Partnership of

Canada

U.S. Department of Transportation
400 Seventh St., S.W.
Washington, D.C. 20590

Ontario

MDOT
MICHIGAN DEPARTMENT OF TRANSPORTATION

Canada-United States-Ontario-Michigan Border Transportation Partnership Planning/Need and Feasibility Study

Environmental Overview Report

January 2004

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IBI GROUP

HLB
Decision Economics Inc.

Preface

The Canadian, U.S., Ontario and Michigan governments are conducting a Needs and Feasibility Planning Study to provide a long-term strategy that will ensure the safe and efficient movement of people, goods and services between Southeast Michigan and Southwest Ontario. The study will assess the existing transportation network, including border crossings and will identify medium- and long-term transportation needs, alternatives and potential new crossings in the region of Southeast Michigan and Southwest Ontario.

The context under which this study was carried out, the justification for the project and the issues and opportunities to be addressed by the study is documented in the Transportation Problems and Opportunities Report. This Report incorporates the findings of four technical Working Papers:

- Strategic and Geographic Area Working Paper;
  - Will set the context of the study in terms of identifying jurisdictions involved and their respective legislation and policies, which provide the framework for this study.
- Travel Demand Analysis Process Working Paper;
  - Determines the appropriate methodology to be used for travel demand forecasting.
- Existing and Future Travel Demand Working Paper;
  - The description, analysis and assessment of existing and future scenarios for road and rail to develop a quantitative and qualitative understanding of travel demand.
- Environmental Overview,
  - Inventory existing conditions to assist in the generation and evaluation of alternatives.

The Transportation Problems and Opportunities Report provided the basis for the identification, development and assessment of transportation alternatives.

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1. Environmental Overview

This is another in a series of papers that will document an ongoing collaborative process to evaluate the need for, and feasibility of, transportation improvements to address the transportation needs between Southwest Ontario and Southeast Michigan. Based on the nature and extent of these transportation needs, a range of feasible alternatives will be developed to address the medium and long-term needs of the border region. Feasible alternatives will be examined and, through a participatory process, a transportation strategy will be identified.

The purpose of this document is to establish the existing environmental conditions in the Focused Analysis Area (FAA), Exhibit 1.1, 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. The FAA is graphically identified, its environmental features depicted in graphical and/or tabular form, and a narrative provided to assist in the understanding of the specific concerns with each type of feature. This will, in turn, assist in balancing the social, economic, environmental, and technical concerns during consideration of alternatives.

