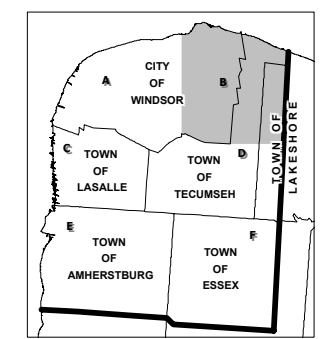
Project: TA4137	Figure: 2A
Date: March 2005	Prepared By: MWF
Scale: 1 : 44,500	Checked By: GNK





LEGEND

-  Study Area Boundary
-  Municipal Boundary
-  Warmwater Aquatic Habitat
-  Potential Warmwater Aquatic Habitat
-  Watercourse
-  Waterbody
-  Provincially Significant Wetland
-  Candidate Natural Heritage Site
-  Environmentally Significant Area
-  Environmental Policy Area
-  Area of Natural and Scientific Interest
-  Fish Sampling Location



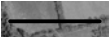











Data Sources: Essex Region Conservation Authority, City of Windsor, Town of LaSalle, Ontario Ministry of Natural Resources.

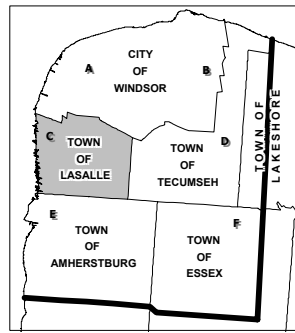
**NATURAL HERITAGE
CITY OF WINDSOR (EAST),
TOWN OF TECUMSEH (NORTH)
AND TOWN OF LAKESHORE
(NORTH-WEST)**



Project: TA4137	Figure: 2B
Date: March 2005	Prepared By: MWF
Scale: 1 : 44,500	Checked By: GNK

LEGEND

-  Study Area Boundary
-  Municipal Boundary
-  Warmwater Aquatic Habitat
-  Potential Warmwater Aquatic Habitat
-  Watercourse
-  Waterbody
-  Provincially Significant Wetland
-  Candidate Natural Heritage Site
-  Environmentally Significant Area
-  Environmental Policy Area
-  Area of Natural and Scientific Interest
-  Fish Sampling Location



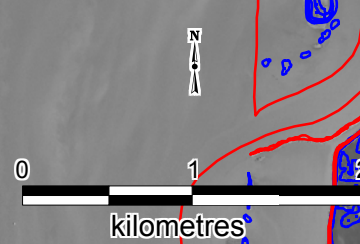
Data Sources: Essex Region Conservation Authority, City of Windsor, Town of LaSalle, Ontario Ministry of Natural Resources.

**NATURAL HERITAGE
TOWN OF LASALLE**



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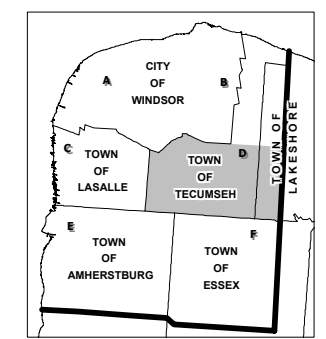
Project: TA4137	Figure: 2C
Date: March 2005	Prepared By: MWF
Scale: 1 : 44,500	Checked By: GNK





LEGEND

- Study Area Boundary
- Municipal Boundary
- Warmwater Aquatic Habitat
- Potential Warmwater Aquatic Habitat
- Watercourse
- Waterbody
- Provincially Significant Wetland
- Candidate Natural Heritage Site
- Environmentally Significant Area
- Environmental Policy Area
- Area of Natural and Scientific Interest
- Fish Sampling Location






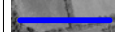







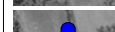
Data Sources: Essex Region Conservation Authority, City of Windsor, Town of LaSalle, Ontario Ministry of Natural Resources.

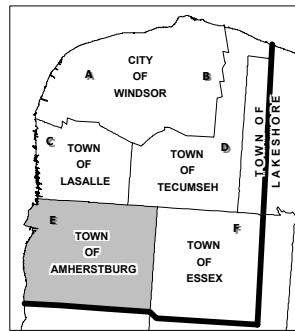
**NATURAL HERITAGE
TOWN OF TECUMSEH
(SOUTH) AND TOWN OF
LAKESHORE (SOUTH-WEST)**



Project: TA4137	Figure: 2D
Date: March 2005	Prepared By: MWF
Scale: 1 : 44,500	Checked By: GNK

LEGEND

-  Study Area Boundary
-  Municipal Boundary
-  Warmwater Aquatic Habitat
-  Potential Warmwater Aquatic Habitat
-  Watercourse
-  Waterbody
-  Provincially Significant Wetland
-  Candidate Natural Heritage Site
-  Environmentally Significant Area
-  Environmental Policy Area
-  Area of Natural and Scientific Interest
-  Fish Sampling Location



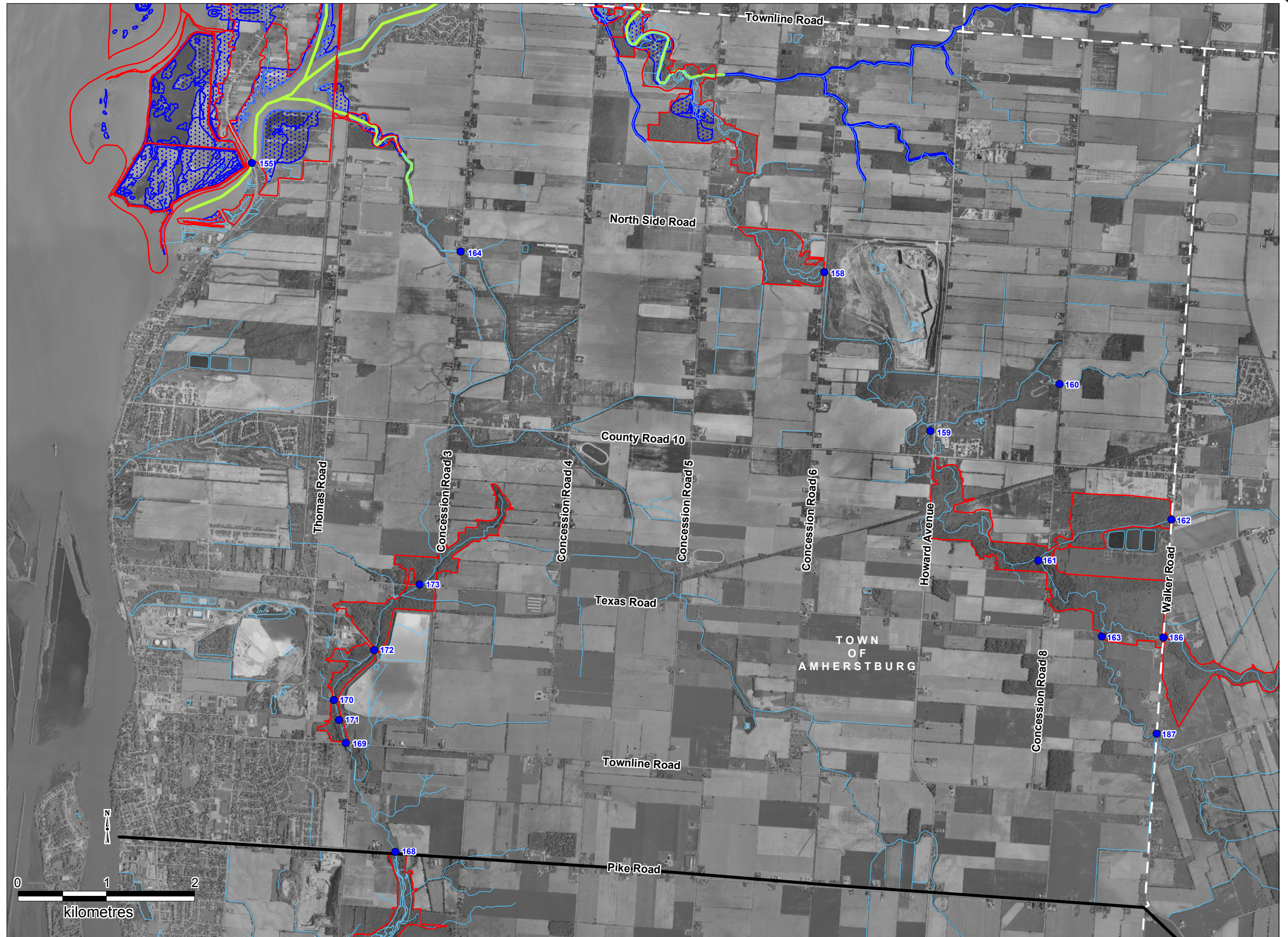
Data Sources: Essex Region Conservation Authority, City of Windsor, Town of LaSalle, Ontario Ministry of Natural Resources.

**NATURAL HERITAGE
TOWN OF AMHERSTBURG**





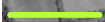
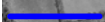



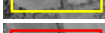




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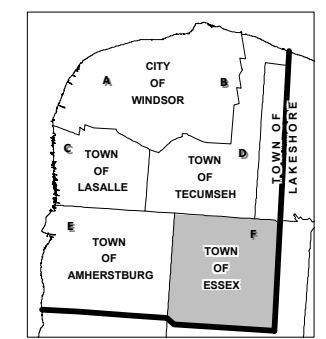
Project: TA4137	Figure: 2E
Date: March 2005	Prepared By: MWF
Scale: 1 : 44,500	Checked By: GNK





LEGEND

-  Study Area Boundary
-  Municipal Boundary
-  Warmwater Aquatic Habitat
-  Potential Warmwater Aquatic Habitat
-  Watercourse
-  Waterbody
-  Provincially Significant Wetland
-  Candidate Natural Heritage Site
-  Environmentally Significant Area
-  Environmental Policy Area
-  Area of Natural and Scientific Interest
-  Fish Sampling Location



Data Sources: Essex Region Conservation Authority, City of Windsor, Town of LaSalle, Ontario Ministry of Natural Resources.

**NATURAL HERITAGE
TOWN OF ESSEX**



Project: TA4137	Figure: 2F
Date: March 2005	Prepared By: MWF
Scale: 1 : 44,500	Checked By: GNK

TABLE 1. FISH SPECIES OCCURRENCE RECORDS FOR THE DETROIT RIVER

Scientific Name	Common Name	COSEWIC	OMNR	Provincial Status	Legal Status
<i>Petromyzon marinus</i>	sea lamprey			SE	
<i>Acipenser fulvescens</i>	lake surgeon			S3	
<i>Lepisosteus oculatus</i>	spotted gar	THR	THR	S2	SARA(1), PPS
<i>Lepisosteus osseus</i>	longnose gar			S4	
<i>Amia calva</i>	bowfin			S4	
<i>Anguilla rostrata</i>	American eel			S5	
<i>Alosa pseudoharengus</i>	alewife			SE	
<i>Dorosoma cepedianum</i>	gizzard shad			S4	
<i>Hiodon tergisus</i>	mooneye			S4	
<i>Oncorhynchus tshawytscha</i>	chinook salmon			SE	
<i>Oncorhynchus kisutch</i>	coho salmon			SE	
<i>Oncorhynchus gorbuscha</i>	pink salmon			SE	
<i>Oncorhynchus mykiss</i>	rainbow trout			SE	
<i>Salmo trutta</i>	brown trout			SE	
<i>Salvelinus namaycush</i>	lake trout			S5	
<i>Coregonus clupeaformis</i>	lake whitefish			S5	
<i>Osmerus mordax</i>	rainbow smelt			S5	
<i>Esox lucius</i>	northern pike			S5	
<i>Esox masquinongy</i>	muskellunge			S4	
<i>Carrasius auratus</i>	goldfish			SE	
<i>Cyprinus carpio</i>	common carp			SE	
<i>Macrhybopsis storeriana</i>	silver chub	SC	SC	S2	SARA(1)
<i>Notemigonus crysoleucas</i>	golden shiner			S5	
<i>Notropis atherinoides</i>	emerald shiner			S5	
<i>Opsopoeodus emiliae</i>	pugnose minnow	SC	SC	S2	SARA(1)
<i>Notropis heterolepis</i>	blacknose shiner			S5	
<i>Notropis hudsonius</i>	spottail shiner			S4	
<i>Notropis stramineus</i>	sand shiner			S4	
<i>Notropis volucellus</i>	mimic shiner			S5	
<i>Carpionodes cyprinus</i>	quillback			S4	
<i>Catostomus catostomus</i>	longnose sucker			S5	
<i>Catostomus commersoni</i>	white sucker			S5	

TABLE 1. FISH SPECIES OCCURRENCE RECORDS FOR THE DETROIT RIVER

Scientific Name	Common Name	COSEWIC	OMNR	Provincial Status	Legal Status
<i>Hypentelium nigricans</i>	northern hog sucker			S4	
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	SC	SC	SU	SARA(3)
<i>Ictiobus bubalus</i>	smallmouth buffalo				
<i>Minytrema melanops</i>	spotted sucker	SC	SC	S2	SARA(1)
<i>Moxostoma</i> sp.	redhorse (unidentified)				
<i>Moxostoma anisurum</i>	silver redhorse			S4	
<i>Moxostoma erythrurum</i>	golden redhorse			S4	
<i>Moxostoma macrolepidotum</i>	shorthead redhorse			S5	
<i>Moxostoma carinatum</i>	river redhorse	SC	SC	S2	SARA(3)
<i>Ameiurus natalis</i>	yellow bullhead			S4	
<i>Ameiurus melas</i>	black bullhead			S4	
<i>Ameiurus nebulosus</i>	brown bullhead			S5	
<i>Ictalurus punctatus</i>	channel catfish			S4	
<i>Noturus flavus</i>	stonecat			S4	
<i>Percopsis omiscomaycus</i>	trout-perch			S5	
<i>Lota lota</i>	burbot			S5	
<i>Labidesthes sicculus</i>	brook silverside			S4	
<i>Myoxocephalus quadricornis</i>	four horn sculpin			S2?	
<i>Morone americana</i>	white perch			SE	
<i>Morone chrysops</i>	white bass			S4	
<i>Ambloplites rupestris</i>	rock bass			S5	
<i>Lepomis cyanellus</i>	green sunfish			S4	
<i>Micropterus salmoides</i>	largemouth bass			S5	
<i>Micropterus dolomieu</i>	smallmouth bass			S5	
<i>Lepomis macrochirus</i>	bluegill			S5	
<i>Lepomis gibbosus</i>	pumpkinseed			S5	
<i>Pomoxis nigromaculatus</i>	black crappie			S4	
<i>Pomoxis annularis</i>	white crappie			S4	
<i>Percina caprodes</i>	logperch			S5	
<i>Perca flavescens</i>	yellow perch			S5	
<i>Sander canadense</i>	sauger			S4	
<i>Sander vitreus</i>	walleye			S5	
<i>Aplodinotus grunniens</i>	freshwater drum			S5	

TABLE 1 LEGEND**COSEWIC (Committee on the Status of Endangered Wildlife in Canada):**

END Endangered
 THR Threatened
 SC Special Concern

Provincial:

S1 Extremely Rare
 S2 Very Rare
 S3 Rare to Uncommon
 S4 Common
 S5 Very Common
 SE Exotic
 SU Unrankable, more data needed
 S2? Ranking uncertain

OMNR (Ontario Ministry of Natural Resources):

END Endangered
 THR Threatened
 SC Special Concern

Legal Status:

SARA *Species at Risk Act* – Schedules (1), (2), (3)
 ESA *Endangered Species Act*
 FWCA *Fish and Wildlife Conservation Act*
 (P) Protected Species
 (G) Game Species
 (F) Furbearing Mammals
 PPS Species afforded habitat protection under the Provincial Policy Statement of the *Planning Act*

TABLE 2. FISH SPECIES OCCURRENCE RECORDS FOR THE PAA WATERSHEDS, EXCLUDING THE DETROIT RIVER

Scientific Name	Common Name	COSEWIC	OMNR	Provincial Status	Legal Status	Watershed					
						Marantette Drain	Pike Creek	Little River	Turkey Creek	Big Creek	Canard River
<i>Alosa pseudoharengus</i>	alewife			SE							156
<i>Dorosoma cepedianum</i>	gizzard shad			S4			110,112b		154	168a	155,156,159,160,163ab,164b, 188a
Hiodontidae	mooneye family						111				
<i>Umbra limi</i>	central mudminnow			S5			116b,119	139,140c,143,144	152		193,194a
Umbridae	mudminnow family										188b
<i>Esox americanus</i>	grass pickerel			S3							191a
<i>Esox lucius</i>	northern pike			S5			111,112a,115,117,124	140c,143		173a	194a
<i>Carassius auratus</i>	goldfish			SE			112a,119	136,137ab,140a	152,153	168b,169b, 173b	156,157,163ab,186ab,188b,192,193
<i>Cyprinus carpio</i>	common carp			SE			112a,113,114,116a,121	136,137a,138b,140a	152	168ab,169a,171,172,173a	156,157,159,161,163ab,186a,187b,189,191a,192,193
<i>Notemigonus crysoleucas</i>	golden shiner			S5			112b,115		152		163b,187b,189
<i>Semotilus atromaculatus</i>	creek chub			S5			112,114,116b,119,120,123,124,125	136,137ab,138ab,139,140abcd,144			189,191b,192,193,194ab
<i>Nocomis biguttatus</i>	hornyhead chub	NAR	NAR	S4				136			
<i>Luxilus chrysocephalus</i>	striped shiner	NAR	NAR	S4			112b	136,137b,139,140d	152		191
<i>Luxilus cornutus</i>	common shiner			S5				136,137ab,138b,140bcd			

TABLE 2. FISH SPECIES OCCURRENCE RECORDS FOR THE PAA WATERSHEDS, EXCLUDING THE DETROIT RIVER

Scientific Name	Common Name	COSEWIC	OMNR	Provincial Status	Legal Status	Watershed					
						Marantette Drain	Pike Creek	Little River	Turkey Creek	Big Creek	Canard River
<i>Cyprinella spliloptera</i>	spotfin shiner			S5			112b,113, 114,119, 121,123, 124	137b,139, 140d,145	152		
<i>Pimephales promelas</i>	fathead minnow			S5			112b,114, 115,116b, 121	136,137ab, 138ab,139, 140bd	150,151, 152, 153	168b,169 b, 173b	156,162,187b, 188a,190,191b, 194ab
<i>Pimephales notatus</i>	bluntnose minnow	NAR	NAR	S5			111,112b, 113,114, 117,119, 120,121, 123	136,137ab, 138ab,139, 140abcd, 145	152,154		158b,159,161, 162,163ab,164ab, 186ab,187a,190, 191b,193,194a
<i>Notropis atherinoides</i>	emerald shiner			S5			112b,116b, 119	137a	150,152		164a
<i>Notropis hudsonius</i>	spottail shiner			S4				138b		168b	191b
Cyprinidae	minnow family							138b	152,153		
<i>Carpionodes cyprinus</i>	quillback			S4				136,140b			186a
<i>Catostomus commersoni</i>	white sucker			S5			112ab,113, 114,116b, 117,119, 120,125	137a, 138ab,139, 140acd,143	152		156,158a,160, 161,189,192, 193,194b
<i>Minytrema melanops</i>	spotted sucker	SC	SC	S2							189
<i>Ameiurus natalis</i>	yellow bullhead			S4		76		136			157,163a
<i>Ameiurus melas</i>	black bullhead			S4			114	136	152	168a,169 a	156,157,159,161, 163ab,188a,189, 193,194a
<i>Ameiurus nebulosus</i>	brown bullhead			S5							186a
<i>Noturus gyrinus</i>	tadpole madtom			S4			110				159,187b,163a, 193

TABLE 2. FISH SPECIES OCCURRENCE RECORDS FOR THE PAA WATERSHEDS, EXCLUDING THE DETROIT RIVER

Scientific Name	Common Name	COSEWIC	OMNR	Provincial Status	Legal Status	Watershed					
						Marantette Drain	Pike Creek	Little River	Turkey Creek	Big Creek	Canard River
<i>Fundulus diaphanus</i>	banded killifish	NAR	NAR	S5			119	136,138b, 139, 140bcd, 143			
<i>Cottus bairdi</i>	mottled sculpin			S5			117				
<i>Morone chrysops</i>	white bass			S4							186,191a
<i>Morone americana</i>	white perch			SE							186a
<i>Pomoxis nigromaculatus</i>	black crappie			S4			110,111				156,160
<i>Pomoxis annularis</i>	white crappie			S4			110				156,163a,186a, 189
<i>Ambloplites rupestris</i>	rock bass			S5			111,119	137b,139, 140d	152		
<i>Micropterus salmoides</i>	largemouth bass			S5			112b,114, 121,124, 125	137b,140d	152,154		161,163b,189
<i>Micropterus dolomieu</i>	smallmouth bass			S5				136			
<i>Lepomis cyanellus</i>	green sunfish	NAR	NAR	S4		76	110,112b, 114,115, 116a,119, 123,125	137ab	150,151, 152	168a, 169ab,17 3a	157,158a,162, 163ab,164b, 186ab,188ab, 191ab,193,194a
<i>Lepomis macrochirus</i>	bluegill			S5			110,112b, 114, 124		154		157,163a,18b7, 189
<i>Lepomis gibbosus</i>	pumpkinseed			S5			110,111, 112b,114, 116a,119, 125	136,138b, 140bd,145	152,153		159,160,164a, 189,192,194b
<i>Lepomis megalotis</i>	longear sunfish	NAR	NAR	S3							187b
<i>Lepomis humilis</i>	orangespotted sunfish	SC	SC	SE							161,163ab,186ab
Centrarchidae	sunfish family								154,155		159,161,193
<i>Perca flavescens</i>	yellow perch			S5			110,111			168a	156
<i>Percina maculata</i>	blackside darter			S4			114				161,163a,186a, 189,191b

TABLE 2. FISH SPECIES OCCURRENCE RECORDS FOR THE PAA WATERSHEDS, EXCLUDING THE DETROIT RIVER

Scientific Name	Common Name	COSEWIC	OMNR	Provincial Status	Legal Status	Watershed					
						Marantette Drain	Pike Creek	Little River	Turkey Creek	Big Creek	Canard River
<i>Etheostoma nigrum</i>	johnny darter			S5							161,163ab,186b,187a,189,191b, 193
Gobiidae	goby family			SE			112b	136,137b,140cd			

TABLE 2 LEGEND

COSEWIC (Committee on the Status of Endangered Wildlife in Canada):

END Endangered
 THR Threatened
 SC Special Concern

Provincial:

S1 Extremely Rare
 S2 Very Rare
 S3 Rare to Uncommon
 S4 Common
 S5 Very Common
 SE Exotic
 SU Unrankable, more data needed
 S2? Ranking uncertain

Station information (all data provided by ERCA):

MNR (January 1978) 111, 112a, 116a
 MNR (June 1979) 115, 158a, 164a
 MNR (January 1980) 155, 156, 159, 164b, 168a, 169a, 171, 172, 173a, 194a
 MNR (January 1984) 137a, 138a, 140a, 187a, 188a
 MNR (no date) 110, 160

OMNR (Ontario Ministry of Natural Resources):

END Endangered
 THR Threatened
 SC Special Concern

Legal Status:

SARA *Species at Risk Act* – Schedules (1), (2), (3)
 ESA *Endangered Species Act*
 FWCA *Fish and Wildlife Conservation Act*
 (P) Protected Species
 (G) Game Species
 (F) Furbearing Mammals
 PPS Species afforded habitat protection under the Provincial Policy Statement of the *Planning Act*

Gartner Lee (April 2001) 76, 117, 119, 120, 121, 123, 143, 144, 145
 ERCA (November 1999) 112b, 114, 187b, 189, 190, 192, 193, 194b
 ERCA (May 2000) 136, 140b, 152, 153, 158b, 161, 186a, 191a
 ERCA (April 2001) 112c, 113, 116b, 117, 119, 120, 121, 123, 150, 151, 168b, 169b, 173b, 186b, 191b
 ERCA (August 2001) 140c, 154, 163a
 ERCA (November 2001) 124, 125, 137b, 140d, 163b, 188b
 ERCA (no date) 138b, 139, 157, 162

5.1.1. Pike Creek

The watercourses within this watershed were sampled at 16 stations historically (Table 2), with one station sampled twice (17 sampling events). Fish were collected at all but two stations. Available mapping indicates that the watercourses within this watershed, which flow generally north into Lake St. Clair, are in a relatively natural state (i.e., excessive channelization is not evident). A total of 28 species were collected from the Pike Creek watershed, including several sportfish. Fish were well distributed throughout the watershed and the number of species varied from three to 16 per station. Sportfish were collected from 12 of the 14 stations at which fish were present, which indicates that good habitat conditions exist throughout the watershed.