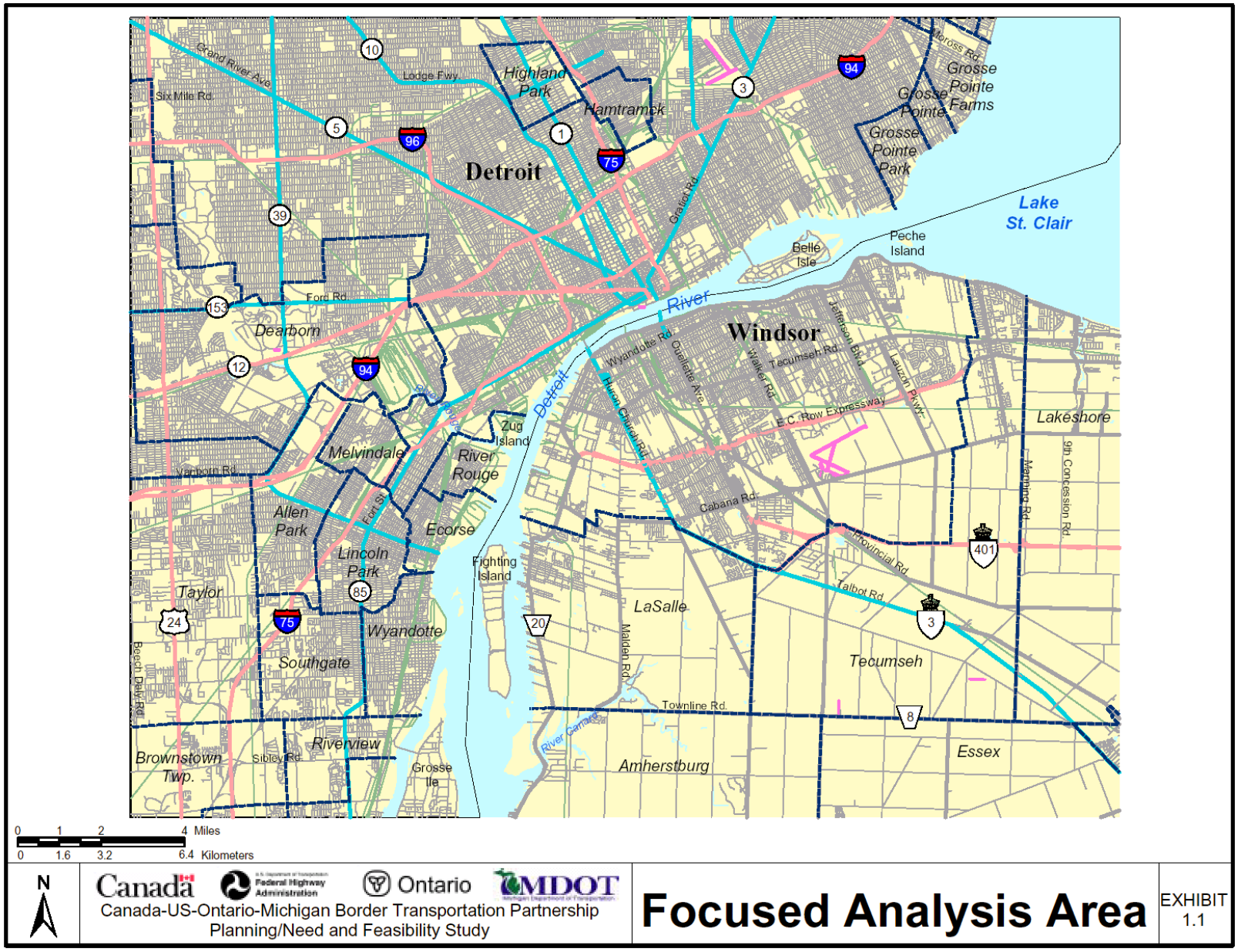
It should be noted that the information in this document was gathered from readily available secondary sources. The level of detail of available information for individual topics varied between Canada and the U.S. In some instances, such as the discussion regarding wetlands or that regarding projected employment levels, this disparity in information availability has produced a difference between the countries in the level of detail given for some topics or in some exhibits.

1.1. Socioeconomic Environment

The socioeconomic environment consists of neighbourhoods, centers of commerce and manufacturing, and population centers. Potentially adverse effects upon neighbourhoods or communities must be considered. For example, in Canada, parks, recreational areas, and libraries help define the community, so impacts to them are impacts upon the community itself. In the U.S., by policy and law, the adverse impacts of projects for the public good must not fall disproportionally upon minority or economically disadvantaged populations and so the ethnic and economic composition of the population affected by any proposed alternative will be addressed during the evaluation of alternatives in the United States (U.S.).

1.2. Cultural

The cultural environment consists of places or features that are held to be of special value by the societies of Canada or the U.S. for historical or archaeological reasons. In the U.S., cultural features also include, but are not


Detroit
Windsor
Dearborn
Highland Park
Hamtramck
Grosse Pointe
Grosse Pointe Farms
Grosse Pointe Park
Lake St. Clair
Belle Isle
Peche Island
River
Detroit
Zug Island
River Rouge
Melvindale
Allen Park
Ecorse
Lincoln Park
Taylor
Wyandotte
Southgate
Riverview
Brownstown Twp.
Grosse Ile
Fighting Island
LaSalle
Amherstburg
Tecumseh
Lakeshore
Essex
Lodge Fwy
Ford Rd
Grand River Ave
Six Mile Rd
Jefferson Blvd
Tecumseh Rd
Walker Rd
Wyandotte Rd
Huron Church Rd
E.C. Row Expressway
Cabana Rd
Provincial Rd
Talbot Rd
Townline Rd
Malden Rd
Manning Rd
9th Concession Rd
Fort St
Beech Daly Rd
Sibley Rd
Van Born Rd
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
Federal Highway Administration
Ontario
MDOT
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Focused Analysis Area
EXHIBIT 1.1

limited to, parks, recreational areas, libraries, and other amenities of civilization enjoyed by the public. Evaluation of the effects of an alternative upon such locations is closely linked to the evaluation of socioeconomic impacts of that alternative in both countries.