5.1.2. Little River

The Little River flows in a northerly direction and discharges into the upstream end of the Detroit River near Peche Island. Much of the watercourse appears to be heavily channelized with few areas in a natural state. The upper portion of the watershed consists of channelized ditches that parallel the concession roads to the southeast of the Windsor Airport. This watershed was sampled for fish 19 times at 14 locations, and no fish were captured at six locations. These locations at which no fish were collected were all in the upper portion of the watershed at crossings of Highway 401. Despite the apparently poor habitat conditions in the upper part of the watershed, the Little River supports 25 species of fish, including several sportfish. As with the Pike Creek watershed, fish species were well distributed within the Little River watershed with the number of species captured at each station ranging from two to 15. Sportfish were collected from seven of the eight stations at which fish were collected, indicating that fairly good habitat conditions exist within the lower portions of the watershed.

5.1.3. Turkey Creek

Turkey Creek discharges into the Detroit River near the upstream end of Fighting Island. It receives water from many municipal/agricultural drains and has been channelized throughout the watershed. The upper portion of Turkey Creek flows out of South Windsor and through several parks and small residential areas before discharging into the Detroit River. Many of the drains, which historically likely conveyed agricultural run-off, now flow through residential areas. Several of these still flow out of agricultural land. Some of the drains which contribute flow to Turkey Creek are the Cahill, Lennon, Lepain and Tourangeau Drains. The Turkey Creek watershed was sampled for fish at five locations, two of which were located within the higher density residential area and one in the lower density residential area along Turkey Creek, and the other two in the drains associated with Brunet Park. All five stations contained fish with a total of 19 species captured. Each station was sampled only once. The number of species captured at each station ranged from two to 16, with a mean of 6 species per station. At least one species of sportfish was found at each of the sampling locations indicating the presence of fairly good habitat conditions at these locations.

5.1.4. Big Creek

The headwaters of Big Creek are located within the study area in the Town of Amherstburg. This watercourse flows in a north-to-south direction and discharges into Lake Erie. Fish were collected eight times at five stations within the study area. A sixth station was also sampled, but no fish were captured. A total of nine species were collected including three sportfish species (Table 2). Diversity at the stations was comparatively low with two stations at which only one species was captured. Sportfish were collected from three of the five stations at which fish were captured.

5.1.5. Canard River

The Canard River watershed occupies the most area within the study area. It flows in a northwesterly direction through mainly rural lands and discharges into the Detroit River opposite Grosse Ile. It was sampled 27 times at 19 stations, all of which contained fish. The stations were spread throughout the watershed and likely represented a diversity of habitats. A total of 36 species were recorded from the watershed including several sportfish species. Sportfish were collected from all but one of the 19 stations indicating favourable habitat conditions throughout the watershed.

5.1.6. Marentette Drain

This small drain empties into the Detroit River south of the Town of LaSalle at Grassy Island. It flows through agricultural lands and consist of two main branches: the Marentette Drain and the Gignac Drain. ERCA records show that this drain was sampled for fish at one location in 2001. Two species were captured here, including one sportfish.

5.1.7. Detroit River

Previous reports indicate that at least 65 species of fish inhabit the Detroit River (Manny et al. 1988 in MDNR and MOE 1991). These species are listed in Table 1 and include many sportfish as well as migratory species that use the river to move between Lakes Erie and St. Clair. Diverse habitat exists within the river, especially in the wetlands which are used by warmwater species for many of their life functions (spawning, nursery, foraging, etc.). Several provincially significant wetlands exist within the river or are associated with tributary rivermouths. These wetlands cover an area of 462.5 ha (URS 2005). As reported in MDNR and MOE (1991), 41 fish species have been reported to spawn within the Detroit River and an additional seven species are suspected of spawning. Manny et al. (1988 in MDNR and MOE 1991) reported that 25 species use the river as nursery habitat, including both warm and coldwater species.

5.2. Vegetation and Vegetation Communities

5.2.1. Vegetation Communities

Within the County of Essex, tallgrass prairie and oak savannah vegetation communities were widespread prior to the 20th century. These open communities were maintained by climate and periodic fire events. Since the early 20th century, these communities have

rapidly declined with increased settlement and subsequent fire suppression in these areas (OMNR 1997).

Natural vegetation communities within the PAA are restricted to areas that are not currently in use for residential, industrial or agricultural purposes. As such, they are limited in number, size and connectivity with other natural vegetation communities. The majority are within or around designated natural areas such as Provincial Parks, Areas of Natural and Scientific Interest (ANSIs), evaluated wetlands, Environmentally Significant Areas (ESAs) and Candidate Natural Heritage Sites (CNHSs). These communities include fragmented oak-hickory forests, oak savannahs, thickets, tallgrass prairies, forb prairies and old field cultural meadows.

Forest communities include those in dry-fresh upland locations and those in fresh-moist lowland locations. Upland forested communities are typically dominated by oak (*Quercus* sp.), hickory (*Carya* sp.), and maple (*Acer* sp.), with associations of sassafras (*Sassafras albidum*), white ash (*Fraxinus americana*), butternut (*Juglans cinera*), basswood (*Tilia americana*), beech (*Fagus grandifolia*), tulip-tree (*Liriodendron tulipifera*), ironwood (*Ostrya virginiana*), trembling aspen (*Populus tremuloides*) and black cherry (*Prunus serotina*). Lowland forested communities are typically dominated by swamp white oak (*Quercus bicolor*), pin oak (*Q. palustris*), silver maple (*Acer saccharinum*), red ash (*Fraxinus pennsylvanica*), white elm (*Ulmus americana*) and red maple (*Acer rubrum*).

In some locations fire suppression has allowed for the establishment of shrub species. Common shrub thicket species include hawthorns (*Crataegus* sp.), gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*C. amomum*), smooth sumac (*Rhus glabra*), common blackberry (*Rubus alleghaniensis*) and riverbank grape (*Vitis riparia*). In other locations the invasion of non-native species into grasslands has resulted in their conversion to old field meadow communities with fewer grass species. In locations where prairie grassland has been maintained dominant species include big bluestem (*Andropogon gerardii*), tall cord grass (*Spartina pectinata*), Indian grass (*Sorghastrum nutans*), ironweed (*Vernonia gigantea*), showy tick-trefoil (*Desmodium canadense*), giant goldenrod (*Solidago gigantea*), grass-leaved goldenrod (*Euthamia graminifolia*) and many others.

Wetland communities are predominantly riverine, associated with the Detroit River or its tributaries. These communities are typically marshes dominated by narrow-leaved emergent species such as cattails (*Typha* sp.), reed-canary grass (*Phalaris arundinacea*) or floating leaved and submerged aquatic plants.

5.2.2. Species Summary

Based on secondary sources, a total of 615 plant species have been documented in the PAA. Of these species, 133 or 21.6 percent are considered introduced and non-native to southern Ontario. The majority of these 615 species have been identified in designated natural areas within the City of Windsor and the Town of LaSalle. A list of vascular plants identified in the PAA is presented in Appendix A.

5.3. Wildlife and Wildlife Habitat

5.3.1. Wildlife Habitat

The PAA is comprised of urban, industrial, rural, agricultural and natural heritage features with numerous protected parks. Any wildlife found within the PAA would be concentrated in the natural heritage areas and would be minimal within the urban and industrial areas. Most of the natural heritage areas within the City of Windsor are located in the protected zones of the Ojibway Prairie Complex in the southwest corner of the municipality. Within the Town of LaSalle numerous natural areas, such as the Turkey Creek and Canard Ecosystem management areas, are also protected with large expansive agricultural areas of creeks and drains making up the southern part of the Detroit River Watershed that runs down to the Canard River. This river opens into the provincially significant Canard River Mouth Marsh, which is adjacent to another provincially significant marsh located on Fighting Island. From the Canard River to Amherstburg, open agricultural areas and a few natural heritage features surrounding Big Creek and its tributaries, dominating the habitat of this region.

5.3.2. Species Summary

The wildlife determined to inhabit the PAA was a result of collecting data from secondary sources that covered as much of the area as possible. One hundred and forty-nine species of wildlife were recorded. Of these, twenty-three species were herpetofauna, most of which were recorded along creeks or within prairie grasslands and forests of the natural heritage areas. Ninety-eight species of birds have been documented breeding within the PAA. In addition, thousands of migrating birds, comprising many more species, stage in the Detroit River and adjacent marshes each spring and fall. The twenty-eight species of mammals that have also been recorded within the PAA finalize the wildlife totals. A summary of the wildlife recorded in the PAA based on secondary sources is presented in Table 3.

TABLE 3. WILDLIFE SPECIES DOCUMENTED IN THE PAA BASED ON SECONDARY SOURCES

Wildlife	Scientific Name	Common Name	COSEWIC	OMNR	Local	Legal Status
Herpetofauna	<i>Necturus maculosus</i>	mudpuppy				
	<i>Bufo americanus</i>	American toad				
	<i>Pseudacris triseriata</i>	western chorus frog				
	<i>Rana pipiens</i>	northern leopard frog				
	<i>Rana clamitans</i>	green frog				
	<i>Rana catesbeiana</i>	bullfrog				FWCA(G)
	<i>Chelydra serpentina</i>	snapping turtle				FWCA(G)
	<i>Stemotherus odoratus</i>	common musk turtle	THR	THR		SARA(1), FWCA(P), PPS
	<i>Chrysemys picta</i>	painted turtle				FWCA(P)
	<i>Graptemys geographica</i>	map turtle	SC	SC		SARA(1), FWCA(P)
	<i>Emdoidea blandingii</i>	Blanding's turtle		THR		SARA(2), FWCA(P), PPS
	<i>Apalone spinifera</i>	spiny softshell	THR	THR		SARA(1), FWCA(P), PPS
	<i>Eumeces fasciatus</i>	five-lined skink	SC	SC		SARA(3), FWCA(P)
	<i>Thamnophis sirtalis</i>	eastern gartersnake				
	<i>Thamnophis butleri</i>	Butler's gartersnake	THR	THR		SARA(1), FWCA(P), PPS
	<i>Nerodia sipedon</i>	northern watersnake				
	<i>Regina septemvittata</i>	queen snake	THR	THR		SARA(1), FWCA(P), PPS
	<i>Storeria dekayi</i>	Dekay's brown snake				
	<i>Storeria occipitomaculata</i>	red-bellied snake				
	<i>Heterodon platirhinos</i>	eastern hog-nosed snake	THR	THR		SARA(1), FWCA(P), PPS
	<i>Opheodrys vernalis</i>	smooth greensnake				FWCA(P)
<i>Lampropeltis triangulum</i>	milk snake	SC	SC		SARA(1), FWCA(P)	
<i>Elaphe gloydi</i>	eastern fox snake	THR	THR		SARA(1), FWCA(P), PPS	
<i>Sistrurus catenatus</i>	massasauga	THR	THR		SARA(1), FWCA(P), PPS	
Birds	<i>Branta canadensis</i>	Canada Goose				MBCA
	<i>Cygnus olor</i>	Mute Swan				MBCA
	<i>Aix sponsa</i>	Wood Duck			BSC	MBCA
	<i>Anas strepera</i>	Gadwall			BSC	MBCA
	<i>Anas platyrhynchos</i>	Mallard				MBCA
	<i>Anas discors</i>	Blue-winged Teal			BSC	MBCA
	<i>Oxyura jamaicensis</i>	Ruddy Duck				MBCA

TABLE 3. WILDLIFE SPECIES DOCUMENTED IN THE PAA BASED ON SECONDARY SOURCES

Wildlife	Scientific Name	Common Name	COSEWIC	OMNR	Local	Legal Status
	<i>Phasianus colchicus</i>	Ring-necked Pheasant				MBCA, FWCA(G)
	<i>Meleagris gallopavo</i>	Wild Turkey				MBCA, FWCA(G)
	<i>Podilymbus podiceps</i>	Pied-billed Grebe			BSC	MBCA
	<i>Butorides virescens</i>	Green Heron				MBCA
	<i>Cathartes aura</i>	Turkey Vulture			BSC	FWCA
	<i>Haliaeetus leucocephalus</i>	Bald Eagle		END	BSC	ESA/MBCA, FWCA(P), PPS
	<i>Accipiter cooperii</i>	Cooper's Hawk				MBCA, FWCA(P)
	<i>Buteo jamaicensis</i>	Red-tailed Hawk				MBCA, FWCA(P)
	<i>Falco sparverius</i>	American Kestrel			BSC	MBCA, FWCA(P)
	<i>Falco peregrinus</i>	Peregrine Falcon				MBCA, FWCA(P)
	<i>Porzana carolina</i>	Sora			BSC	MBCA
	<i>Charadrius vociferus</i>	Killdeer				MBCA
	<i>Actitis macularius</i>	Spotted Sandpiper				MBCA
	<i>Scolopax minor</i>	American Woodcock			BSC	MBCA
	<i>Larus delawarensis</i>	Ring-billed Gull				MBCA
	<i>Columba livia</i>	Rock Pigeon				
	<i>Zenaida macroura</i>	Mourning Dove				MBCA
	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo			BSC	MBCA
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo			BSC	MBCA
	<i>Megascops asio</i>	Eastern Screech-Owl				MBCA, FWCA(P)
	<i>Bubo virginianus</i>	Great Horned Owl				MBCA, FWCA(P)
	<i>Chordeiles minor</i>	Common Nighthawk			BSC	MBCA
	<i>Chaetura pelagica</i>	Chimney Swift				MBCA
	<i>Archilochus colubris</i>	Ruby-throated Hummingbird			BSC	MBCA
	<i>Ceryle alcyon</i>	Belted Kingfisher				FWCA(P)
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker			BSC	MBCA
	<i>Melanerpes carolinus</i>	Red-bellied Woodpecker			BSC	MBCA
	<i>Picoides pubescens</i>	Downy Woodpecker				MBCA
	<i>Picoides villosus</i>	Hairy Woodpecker				MBCA
	<i>Colaptes auratus</i>	Northern Flicker				MBCA

TABLE 3. WILDLIFE SPECIES DOCUMENTED IN THE PAA BASED ON SECONDARY SOURCES

Wildlife	Scientific Name	Common Name	COSEWIC	OMNR	Local	Legal Status
	<i>Contopus virens</i>	Eastern Wood Pewee				MBCA
	<i>Empidonax traillii</i>	Willow Flycatcher				MBCA
	<i>Sayornis phoebe</i>	Eastern Phoebe			BSC	MBCA
	<i>Myiarchus crinitus</i>	Great Crested Flycatcher				MBCA
	<i>Tyrannus tyrannus</i>	Eastern Kingbird			BSC	MBCA
	<i>Vireo griseus</i>	White-eyed vireo			BSC	MBCA
	<i>Vireo flavifrons</i>	Yellow-throated Vireo				MBCA
	<i>Vireo gilvus</i>	Warbling Vireo				MBCA
	<i>Vireo olivaceus</i>	Red-eyed Vireo				MBCA
	<i>Cyanocitta cristata</i>	Blue Jay				FWCA
	<i>Corvus brachyrhynchos</i>	American Crow				
	<i>Eremophila alpestris</i>	Horned Lark			BSC	MBCA
	<i>Progne subis</i>	Purple Martin			BSC	MBCA
	<i>Tachycineta bicolor</i>	Tree Swallow				MBCA
	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow			BSC	MBCA
	<i>Riparia riparia</i>	Bank Swallow			BSC	MBCA
	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow			BSC	MBCA
	<i>Hirundo rustica</i>	Barn Swallow			BSC	MBCA
	<i>Poecile atricapillus</i>	Black-capped Chickadee				MBCA
	<i>Baeolophus bicolor</i>	Tufted Titmouse			BSC	MBCA
	<i>Sitta carolinensis</i>	White-breasted Nuthatch				MBCA
	<i>Thryothorus ludovicianus</i>	Carolina Wren			BSC	MBCA
	<i>Troglodytes aedon</i>	House Wren				MBCA
	<i>Cistothorus palustris</i>	Marsh Wren			BSC	MBCA
	<i>Polioptila caerulea</i>	Blue-gray Gnatcatcher			BSC	MBCA
	<i>Sialia sialis</i>	Eastern Bluebird			BSC	MBCA
	<i>Hylocichla mustelina</i>	Wood Thrush				MBCA

TABLE 3. WILDLIFE SPECIES DOCUMENTED IN THE PAA BASED ON SECONDARY SOURCES

Wildlife	Scientific Name	Common Name	COSEWIC	OMNR	Local	Legal Status
	<i>Turdus migratorius</i>	American Robin				MBCA
	<i>Dumetella carolinensis</i>	Gray Catbird			BSC	MBCA
	<i>Mimus polyglottos</i>	Northern Mockingbird			BSC	MBCA
	<i>Toxostoma rufum</i>	Brown Thrasher			BSC	MBCA
	<i>Sturnus vulgaris</i>	European Starling				
	<i>Bombycilla cedrorum</i>	Cedar Waxwing				MBCA
	<i>Vermivora pinus</i>	Blue-winged Warbler			BSC	MBCA
	<i>Dendroica petechia</i>	Yellow Warbler				MBCA
	<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler			BSC	MBCA
	<i>Seiurus aurocapilla</i>	Ovenbird			BSC	MBCA
	<i>Oporornis philadelphia</i>	Mourning Warbler			BSC	MBCA
	<i>Geothlypis trichas</i>	Common Yellowthroat				MBCA
	<i>Icteria virens</i>	Yellow-breasted Chat			BSC	MBCA
	<i>Piranga olivacea</i>	Scarlet Tanager			BSC	MBCA
	<i>Pipilo erythrophthalmus</i>	Eastern Towhee			BSC	MBCA
	<i>Spizella passerina</i>	Chipping Sparrow				MBCA
	<i>Spizella pusilla</i>	Field Sparrow				MBCA
	<i>Poocetes gramineus</i>	Vesper Sparrow			BSC	MBCA
	<i>Passerculus sandwichensis</i>	Savannah Sparrow			BSC	MBCA
	<i>Melospiza melodia</i>	Song Sparrow				MBCA
	<i>Melospiza georgiana</i>	Swamp Sparrow			BSC	MBCA
	<i>Cardinalis cardinalis</i>	Northern Cardinal				MBCA
	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak				MBCA
	<i>Passerina cyanea</i>	Indigo Bunting				MBCA
	<i>Dolichonyx oryzivorus</i>	Bobolink			BSC	MBCA
	<i>Agelaius phoeniceus</i>	Red-winged Blackbird				
	<i>Sturnella magna</i>	Eastern Meadowlark			BSC	MBCA
	<i>Quiscalus quiscula</i>	Common Grackle				

TABLE 3. WILDLIFE SPECIES DOCUMENTED IN THE PAA BASED ON SECONDARY SOURCES

Wildlife	Scientific Name	Common Name	COSEWIC	OMNR	Local	Legal Status
	<i>Molothrus ater</i>	Brown-headed Cowbird				
	<i>Icterus spurius</i>	Orchard Oriole			BSC	MBCA
	<i>Icterus galbula</i>	Baltimore Oriole				MBCA
	<i>Carpodacus mexicanus</i>	House Finch				MBCA
	<i>Carduelis tristis</i>	American Goldfinch			BSC	MBCA
	<i>Passer domesticus</i>	House Sparrow				
Mammals	<i>Didelphis virginiana</i>	Virginia opossum				FWCA(F)
	<i>Blarina brevicauda</i>	northern short-tailed shrew				FWCA(P)
	<i>Myotis lucifigus</i>	little brown bat				FWCA(P)
	<i>Eptesicus fuscus</i>	big brown bat				FWCA(P)
	<i>Lasionycteris noctivagans</i>	silver-haired bat				FWCA(P)
	<i>Lasiurus borealis</i>	eastern red bat				FWCA(P)
	<i>Lasiurus cinereus</i>	hoary bat				FWCA(P)
	<i>Sylvilagus floridanus</i>	eastern cottontail				FWCA(G)
	<i>Lepus europaeus</i>	European hare				FWCA(G)
	<i>Sciurus carolinensis</i>	gray squirrel				FWCA(G)
	<i>Tamiasciurus hudsonicus</i>	red squirrel				FWCA(F)
	<i>Tamias striatus</i>	eastern chipmunk				FWCA(P)
	<i>Marmota monax</i>	groundhog				
	<i>Peromyscus leucopus</i>	white-footed mouse				
	<i>Peromyscus maniculatus</i>	deer mouse				
	<i>Microtus pennsylvanicus</i>	meadow vole				
	<i>Ondatra zibethica</i>	muskrat				FWCA(F)
	<i>Rattus norvegicus</i>	Norway rat				
	<i>Mus musculus</i>	house mouse				
	<i>Zapus hudsonius</i>	meadow jumping mouse				
	<i>Canis latrans</i>	coyote				FWCA(F)
	<i>Vulpes vulpes</i>	red fox				FWCA(F)
<i>Urocyon cinereoargenteus</i>	gray fox	THR	THR		FWCA(F), PPS	
<i>Procyon lotor</i>	raccoon				FWCA(F)	

TABLE 3. WILDLIFE SPECIES DOCUMENTED IN THE PAA BASED ON SECONDARY SOURCES

Wildlife	Scientific Name	Common Name	COSEWIC	OMNR	Local	Legal Status
	<i>Mustela frenata</i>	long-tailed weasel				FWCA(F)
	<i>Mustela vison</i>	American mink				FWCA(F)
	<i>Mephitis mephitis</i>	striped skunk				FWCA(F)
	<i>Odocoileus virginianus</i>	white-tailed deer				FWCA(G)

TABLE 3 LEGEND

COSEWIC (Committee on the Status of Endangered Wildlife in Canada):

END Endangered
 THR Threatened
 SC Special Concern

OMNR (Ontario Ministry of Natural Resources):

END Endangered
 THR Threatened
 SC Special Concern

Provincial:

BSC Bird Studies Canada species of conservation priority in Essex County

Legal Status:

SARA *Species at Risk Act – Schedules (1), (2), (3)*
 ESA *Endangered Species Act*
 MBCA *Migratory Birds Convention Act*
 FWCA *Fish and Wildlife Conservation Act*
 (P) Protected Species
 (G) Game Species
 (F) Furbearing Mammals
 PPS Species afforded habitat protection under the Provincial Policy Statement of the *Planning Act*

5.4. Designated Natural Areas

A number of Evaluated Wetlands, Areas of Natural and Scientific Interest (ANSIs) and Environmentally Significant Areas (ESAs) and one Provincial Nature Reserve are located within the PAA. Two of these natural heritage features have also been evaluated by Carolinian Canada.