1.3. 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 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.

1.4. Air Quality/Noise

The quality of the air has become an issue of national importance in both Canada and the U.S. In the strictest sense, it is more properly viewed as a health issue than an environmental issue in that the limitations upon certain kinds of materials that the atmosphere may contain are based upon their toxicological concerns or their potential to degrade the atmosphere in ways detrimental to human health or welfare. Areas such as Southwest Ontario and Southeast Michigan are of special concern because the concentrations of people, industries, and transportation have resulted in air quality problems in the past and may do so in the future. The potential to affect the air quality of the area will be considered.

Large transportation projects often generate large increases in noise over the ambient level that preceded them. An evaluation of any proposed alternative's impacts upon the population affected will be necessary in order to determine what mitigative measures are possible and feasible.

1.5. Landfills and Hazardous Wastes

The industrialization of the Focused Analysis Area began in earnest in the 1870's. Many of these endeavours were heavy industries initially related to railroad equipment and materials and then, later, with the automotive industry as it grew. Until the 1970's, the handling and disposal of the waste products of these industries and of the population at large were generally unregulated. In the 1970's, increasing public awareness of the potential health problems related to the uncontrolled or improper storage or disposal of wastes led to the passage of federal, provincial, and state laws to address these issues. There now exist a number of laws, regulations, and guidelines that control and regulate wastes, storage sites, and disposal sites, as well as programs for the purpose of addressing and correcting the legacy of contaminated sites. These laws and programs address landfills, hazardous waste storage and disposal, underground

storage tanks, and contaminated sites of various types. While the objective of these laws and regulations is the same on both sides of the border, the regulatory frameworks of the two countries differ somewhat in detail, degree, and approach.

Liability for past and present contamination of geographical sites is a major issue in the total environmental regulatory matrix and is perhaps the single most important difference in the two regulatory approaches. In Canada, the owner of a contaminated property assumes responsibility for the contamination. In the U.S., with certain narrow exceptions, responsibility is attached to those who caused the contamination or those who have assumed ownership of a contaminated property without conducting a proper "due diligence" process. In Michigan, transportation projects are specifically granted protections from liability when properties are acquired for right of way (ROW) or other project purposes. The FHWA encourages the use of "brownfields" in transportation projects if circumstances for such use are reasonable and feasible.

2. Description of the Focused Analysis Area

The Focused Analysis Area (FAA) 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 8 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, Beech Daly Road to the west, an arc starting near the intersection of Beech Daly and Van Born roads and ending near the intersection of Six Mile Road and State Road 3 to the north, Moross Road at its northeasterly extent, and the Detroit River on its easterly extent. The FAA encompasses over 400 square miles.

The Canadian side of the FAA consists primarily of the urban area of the City of Windsor, the neighbouring Towns of LaSalle and Tecumseh 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 FAA 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 Focused Analysis Area

Canada

The Canadian side of the FAA is now 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 FAA 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.

Remnant features of prairie and forested habitat remaining in the Windsor area were municipally recognized in the late 1950s as valuable features. During this period, areas of prairie habitat were purchased and set aside as park land. Additional areas of remnant habitat have been acquired and managed to protect their natural heritage values in association with Non-Governmental Organizations. Studies and resource management planning into the late 1990s by local municipalities and resource management agencies continued to identify and characterize Natural Heritage Features for future protection.

United States

The City of Detroit dominates the FAA 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 FAA, 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, in the last two to three decades, to increasingly serious efforts by the federal, state, and local governments and citizens' groups to protect and rehabilitate those remaining. A complex system of statutes, permitting programs and non-governmental organizations has developed to support these conservation goals.

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 FAA is also both similar and different. The

Canadian FAA 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. Sources

The following are sources that were referenced in compiling this document, each listed by type.