In addition, the City of Windsor and the Town of LaSalle have both undertaken biological inventories of the remnant forest and prairie habitat features not already designated and afforded some form of preservation status in planning documents to determine if these areas should be included under an Open Space/Greenway system policy to assist in preserving these areas. These areas are referred to as Candidate Natural Heritage Sites (CNHSs). This section provides a summary of these features within the PAA.

5.4.1. Provincial Nature Reserve

Provincial Nature Reserves are areas selected to represent the distinctive natural communities and landforms in Ontario. Ojibway Prairie is a 65 ha Provincial Nature Reserve that was regulated under the *Provincial Parks Act* in 1977 to protect one of the largest remnants of tallgrass prairie and oak savannah in Ontario (OMNR 2002). The dominant feature of this nature reserve is the tallgrass prairie plant community. Within the Ojibway Prairie Provincial Nature Reserve, 533 flowering plant species have been documented, of which over 60 are of prairie and western affinity. It is home to over 60 plants that are rare in Ontario as well as a number of animal species representative of prairie habitats (Pratt 1979; OMNR 2002).

Vegetation communities in the Provincial Nature Reserve include Old Field (27.5 ha), Forb Prairie (17 ha), Tallgrass Prairie (11.5 ha), Thickets (3 ha), Oak Savannah (4.5 ha), and Black Oak/Red Hickory Forest (1.5 ha). While some early successional tallgrass prairie species occur in Old Field communities, the majority of species with a prairie affinity are located within the remaining vegetation communities. The Provincial Nature Reserve contains two vegetation communities that are globally and provincially rare. Moist-Fresh Tallgrass Prairie Type (TPO2-1) and Moist-Fresh Black Oak Tallgrass Savannah Type (TPS2) both have a global rank of G1 (Extremely Rare – having less than five occurrences in the overall range) and a provincial rank of S1 (Extremely Rare in Ontario – having less than five occurrences in the province).

The Provincial Nature Reserve provides habitat for three nationally and provincially 'Threatened' wildlife species listed on SARA, Schedule 1, including eastern fox snake (*Elaphe gloydi*), Butler's garter snake (*Thamnophis butleri*) and eastern hog-nosed snake (*Heterodon platirhinos*). Purple twayblade (*Liparis liliifolia*) and eastern prairie fringed orchid (*Platanthera leucophaea*), both nationally and provincially 'Endangered' and listed on SARA, Schedule 1, are present in the reserve. Colicroot (*Aletris farinosa*) and willowleaf aster (*Symphotrichum praealtum*), both nationally and provincially 'Threatened' and listed on SARA, Schedule 1, are present in the reserve. Several provincially, regionally and/or locally significant species are also present in the Provincial Nature Reserve.

5.4.2. Evaluated Wetlands

Evaluated wetlands in the PAA are predominantly riverine and the majority are associated with the Detroit River. These evaluated wetlands include:

- Detroit River Marshes;
- Canard River Marshes;
- Fighting Island Wetland; and,
- Turkey Creek Wetland.

Detroit River Marshes

Wetlands located along the Detroit River are remnants of the submergent and land-based wetlands that once made up the more extensive Detroit River Wetland. Presently, the Detroit River Marshes PSW is a 575 ha coastal wetland complex comprised of six individual wetlands, including river marshes, Grassy Island, Turkey Island and the north and south ends and east side of Fighting Island. Wetland types include marsh (96 percent) and swamp (4 percent) and the dominant vegetation forms include submergent vegetation (59.4 percent) and emergent vegetation (29.5 percent). The site type of this wetland is 100 percent riverine, and soils have not been designated (Wormington and Fraser 1985a).

Submergent species such as pondweed (*Potamogeton* sp.), milfoil (*Myriophyllum* sp.) and grassleaf mud-plantain (*Heteranthera dubia*) are dominant in over 59 percent of this wetland, by area. Robust emergents such as cattail, reed (*Phragmites* sp.) and bulrush (*Scirpus* sp.) are common in marsh portions of this wetland. Smartweeds (*Polygonum* sp.), sedges (*Carex* sp.) and meadowsweet (*Spiraea* sp.) are also present in marsh communities. Species such as willow (*Salix* sp.), dogwood (*Cornus* sp.) and sumac (*Rhus* sp.) dominate swamp portions of this wetland.

This wetland provides breeding and/or feeding habitat for three nationally and provincially 'Threatened' wildlife species listed on SARA, Schedule 1, including eastern fox snake, Butler's gartersnake and massasauga (*Sistrurus catenatus*). It provides habitat for swamp rose-mallow (*Hibiscus moscheutos*), a species listed on SARA, Schedule 3 and as 'Special Concern' both nationally and provincially. Several provincially, regionally and/or locally significant species are also present in this wetland.

Canard River Marshes

The Canard River Marshes PSW is a 416 ha coastal wetland complex comprised of two individual wetlands. This wetland is 100 percent marsh and the dominant vegetation forms include emergent vegetation, floating plants and submergent vegetation. The site type of this wetland is 100 percent riverine with 100 percent organic soils (Parker and Dawson 1984).

Submergent and floating-leaved vegetation and unvegetated water portions of this marsh comprise 50 percent of this wetland, by area. Species in this community include water lily, and pickerel weed (*Pontederia cordata*). Together, robust emergents and narrow-leaved emergents are dominant in 48 percent of this wetland, by area. Robust emergents include cattail and reed, and narrow-leaved emergents include grasses. Swamp portions of this wetland are dominated by species such as willows, red maple, silver maple, red-osier dogwood (*Cornus stolonifera*), black ash (*Fraxinus nigra*), green ash (*F. pennsylvanica*), white elm and swamp white oak.

This wetland provides breeding and/or feeding habitat for Least Bittern (*Ixobrychus exilis*), a nationally and provincially 'Threatened' species listed on SARA, Schedule 1. It provides habitat for swamp rose-mallow, a species listed on SARA, Schedule 3 and as 'Special Concern' both nationally and provincially. Several provincially, regionally and/or locally significant species are also present in this wetland.

Fighting Island Wetland

Fighting Island Wetland PSW is a 113 ha coastal wetland comprised of 94 percent marsh and six percent swamp. Dominant vegetation forms include emergent vegetation and submergent vegetation in marsh portions and deciduous trees in swamp portions. This wetland is a dyked wetland, the site type is 100 percent riverine and soils have not been designated (Wormington and Fraser 1985b).

Robust emergents such as cattail and reed are dominant in over 75 percent of this wetland, by area. Narrow-leaved emergents such as rice cut grass (*Leersia oryzoides*) and sedges are also present in these communities. Open water portions of this wetland contain species such as coontail (*Ceratophyllum* sp.), pondweed and milfoil. Species such as willow and dogwood dominate swamp portions of this wetland.

This wetland provides breeding and/or feeding habitat for three nationally and provincially 'Threatened' wildlife species listed on SARA, Schedule 1, including Least Bittern, eastern fox snake and Butler's gartersnake. It provides habitat for swamp rose-mallow, a species listed on SARA, Schedule 3 and as 'Special Concern' both nationally and provincially. Several provincially, regionally and/or locally significant species are also present in this wetland.

Turkey Creek Wetland

Turkey Creek Wetland PSW is a 32 ha coastal wetland comprised of 77 percent marsh and 23 percent swamp. Dominant vegetation forms include emergent vegetation and submergent vegetation in marsh portions and deciduous trees and tall shrubs in swamp portions. This wetland is 80 percent riverine site type and 20 percent riverine at river mouth site type with 100 percent organic soils (Wormington and Fraser 1985c).

The majority of marsh areas in this wetland are dominated by robust emergents such as cattail. Narrow-leaved emergents such as rice cut grass are also present in marsh areas. Open water portions of this wetland contain submergent species such as pondweed and milfoil. Species such as willow and dogwood dominate swamp portions of this wetland.

This wetland provides breeding and/or feeding habitat for two nationally and provincially 'Threatened' wildlife species listed on SARA, Schedule 1, including eastern fox snake and massasauga. Several provincially, regionally and/or locally significant species are also present in this wetland.

5.4.3. Areas of Natural and Scientific Interest

ANSIs in the PAA include several provincially and regionally significant Life Science ANSIs. According to the OMNR (1998; 2004a), the Ojibway Prairie Complex provincially significant Life Science ANSI is comprised of the following areas:

- Ojibway Prairie Provincial Nature Reserve;
- Prairie Remnants (Ojibway Park) Life ANSI;
- Prairie Remnants (Titcombe Road North) Life ANSI;
- Prairie Remnants (Springarden Road) Life ANSI;
- Prairie Remnants (Black Oak Woods) Life ANSI; and,
- Prairie Remnants (Southeast of Nature Reserve) Life ANSI.

Ojibway Prairie Provincial Nature Reserve

A summary of the features of the Ojibway Prairie Provincial Nature Reserve is presented in Section 3.4.1.

Ojibway Park

Ojibway Park is a 64 ha site dominated by a Swamp White Oak Mineral Deciduous Swamp (SWD1-1), which has a provincial rank of S2S3 (Very Rare to Uncommon in Ontario – having five to 100 occurrences in the province). Prairie, savannah and woodland communities are also present. At least three different prairie communities have been identified in the park based on differing herbaceous layer species assemblages. Woody species in savannah and woodland communities include pin oak, swamp white oak, black oak (*Q. velutina*), and red maple.

Slender bush-clover (*Lespedeza virginica*), which is nationally and provincially 'Endangered' and listed on SARA, Schedule 1, is present in Ojibway Park. Several provincially, regionally and/or locally significant species are also present in Ojibway Park (OMNR 2002).

Titcombe Road North

This 40 ha site consists of tallgrass prairie and oak woodland communities. At least three different prairie communities have been identified in the Titcombe Road North ANSI based on differing herbaceous layer species assemblages. Woody species in woodland communities include black oak, white oak (*Quercus alba*) and red hickory (*Carya ovalis*).

Data collected by LGL Limited to date does not provide details as to the presence/absence of significant species in this portion of the Ojibway Prairie Complex provincially significant Life Science ANSI (OMNR 2002).

Spring Garden Road

This 165 ha consists of tallgrass prairie and oak savannah communities, all of which have a provincial rank of S1 ('Extremely Rare' in Ontario – having less than five occurrences in the province). Other vegetation communities present in Springarden Road ANSI include a large wetland and old field communities. The wetland was originally an artificially constructed lagoon and is presently the largest remaining wetland within the City of Windsor (Woodliffe 1994).

Spring Garden Road ANSI is home to approximately 475 species of plants, 66 species of breeding birds, 14 species of mammals, 10 species of reptiles, four species of amphibians and 66 species of butterflies. Many of the plant species have a prairie affinity (Woodliffe 1994). Purple twayblade, which is nationally and provincially 'Endangered' and listed on SARA, Schedule 1, is present in Spring Garden Road ANSI. Two nationally and provincially 'Threatened' species listed on SARA, Schedule 1 are present including colicroot and dense blazing star (*Liatris spicata*). American chestnut (*Castanea dentata*), which is nationally and provincially 'Threatened' and listed on SARA, Schedule 2, and prairie rose (*Rosa setigera*) and Riddell's goldenrod (*Solidago riddellii*), which are listed on SARA, Schedule 1 and as 'Special Concern' both nationally and provincially, are present in Spring Garden Road ANSI. Several provincially, regionally and/or locally significant species are also present in Spring Garden Road ANSI (Oldham 1994).

Black Oak Woods

This 46 ha site is dominated by a Moist-Fresh Black Oak-White Oak Tallgrass Woodland community (TPW2-1). This community type has a global rank of G1 ('Extremely Rare' – having less than five occurrences in the overall range) and a provincial rank of S1 ('Extremely Rare' in Ontario – having less than five occurrences in the province). Dominant tree species include black oak and white oak, with some particularly large specimen trees situated at the north end of the woodland.