Statutes

- Ontario Heritage Act
- Ontario Planning Act
- Canadian Environmental Assessment Act
- Ontario Environmental Assessment Act
- Ontario Cemeteries Act
- Canada National Parks Act
- Historic Sites and Monuments Act (Canada)
- Canada-United States Great Lakes Water Quality Agreement
- U.S. National Historic Preservation Act
- U.S. Department of Transportation Act of 1966
- U.S. National Environmental Policy Act
- U.S. Clean Air Act
- U.S. Clean Water Act
- U.S. Endangered Species Act
- Michigan Natural Resources and Environmental Protection Act
- U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
- U.S. Resource Conservation and Recovery Act
- U.S. Intermodal Transportation Efficiency Act
- U.S. Transportation Efficiency Act for the 21st Century

Agencies/Municipalities/Universities/Organizations

- Environment Canada
- Transport Canada
- Great Lakes Commission
- Ontario Ministry of the Environment
- Ontario Ministry of Natural Resources

- Ontario Ministry of Culture
- Ontario Ministry of Transportation
- Essex Region Conservation Authority
- City of Windsor
- Town of LaSalle
- Town of Tecumseh
- U.S. Environmental Protection Agency
- U.S. Federal Highway Administration (FHWA)
- U.S. Fisheries and Wildlife Service
- U.S. Department of the Interior
- U.S. Geological Survey
- U.S. National Park Service
- Southeast Michigan Council of Governments (SEMCOG)
- Michigan State Historic Preservation Office (SHPO)
- Michigan Department of Natural Resources (MDNR)
- Michigan Department of Environmental Quality (MDEQ)
- Groundwater Education Michigan, Institute of Water Research, Michigan State University
- Greater Detroit American Heritage River Initiative

Publications

- An Overview of U.S. Great Lakes Areas of Concern, Great Lakes Commission, March 2002
- State Natural Areas in Michigan, Michigan Department of Natural Resources, July 2002
- 2002 Inland Trout & Salmon Guide, Michigan Department of Natural Resources, 2002
- Order FO-210.01, Designated Trout Streams for the State of Michigan, Michigan Department of Natural Resources, October 2000
- Report of Investigation 3, Geology For Land And Ground-Water Development in Wayne County, Michigan, 1969, by Andrew J. Mozola
- Detroit's Coming of Age 1873-1973,by Don Lochbiler

2.4. Limitations

The information contained in this memorandum was derived from a variety of readily 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 FAA, 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. Socioeconomic

3.1. Description

The Canadian side FAA encompasses the City of Windsor, the Town of LaSalle, and the Town of Tecumseh. Combined, the area has a census metropolitan area population of over 300,000, including more rural parts of adjoining Essex County.

On the United States side of the river, the FAA includes portions of the cities of Riverview, Taylor, Dearborn Heights, and Grosse Pointe Farms; parts of Brownstown and Redford townships; and the cities of Wyandotte, Lincoln Park, Allen Park, Southgate, Dearborn, Melvindale, River Rouge, Ecorse, Grosse Pointe Park, Grosse Pointe, and Detroit. The cities of Hamtramck and Highland Park are completely surrounded by the City of Detroit. The FAA on the U.S. side is encompassed by Wayne County, the population of which is approximately 2,000,000. Therefore, the population of the FAA is somewhat less than 2,000,000. Of this, approximately 1,000,000 are in the City of Detroit. In general, the land use is largely commercial with many large industries located along the riverfront and near the Detroit Central Business District (CBD). There are now efforts to promote residential redevelopment along the river, especially in Detroit, where recreational and residential land use on the waterfront is currently sparse.

The nature of the FAA is that of an extensively developed urban area consisting of intermixed residential, commercial, and industrial areas. Public parks, playgrounds, recreation areas, public works, schools, cemeteries, and military properties are scattered throughout the area. Additionally, agricultural lands surround the City of Windsor.

3.2. Existing Social Environment

This section describes the current population within the FAA. It describes some of the environmental laws that affect the development of transportation projects and that govern the impacts of these projects upon the social fabric of the community. It also attempts to identify areas of concern to be considered in the generation and evaluation of alternatives in order to reduce the impacts to the socioeconomic environment as much as possible.

3.2.1. Population

Table 3.1 lists the population of the Canadian and United States segments of the study area for the past 20 years. From 1981 to 1991, the population of the Focused Analysis Area in the United States marginally decreased due to an exodus of people away from the inner urban areas of the City of Detroit to the outlying suburbs. For the past decade (1991-2001), the population in the United States portion of the FAA has continued to decrease, although at a slower rate.

In general, population growth was much stronger on the Canadian side, achieving growth rates averaging 14.6% in the past decade.

TABLE 3.1: POPULATION CHANGES IN THE FOCUSED ANALYSIS AREA

	1980	1990	2000	Percent Change		
				1980-90	1990-00	1980-00
Detroit	1,203,337	1,027,979	951,270	-14.6%	-7.46%	-20.9%
Wayne County	2,337,891	2,111,687	2,061,162	-9.6%	-2.39%	-11.8%
SEMCOG Area	4,682,000	4,590,465	4,833,493	-2.0%	5.0%	3.2%
Windsor	NA*	191,435*	208,402*	NA	9.0%	NA
Greater Windsor Area	NA*	323,000	370,000	NA	14.6%	NA
Town of LaSalle	NA*	16,628*	20,566*	NA	23.7%	NA
Town of Tecumseh	NA*	10,495*	25,105*	NA	1.39%	NA

* Population numbers were not available for 1980 for Canada. 1990 numbers are 1991 numbers for Canada and 2000 numbers are 2001 for Canada.

The population of Detroit is slightly less than one million, making it the largest city in the study area. The pattern of growth and development in the Detroit area mirrors that of many U.S. cities. Located at the inner core of the region, Detroit itself has been losing population to its suburbs for many years. Wayne County also lost population from 1990 to 2000, although to a lesser extent. However, the Southeast Michigan Council of Governments (SEMCOG) region, as a whole, experienced continued population growth during the same decade. This trend is expected to continue, as is illustrated in Table 3.2. Table 3.2 depicts projected population in the FAA for the years 2020 and 2030.

The population of the Canadian side of the FAA is projected to grow moderately over the next twenty years. The City of Windsor's share of the census metropolitan area's population has gradually declined since the mid-1990s as the other municipalities have developed. However, over the next thirty years Windsor's population share is expected to stabilize. In general, the population in the Canadian side of the FAA is expected to grow at an average rate of approximately 2 to 2 ½ percent. The exception to this is the Town of LaSalle where the expected rate of growth is projected to be between 2½ to 4% annually. The Town of LaSalle is a rapidly urbanizing municipality.

TABLE 3.2: FORECASTED POPULATION CHANGES IN THE FOCUSED ANALYSIS AREA

	2000	2020	2030	Percent Change		
				2000-20	2020-30	2000-30
Detroit	951,270	879,059	865,623	-7.6%	-1.5%	-9.0%
Wayne County	2,061,162	2,013,215	2,013,975	-2.3%	0%	-2.3%
SEMCOG Area	4,833,493	5,221,042	5,408,349	8.0%	3.6%	13.4%
Windsor	208,402	200,972*	NA*	-3.6%	NA	NA
Greater Windsor Area	NA	NA	NA	NA	NA	NA
Town of LaSalle	25,285	32,400*	NA*	28.1%	NA	NA
Town of Tecumseh	25,105	35,259*	NA*	40.4%	NA	NA

*None of the Municipalities' official Plan horizons go beyond 2016.

Tables 3.3, 3.4, and 3.5 contain breakdowns of the population by ethnicity, household income, and education level in the City of Detroit, in Wayne County and in the SEMCOG area for the United States side of the FAA.

TABLE 3.3: ETHNICITY OF U.S. COMMUNITIES

Race	City of Detroit	Wayne County	SEMCOG Area
African American	775,772 (82%)	868,992 (42%)	1,057,674 (22%)
White	116,599 (12%)	1,065,607 (52%)	3,481,652 (72%)
Hispanic Origin	47,167(5%)	77,207 (4%)	136,136 (3%)
Asian	9,268 (1%)	35,141 (2%)	123,949 (3%)
American Indian	3,140 (0%)	7,627 (0%)	16,452 (0%)
Pacific Islander	251 (0%)	506 (0%)	1,196 (0%)
Other Races	24,199 (3%)	32,020 (2%)	51,016 (1%)
Multi-Racial	22,041 (2%)	43,689 (2%)	144,242 (3%)