This ANSI is home to at least 24 prairie indicator species. Purple twayblade, which is nationally and provincially 'Endangered' and listed on SARA, Schedule 1, willowleaf aster (*Symphotrichum praealtum*), which is nationally and provincially 'Threatened' and listed on SARA, Schedule 1, and American chestnut, which is nationally and provincially 'Threatened' and listed on SARA, Schedule 2 are all present in Black Oak Woods ANSI. Several provincially, regionally and/or locally significant species are also present in Black Oak Woods ANSI (OMNR 2002).

Southeast of Nature Reserve

This 40 ha site contains species and communities with a prairie affinity. It is a proposed area of acquisition located to the southeast of Ojibway Prairie Provincial Nature Reserve (OMNR 2002). Data collected by LGL Limited to date does not specify the communities located within this portion of the Ojibway Prairie Complex provincially significant Life Science ANSI, nor does it provide details as to the presence/absence of significant species.

Regionally Significant Life Science ANSIs

In addition, two regionally significant Life Science ANSIs are located within the PAA, including:

- Canard River Kentucky Coffee-tree Woods; and,
- Canard River Scout Camp.

These regionally significant Life Science ANSIs are also ESAs. Further details for these designated natural areas are provided in Section 3.4.4.

5.4.4. Environmentally Significant Areas

A number of ESAs are located within the PAA. Sixty-three (63) potential ESAs were inventoried in 1981 and/or 1982 and summarized by Oldham (1983). These ESAs were evaluated based on several physical, ecological, and social criteria, including:

- Significant Landforms;
- Linkage System;
- Migratory Stopover;
- Significant Communities;
- Hydrological Significance;
- Diversity;
- Significant Species;
- Size;
- Research/Education; and,
- Aesthetic/Historical.

A location was deemed to be an ESA if at least two of the ten criteria were met. At this time, eight ESAs were established within the PAA, including:

- Allied Chemical Brine Wells ESA;
- Canard River Kentucky Coffee-tree Woods ESA;
- Canard River Scout Camp ESA;
- Devonwood ESA;
- Sandwich West Woodlot (LaSalle Woods) ESA;
- Ojibway Black Oak Woods ESA;
- Spring Garden Road Prairie ESA; and,
- Upper Big Creek Woods ESA.

An update of ESAs within the County of Essex was undertaken in 1991 to evaluate supplementary sites, including previously considered sites and newly identified candidate ESA sites. At this time, a resolution was passed that all PSWs and ANSIs in the County of Essex be included as ESAs (information on ESAs that are also PSWs and ANSIs is provided in Section 3.4.2 and Section 3.4.3, respectively). An ESA update report was prepared by ERCA (1994), which detailed the criteria met by locations not already designated as a PSW or ANSI. In addition to the above-referenced PSWs and ANSIs, six additional ESAs were identified within the PAA, including:

- Fairplay Woods ESA;
- New Canaan Woods ESA;
- Peche Island ESA;
- Green Dragon Woods ESA;
- Reaume Prairie ESA; and,

- St. Clair College Prairie ESA.

A summary of the ESAs located within the PAA which have no other designation (eg. PSW or ANSI) is presented in Table 4.

5.4.5. Carolinian Canada Sites

Carolinian Canada is a coalition of groups, agencies and individuals working to halt the loss of and achieve a substantial increase in the size and quality of natural communities characteristic of Carolinian Canada.

Members include Conservation Authorities, Federation of Ontario Naturalists, Ontario Stewardship, federal and provincial departments and ministries, Canadian Botanical Association, Ontario Federation of Agriculture, and other groups. Dynamic Partnerships are the key to effective program delivery in this complex region. Since 1984 Carolinian Canada has provided a mechanism for cooperation between different levels of government, agencies, conservation authorities and non-government organizations.

In 1984, 38 sites were identified as critical natural areas in a study by the identification sub-committee of Carolinian Canada. These sites total 40,800 acres in area. Since 1984, conservation efforts in Carolinian Canada have been directed towards securing these sites through a number of mechanisms that included purchase, municipal designation, landowner contact and private stewardship, and education and public awareness. A land acquisition and stewardship program from 1987-1992 secured over 15,000 acres through voluntary agreements with landowners. This landowner contact program was an innovative, ground-breaking program that spawned many subsequent such initiatives. A further ~2,000 acres was purchased for conservation. Today a total of 14,500 acres of the sites is owned by conservation groups. The acquired Carolinian Canada sites are managed by different conservation organizations and by private landowners for conservation purposes. Today, Carolinian Canada promotes innovative and comprehensive approaches to conserving our natural heritage. Through the Big Picture Project, Carolinian Canada has adopted a new conservation vision of an integrated natural heritage network that connects and enhances these islands of green.

Two of the 38 Carolinian Canada sites are present within the PAA, the Ojibway Prairie Remnants (site #31) and the Canard River Kentucky Coffee-tree Woods (site #32). The Ojibway Prairie Remnants site is now encompassed within the Ojibway Prairie Complex ANSI, and the Canard River Kentucky Coffee-tree Woods site is now encompassed within the Canard River Kentucky Coffee-tree Woods ESA.

TABLE 4. SUMMARY OF ENVIRONMENTALLY SIGNIFICANT AREAS IN THE PAA

ESA Name (ESA Number)	Significant Landforms	Linkage System	Migratory Stopover	Significant Communities	Significant Habitats/ Hydrological Significance	Diversity	Significant Species	Size	Research/Education	Aesthetic and/or Historical Values
Canard River Scout Camp (#1)		Connected to the longest stretch of relatively continuous woodland in Essex County.		Largest upland wooded area remaining on the Canard River.		Good	Two SARA, Schedule 1 species, several provincially and locally significant species.		Scout Camp.	Sites with adequate trails through continuous woodland are uncommon in Essex County.
Canard River Kentucky Coffee-tree Woods (#2)		Forms part of a wooded corridor along the Canard River.		The only example of a lowland forest community containing Kentucky Coffee-tree in the Essex Region.		Good	Three SARA, Schedule 1 species, several provincially and locally significant species.			
Ojibway Prairie Complex (#3)	See Section 3.4.3.									
Canard River Marsh (#13)	See Section 3.4.2.									
Allied Chemical Brine Wells (#14)			Used by migrating shorebirds and waterfowl.	Unusual inland assemblage of halophytic (salt-tolerant) plants.	The alkaline, salt-rich soil and water provide unusual habitat.		Three SARA, Schedule 1 species, several provincially and locally significant species.		Researched and documented by Catling and McKay in Canadian Field-Naturalist.	
Sandwich West Woodlot/LaSalle Woods (#18)		Linkage with Turkey Creek and Ojibway Prairie via a hydro corridor.		Species assemblages include species with a prairie affinity.	Prairie habitat.	Good	Six SARA, Schedule 1 species, one SARA, Schedule 2 species, several provincially and locally significant species.	115 ha	Associated with Brunet Park. Potential for scientific research on prairie flora and fauna.	
Ojibway Black Oak Woods (#19)		Linkage with Ojibway Prairie.		Species assemblages include species with a prairie affinity.			One SARA, Schedule 2 species, several provincially and locally significant species.			
Spring Garden Road Prairie (#29)		Linkage with Ojibway Prairie.		Considered to be one of the best prairie remnants remaining in Essex County.	Prairie habitat.		Three SARA, Schedule 1 species, one SARA, Schedule 2 species, several provincially and locally significant species.			Impressive display of fall-blooming prairie wildflowers.
Peche Island (#30)	One of five main islands in the Detroit River.					Good	Five SARA, Schedule 1 species, several provincially and locally significant species.			Used as a fishing station, both by natives and by settlers. It contains the foundation of a summer residence constructed by the famous distiller Hiram Walker.
Fighting Island (#32)	Largest of the five main islands in the Detroit River.		Used as a feeding stop for migratory waterfowl.	Carolinian forest communities present.		Good	One SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.	148.8 ha		Occupied by the Wyandot Native Americans until 1820. Well known for its role in the Patriot War (1837-38). Promoted as a resort area from 1890-1918.
Upper Big Creek Woodlot (#33)		Linkage along Big Creek to Big Creek Marsh (#15).		Species assemblages include species with a prairie affinity.	Habitat for eastern fox snake, Butler's gartersnake, White-eyed Vireo and Yellow-breasted Chat.		Four SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.		Resident snakes researched and documented by Freedman and Catling in Canadian Field-Naturalist.	
New Canaan Valley (#36)		Longest natural linkage in the region (12 km) and linkage with Canard River Kentucky Coffee-tree Woods (#2)		Communities which are provincially unusual include buttonbush thickets and yellow pond-lily/lizard's tail marshes.	The Canard River is the region's largest natural watercourse. New Canaan Valley provides floodwater storage capacity and flow attenuation	Good	One SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.	220 ha		Named after the New Canaan Settlement founded by runaway slaves from the U. S. in the 1850s. Union Cemetery is located in the ESA. A portion of a railroad built by Hiram Walker is located in the ESA.

TABLE 4. SUMMARY OF ENVIRONMENTALLY SIGNIFICANT AREAS IN THE PAA

ESA Name (ESA Number)	Significant Landforms	Linkage System	Migratory Stopover	Significant Communities	Significant Habitats/ Hydrological Significance	Diversity	Significant Species	Size	Research/Education	Aesthetic and/or Historical Values
Fairplay Woods (#38)	Contains portions of a river channel which predates 19 th century settlement. Provides an example of pre-settlement channel configuration and capacity.				Provides floodplain storage and reserve flow capacity for Pike Creek.	Good	One SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.			
Devonwood (#45)				Unique woodlot contains eight oak species plus hybrids.			Two SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.		Presence of eight oak species plus hybrids provides an opportunity to study this group.	
St. Clair College Prairie (#49)					Species assemblages include species with prairie and savannah affinities.	Good	Three SARA, Schedule 1 species, several provincially and locally significant species.		The St. Clair College of Applied Arts and Technology is adjacent to this ESA.	
Green Dragon Woods (#62)		Forms part of a wooded corridor along the Canard River.			The floodplain contains oxbows and braided channels which provide flood storage capacity and reduce main channel velocity.		One SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.			
Reaume Prairie (#64)				Considered to be one of the best prairie remnants remaining in Essex County.		Good	Four SARA, Schedule 1 species, one SARA, Schedule 3 species, several provincially and locally significant species.			
Detroit River Marshes (#77)	See Section 3.4.2.									

5.4.6. Candidate Natural Heritage Sites

The City of Windsor and the Town of LaSalle have both undertaken biological inventories of the remnant forest and prairie habitat features to determine their local significance. These Candidate Natural Heritage Sites (CNHSs) are summarized in Town of LaSalle (1996) for the Town of LaSalle and in City of Windsor (1992) for the City of Windsor.

Within the Town of LaSalle CNHSs were evaluated based on several physical and ecological criteria, including:

- Significant Ravine, Valley, River, and Stream Corridors;
- Habitat of Endangered, Threatened, and Vulnerable Species;
- Significant Woodlands;
- Significant Wildlife;
- Significant Wetland;
- Significant Ecological Function;
- Diversity;
- Significant Species;
- Significant Communities;
- Significant Earth Feature; and,
- Condition.

The majority of these sites (22 out of 27) were able to meet at least six out of the 11 evaluation criteria. A summary of the LaSalle CNHSs is presented in Table 5.

Within the City of Windsor CNHSs were evaluated based on several physical and ecological criteria, including:

- Significant Ecological Function;
- Diversity;
- Significant Communities;
- Significant Species;
- Size;
- Representation;
- Condition; and,
- Significant Earth Science Features.

Many of these sites (12 out of 38) were able to meet at least four of the eight evaluation criteria. A summary of the Windsor CNHSs is presented in Table 6.

TABLE 5. SUMMARY OF CANDIDATE NATURAL HERITAGE SITES IN THE TOWN OF LASALLE

Candidate Natural Heritage Site	Significant Ravine, Valley, Stream Corridor	Habitat of Endangered, Threatened, Vulnerable Species	Significant Woodland	Significant Wildlife Habitat	Significant Ecological Function	Overall Diversity	Number of Significant Species Present	Significant Communities	Significant Earth Feature	Condition
TC1		Colicroot, Dense Blazing Star, Prairie Rose	3.0 ha	Yes	Groundwater recharge, stormwater retention, hydrological flow.	High	22	Tallgrass Prairie, Black Oak-Pignut Hickory Forest, Pin Oak-Swamp White Oak Swamp.		Good
TC2	Connects LaSalle Woodlot ESA and St. Clair College Prairie.	Prairie Rose, Spiked Blazing Star		Yes		High	8		Sand ridge	Disturbed
TC3	Significant junction and linkage of natural corridors along Turkey Creek.	Prairie Rose	2.0 ha	Yes		High	9	Black Oak-Pignut Hickory Forest, Pin Oak Swamp.		Good
TC4	Significant junction and linkage of natural corridors along Turkey Creek.	Colicroot, Dense Blazing Star	10.0 ha	Yes	Groundwater recharge, stormwater retention, hydrological flow, water purification functions.	High	21	Pin Oak-Swamp White Oak Swamp, Black Oak-Sassafras Forest, Successional Prairie.		Good
TC5/M1		Colicroot, Prairie Rose, Spiked Blazing Star	3.0 ha	Yes		High	> 16	Pin Oak Deciduous Swamp, Tallgrass Prairie.		Good
TC6		Colicroot, Spiked Blazing Star, Prairie Rose, Cooper's Hawk	12.0 ha	Yes	Groundwater recharge, stormwater retention, hydrological flow, linkage area.	High	24	Oak-Pignut Hickory Forest, Pin Oak-Swamp White Oak Swamp.		Good
TC7/CA1		Shumard Oak	16.0 ha	Yes	Groundwater recharge, stormwater retention, hydrological flow, linkage area.	High	10	Sugar Maple-Beech Forest.		Good
TC8		Spiked Blazing Star, Shumard Oak, Prairie Rose	11.0 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow, linkage area.	Low	17	Pin Oak-Swamp White Oak Swamp.		Good
M2		Prairie Rose	5.0 ha	Yes		High	12	Pin Oak-Swamp White Oak Swamp, Black Oak-Red Oak-Sassafras Forest.		Good
M3		Eastern Massasauga, Spiked Blazing Star	7.0 ha	Yes		High	16	Tallgrass Prairie, Pin Oak Savannah.		Good
M4		Eastern Massasauga	6.5 ha			Low	6			Good
M5		Grey Fox		Yes		High	9	Dry Black Oak Tallgrass Savannah, Tallgrass Prairie.		Good
M6/CH1			18.4 ha	Yes	Groundwater recharge, water retention, hydrogeological flow.	High	13	Pin Oak-Shellbark Hickory-Pignut Hickory Forest.		Good
M7 – M10		Spiked Blazing Star	26.7 ha	Yes	Groundwater recharge, water retention, hydrogeological flow, linkage area.	High	17	Pin Oak-Swamp White Oak Swamp, Black Oak-White Oak-Sassafras Savannah.		Good
CH2			2.1 ha			Low	9	Black Oak-White Oak-Sassafras-Black Cherry/Pin Oak-Swamp White Oak-Sycamore-Eastern Cottonwood Ecotone.		Disturbed
CH3/M11		Prairie Rose	6.0 ha	Yes	Groundwater recharge	High	17	Pin Oak Deciduous Swamp, Tallgrass Prairie.		Disturbed
CH4		Prairie Rose	5.0 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow, linkage area.	High	12	Tallgrass Prairie, Pin Oak-Swamp White Oak-Shellbark Hickory Swamp.		Good

TABLE 5. SUMMARY OF CANDIDATE NATURAL HERITAGE SITES IN THE TOWN OF LASALLE

Candidate Natural Heritage Site	Significant Ravine, Valley, Stream Corridor	Habitat of Endangered, Threatened, Vulnerable Species	Significant Woodland	Significant Wildlife Habitat	Significant Ecological Function	Overall Diversity	Number of Significant Species Present	Significant Communities	Significant Earth Feature	Condition
CH5	Linkage of two watercourses in the Chappus Drain watershed and potential linkage to the Canard River.	Prairie Rose	2.0 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow, linkage area.	Low	4	Shellbark Hickory Forest.		Disturbed
CA2		Shumard Oak	2.7 ha		Stormwater retention, hydrogeological flow.	Low	4			Disturbed
CA3			13.8 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow.	High	8	Oak-Hickory Forest, Pin Oak Deciduous Swamp.	Sand deposits	Good
CA4		Shumard Oak, Prairie Rose	6.1 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow, linkage area.	Low	5	Shumard Oak-Shellbark Hickory Forest.		Disturbed
CA5		Red Mulberry, Prairie Rose, Shumard Oak	4.1 ha	Yes		High	7			Disturbed
CA6	Linkage area between the Canard River and wetland areas.	Shumard Oak, Prairie Rose	4.0 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow, linkage area.	Low	4			Disturbed
CA7		Prairie Rose, Shumard Oak	13.8 ha	Yes	Groundwater recharge, stormwater retention.	Low	6			Good
CA8		Shumard Oak, Prairie Rose	7.0 ha	Yes	Groundwater recharge, hydrogeological flow, linkage area.	High	5			Good
CA9		Shumard Oak	4.0 ha	Yes	Groundwater recharge, stormwater retention, hydrogeological flow, linkage area.	Low	3			Good
CA10		Prairie Rose				Low	2			Disturbed

TABLE 6. SUMMARY OF CANDIDATE NATURAL HERITAGE SITES IN THE CITY OF WINDSOR

Candidate Natural Heritage Site	Significant Ecological Function	Diversity	Significant Communities	Number of Significant Species Present	Size	Representation	Condition	Significant Earth Features
W1					2.3 ha		Good	
W2		Good			4.0 ha			
W3	Linkage along the Little River corridor				5.0 ha		Good	
W4	Linkage along the Little River corridor						Good	
W5	Stormwater retention, linkage along the Little River corridor				5.0 ha		Good	
W6	Linkage along the Little River corridor							
W7				24	35.0 ha		Good	Island
W8					7.0 ha			
W9		Good			10.0 ha		Good	
W10	Stormwater retention				1.0 ha		Good	
W11	Stormwater retention, and linkage along the Little River corridor						Good	
W12	Stormwater retention, and linkage along the Little River corridor				4.5 ha			
W13					11.0 ha		Good	
W14				6	6.4 ha		Good	
W15								
W16								
W17								
W18				6	4.4 ha		Good	
W19								
W20								
W21	Stormwater retention						Good	
W22								
W23	Stormwater retention				12.0 ha			

TABLE 6. SUMMARY OF CANDIDATE NATURAL HERITAGE SITES IN THE CITY OF WINDSOR

Candidate Natural Heritage Site	Significant Ecological Function	Diversity	Significant Communities	Number of Significant Species Present	Size	Representation	Condition	Significant Earth Features
W24		Good		9	7.0 ha		Good	
W25		Good		6	15.0 ha		Good	
W26				6	4.8 ha		Good	
W27					3.8 ha			
W28		Good			7.7 ha			
W29		Good		12	15.0 ha			
W30		Good		28	98.0 ha		Good	
W31		Good	Tallgrass Prairie, Savannah-like Forest	38	15.0 ha		Good	
W32	Stormwater retention	Good	Tallgrass Prairie, Upland Carolinian Forest	59	17.0 ha	Representative communities of the natural landscape of the City of Windsor that are not adequately represented in existing protected areas.		
W33	Part of a linkage system that includes Spring Garden Prairie, the Ojibway Prairie Complex, LaSalle Woodlot, Black Oak Heritage Park and C.N.H.S. #37 and #38	Good	Tallgrass Prairie	77	170.0 ha	Contains the only dry-phase prairie remnant in Windsor, is the only remaining habitat in Windsor for the Eastern Massasauga and a number of butterfly species, and contains the best representation of Cattail Marsh in Windsor.	Good	
W34	Provides linkage through the Ojibway Prairie Complex, serves as a migratory bird stopover	Good	Black Oak Savannah	18	30.0 ha	Presence of many rare plants and animals also found in the Ojibway Prairie Nature Reserve.	Good	
W35		Good		15	10.3 ha		Good	

TABLE 6. SUMMARY OF CANDIDATE NATURAL HERITAGE SITES IN THE CITY OF WINDSOR

Candidate Natural Heritage Site	Significant Ecological Function	Diversity	Significant Communities	Number of Significant Species Present	Size	Representation	Condition	Significant Earth Features
W36	Linkage through the Ojibway Prairie/Black Oak Complex				1.7 ha		Good	
W37	Linkage between the natural areas of the Ojibway region and the Detroit River			7	24.8 ha		Good	
W38	Linkage between the natural areas of the Ojibway region, Black Oak Heritage Park and C.N.H.S. #37			10	77.0 ha		Good	Sand dune

5.4.7. Canadian Heritage River System

The Detroit River is located at the western border of the City of Windsor and communities of LaSalle and Amherstburg. The River itself runs in a north-south direction connecting Lake St. Clair in the north to Lake Erie in the south. Acting as an international border, the river connects American and Canadian communities culturally and economically. More than 14,000,000 vehicles and 8,000 commercial ships cross the Detroit River annually. It also serves many functions from the natural sciences perspective: as part of the Great Lakes watershed; and, receiver for the Canard River, Little River and Turkey Creek watersheds.

The importance of the Detroit River as a natural heritage feature is only one component of its function. Parks Canada designated the Detroit River as a Canadian Heritage River, which recognizes its importance to Canadian history and culture. The Detroit River received American Heritage River designation in 1998 and Canadian Heritage River designation in 2001, making it the first River with dual designations.

The Canadian Heritage River System (CHRS) is a public trust, promoted by local citizens. The program is administered by the Canadian Heritage Rivers Board, whose members are appointed by the Federal, Provincial and Territorial governments. The CHRS was established in 1984 to conserve and protect the best examples of Canada's river heritage, to give them national recognition, and to encourage the public to enjoy and appreciate them. Parks Canada is responsible for submitting recommendations to the Minister of new heritage rivers and providing other forms of support to the CHRS. The CHRS is governed by the *Canadian Heritage Rivers System Charter* and implemented by a *Strategic Plan*.

For a river to become a Canadian Heritage River there are two steps in the process: nomination and designation. The Minister of the Environment and the Provincial/Territorial Minister of the nominating government must grant formal approval of both the nomination and designation. To be considered for nomination, a River must meet the following criteria:

- the nomination must come officially by the participating government, but are generated by private citizens and groups;
- criteria for consideration include:
 - outstanding natural, cultural and/or recreational values;
 - high level of public support;
 - demonstrated that sufficient measures will be put in place to ensure that those values will be maintained;
- the participating government agrees to pursue nomination;
- the nominated river must meet the criteria set by the CHRS Board; and,
- the nomination must be recommended to the responsible Ministers.

It is unclear as to which group nominated the Detroit River for CHRS status. However, the CHRS website provides links to the Detroit River Canadian Cleanup Committee, Detroit River Remedial Action Team and Detroit River Remedial Action Plan, each of which appear to be Canadian based.

A River officially becomes designated once a management plan/heritage strategy is lodged with the CHRS Board by the nominating government. Production of the management plan/heritage strategy is based on public consultation and consensus.

The CHRS has no legislative authority. Nominations are driven by volunteers through partnerships and community involvement. Guidelines are in place to ensure that candidate rivers meet the selection and integrity criteria to become a Canadian Heritage River.

5.4.8. Planned Land Use

Town of Amherstburg

Legal Status of Plan

The “*Corporation of the Town of Amherstburg Official Plan*” was adopted on March 22, 1999. The Plan was approved by the Ministry of Municipal Affairs and Housing (MMAH) on July 6, 1999.

Environmental Designations

Section 2 identifies land use policies for various uses, including: woodlots; developments along inland watercourses; re-use of potentially contaminated sites; and, special policy area – species at risk.

Section 3 provides the land use designations, including permitted uses and other restrictions in the Town.

Natural Environment (Section 3.8) Identifies and protects environmentally significant areas including: valleylands, habitat of endangered and threatened species, fish habitat, significant woodlands, wildlife habitat and ANSIs.

Permitted uses include: wildlife management, including hunting and fishing, natural environmental management, passive outdoor recreation, conservation and associated facilities.

Site alteration is only permitted once Council and the Conservation Authority are convinced that no adverse impacts will occur. An Environmental Impact Statement may be required to demonstrate this.

All Natural Environment lands will be zoned in a Natural Environmental Zone in the implementing Zoning By-law.

Wetland (Section 3.9) Identifies and designated Provincially Significant wetlands and prohibits development within them.

Permitted uses include: conservation, fish and wildlife management areas, passive open space uses, existing agricultural uses and any buildings/structures associated with a permitted use.

Dyked portion of lands are not designated wetland, but rather Natural Environment instead.

Development of adjacent lands, as defined by the Provincial Policy Statements, may be permitted if no negative impact on the wetland can be demonstrated.

All land based Provincially Significant wetland areas are zoned Wetland Area by the Town's Zoning By-law.

Level of Protection

All lands designated Natural Environment are protected by the Town's Zoning By-law and the *Planning Act*. In addition, the Provincial Policy Statements and *Planning Act* provide protection for Provincially Significant natural heritage features and functions.

Town of LaSalle

Legal Status of Plan

The "*Town of LaSalle Official Plan – LaSalle 2016 – Healthy, Vibrant and Caring*" was adopted on October 14, 1997. The Plan was approved by the Ministry of Municipal Affairs and Housing (MMAH) on May 18, 1998. The document used for this report is the November 4, 2003 Office Consolidation, which incorporates Official Plan Amendment No. 1, provincially approved on November 4, 2003.

Environmental Designations

Section 2 identifies general development policies for various uses, including: woodlots; developments along inland watercourses; re-use of potentially contaminated sites; and, special policy area – species at risk.

Section 3 provides the land use designations for natural heritage sites, including permitted uses and other restrictions in the Town.

Wetland (Section 3.11) Includes all land-based and submergent wetlands situated on or along the Detroit River, Turkey Creek or the Canard River which have been identified by the MNR as Provincially-Significant.

Detroit River Marsh Wetland Complex is the largest in the Town. First evaluated in 1985, it has had several re-evaluations to refine the boundaries of the wetland.

Development is prohibited within any 'wetland' designation, except for buildings and structures used in conjunction with a permitted conservation, fish and wildlife management or public passive open space purpose.

Permitted uses include: conservation, fish and wildlife management areas, passive open space uses and existing agricultural uses.

Natural Environment (Section 3.8) Features designated include: woodlots, wetlands, and prairie communities. Each of these play an important ecological role in keeping people physically, mentally and spiritually healthy.

Permitted uses include: passive recreation, wildlife management, conservation uses and buildings/structures associated with these uses.

Utility corridors and inland watercourses should be used as linkages between natural heritage sites, and should be enhanced and maintained as wildlife habitat areas, recreational trails, bikeways and walkways.

Preservation and management of these areas shall be via public purchase, private stewardship, conservation easements and management agreements.

Secondary Planning Areas

The Official Plan contains Secondary Plans, some of which have natural feature components.

Bouffard and Howard Planning Districts Secondary Plan:

- A Greenway System is proposed for this area, which is in the approval urban growth boundary of the Town of LaSalle. This will involve the creation of linkages, connecting wildlife habitats, human settlements, urban to rural areas, etc.
- Land Use designations include: Recreational, Natural Environment, Natural Corridors/Greenway Linkage, Neighbourhood Centre, Neighbourhood Park and Stormwater Management Pond.
- Permitted uses include: public use and utility facilities, stormwater management facilities, fish, wildlife and conservation management uses, archaeological activities, legally existing uses, buildings and structures and their replacement, non-intensive recreation uses such as nature trails and parks.

Level of Protection

The Town of LaSalle, through its Official Plan has set a goal of creating a Greenway System, which will comprise trails, parks and woodlots for the benefit and enjoyment of wildlife and residents alike. As a municipal planning policy, this provides a reasonable level of protection for natural features within the proposed Greenway System.

Environmental land use designations within the Town of LaSalle are governed by Provincial statute and policy. Only those features/functions identified as Provincially-Significant are afforded protection from the Provincial Policy Statement (PPS), including the Detroit River Marsh Wetland Complex. However, the *Planning Act*, in combination with the Official Plan and municipal practices, does not provide protection for any regionally or locally significant natural features.

Town of Tecumseh

Legal Status of Plan

The Town of Tecumseh currently operates under three separate policy based documents. Details of these documents are provided in Table 7.

TABLE 7. SUMMARY OF TOWN OF TECUMSEH OFFICIAL PLANS

Title	Adopted	Approved
Town of Tecumseh – Tecumseh Official Plan (Consolidated January 2000)	November 27, 1973	By OMB in parts: August 4, 1976 July 21, 1977 August 25, 1978
Town of Tecumseh – St. Clair Beach Official Plan (Consolidated April 2004)	December 1989	Date of approval not stated. All OPAs adopted and approved by Province as of January 23, 2004
Town of Tecumseh – Sandwich South Official Plan (Consolidated July 2003)	June 23, 1997	March 13, 1998

Since June 13, 1946, the Town of Tecumseh has also been a subsidiary planning unit with the Windsor and Suburban Planning Area.

Environmental Designations

The Town of Tecumseh – Tecumseh Official Plan has no environmental or natural heritage designations. Nor does it provide any related policy.

The Town of Tecumseh – St. Clair Beach Official Plan provides general level protection for natural hazards, but no direct or related policies dealing with natural heritage or the environment.

The Town of Tecumseh – Sandwich South Official Plan provides general development policies that use site plan control to incorporate buffering between conflicting land uses, setbacks for development along inland watercourses, and protection of woodlots.

Town of Tecumseh – Sandwich South Official Plan Designations

Natural Environment (Section 3.11)	<p>Preserves, protects and enhanced the remaining natural areas for ecological and/or passive open space purposes.</p> <p>Permitted uses include: passive recreation, wildlife management, and conservation uses.</p> <p>Utility corridors and inland watercourses should be used as linkages between natural heritage sites, and should be enhanced and maintained as wildlife habitat areas, recreational trails, bikeways and walkways.</p> <p>Encourage and support private initiatives to maintain/improve the natural character of lands they own.</p>
Natural Environment Land Division Policies (Section 4.8)	<p>Consents permitted for conveyance of land to public or private agencies, conservation groups, etc., who are engaged in protection and conservation of the natural environment.</p>

Level of Protection

While there is no land use designation within the Town of Tecumseh to provide local protection, all development applications are governed by Provincial statute and policy. The Official Plan does not identify any features or functions having provincial significance. Current and pending development applications will be subject to municipal review against all current policies and practices.

City of Windsor

Legal Status of Plan

The City of Windsor Official Plan (2004) was adopted on October 25, 1999 by By-law 350-1999. The Plan was approved by the Ontario Ministry of Municipal Affairs and Housing (MMAH), in part, on March 28, 2000. The remainder of the Plan was approved by an Ontario Municipal Board decision on November 1, 2002. This is an office consolidation of the Plan which incorporates the approved Plan plus subsequent Amendments.

Environmental Designations

Section 5, Volume 1 of the Official Plan identifies designations as being part of the 'Greenway System' on Schedule B of the City's Official Plan.

Section 6, Volume 1 identifies permitted uses for each of the land use designations in the City.

Public and Private Open Space (Section 6.7)	<p>Identifies the main locations for recreation and leisure activities.</p> <p>Permitted uses include recreation and leisure areas and facilities.</p> <p>Public Open Spaces include Community and Regional Parks, and Neighbourhood Parks.</p> <p>Ancillary uses may include residential, commercial or institutional provided that the use is clearly secondary to and complementary with the main Open Space use.</p>
Natural Heritage (Section 6.8)	<p>Permitted uses include nature reserves and wildland management.</p> <p>Ancillary uses may include recreation and leisure activities and facilities, provided the use is secondary and complementary to the main permitted use.</p> <p>If development is proposed, an Environmental Evaluation Report (EER) is required to demonstrate that features and functions will not be adversely impacted.</p> <p>EERs are also required for any development on lands adjacent to those designated Natural Heritage.</p>
Waterfront (Section 6.10)	<p>Identifies the main locations for recreation and leisure activities and facilities along the waterfront.</p> <p>Permitted uses include recreation and leisure activities, facilities and marina for pleasure craft.</p> <p>A recreational needs study is required at the time of application to confirm that the change in land use is appropriate.</p>
<p>These overlays are subcategories to the land use designations and are identified as '<i>Development Constraint Area</i>' on Schedule C of the City's Official Plan. These Constraint Areas afford various levels of protection to the City's natural environmental features.</p>	
Natural Heritage	<p>Policies identify areas under provincial protection (ie. Provincially-Significant Wetlands and ANSIs)</p>
Environmental Policy Areas	<p>Identifies areas of significance that may permit development, subject to criteria, including: biological diversity; significant natural community; vulnerable, threatened or endangered species; low levels of disturbance; significant earth science features; and, visual, aesthetic or recreational importance to the City.</p>
Candidate Natural Heritage Sites	<p>Contains potentially significant and/or sensitive environmental features or functions, which are subject to an Environmental Evaluation Report to determine if development is appropriate.</p>

Aggregate Resource Sites & Mineral Mining Sites	Considers temporary land uses, with ultimate land uses identified on Schedule D of the Plan.
Floodplain Area	Identifies floodplains determined by the Essex Region Conservation Authority (ERCA).
Shoreline and Floodprone Areas	Identifies areas subject to flooding that were determined by the ERCA. Development in these areas is subject to additional study and setbacks to prove that the development will not be impacted by flooding.
Potentially Contaminated Sites	Requires that Environmental Site Assessments be undertaken to confirm the existence and nature of any contaminants, as well as recommending methods to remediate the site.

Secondary Planning Areas

The Official Plan – Volume 2 contains several Secondary Plans, some of which have natural feature components.

East Riverside Planning Area

- A Greenway System is proposed for this area, which will be composed of a linear assembly of open spaces, natural features, stormwater management areas and community services. It will provide a network of recreational trails, linking planning areas to one another and to natural/recreational areas off-site.

South Cameron Planning Area

- A community park/woodland in the centre of the district is intended for conservation. It contains mature and successional deciduous woods.

Spring Garden Planning Area

- Features in this area are recognized as significant, including Spring Garden Natural Area Complex (Schedule SG-1) and shall be conserved. Development must adhere to the Spring Garden Complex Management Plan.
- All lands within the Spring Garden Natural Area Complex shall be acquired in stages, by means of exchanges, parkland conveyance provisions (*Planning Act*), purchase by City based on independent appraisal, or purchase by appropriate government agencies.
- A noise study shall be undertaken for any development proximate to the E.C. Row Expressway, Huron Church Road and Malden Road.

Forest Glade North Planning Area

- The ERCA identified a 'Candidate Natural Heritage Site', which is designated as an 'Environmental Policy Area B' in the Official Plan. This feature contains mature woods and open fields that are in a shrub-dominated stage of succession.

Level of Protection

Lands included as part of the Greenway System may be protected via: conveyance/dedication as part of the planning system; land purchase; partnership arrangements with the ERCA or other group; conservation as a condition of planning approval; leases with private property owners to protect parts/all of the identified area; land exchange; donations/gifts/bequeaths from individuals/corporations; conservation easements; stewardship agreements; and other measures.

Environmental land use designations within the City of Windsor are governed by Provincial statute and policy. Only those features/functions identified as Provincially-Significant are afforded protection from the Provincial Policy Statement. However, the *Planning Act*, in combination with the Official Plan and municipal practices, does provide protection via constraints to development, through the use of Development Constraints, or overlays.

Of note is that each municipality has planning designations related to floodplains and flooding control. These designations are not related to natural heritage or environmental features, but rather to natural hazards. Accordingly, no references were made to this aspect of planning policy in the above noted text.