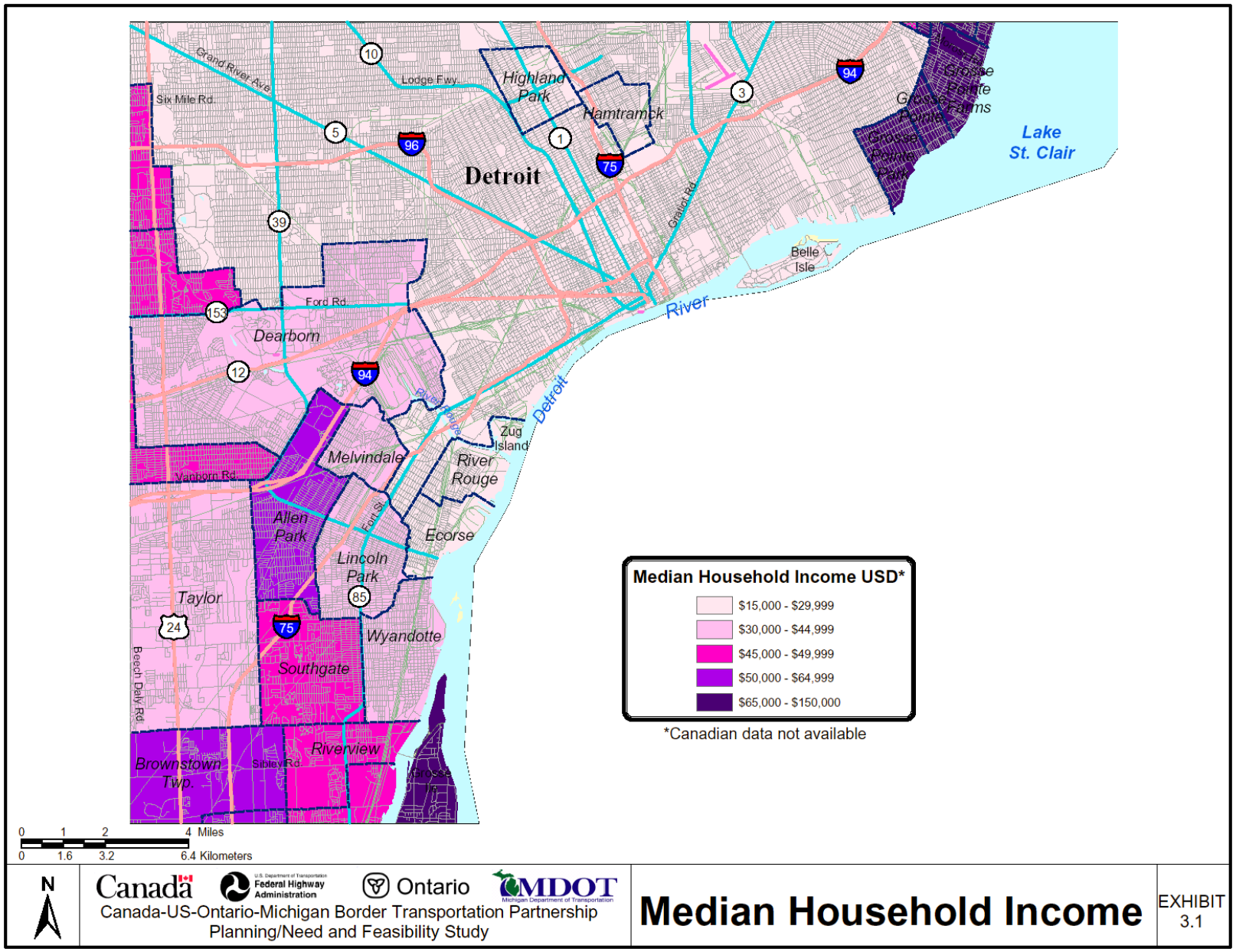
TABLE 3.4: HOUSEHOLD INCOME OF U.S. COMMUNITIES

Income	City of Detroit	Wayne County	SEMCOG Area
Less than $10,000	64,304 (19%)	92,221 (12%)	150,452 (8%)
$10,000 to $14,999	27,914 (8%)	48,855 (6%)	92,704 (5%)
$15,000 to $24,999	54,133 (16%)	99,816 (13%)	199,497 (11%)
$25,000 to $34,999	45,063 (13%)	93,954 (12%)	203,647 (11%)
$35,000 to $49,999	49,930 (15%)	119,059 (15%)	277,252 (15%)
$50,000 to $74,999	50,432 (15%)	144,208 (19%)	375,861 (20%)
$75,000 to $99,999	23,430 (7%)	81,981 (11%)	238,481 (13%)
$100,000 to $149,000	15,291 (5%)	62,511 (8%)	204,542 (11%)
$150,000 or more	5,985 (2%)	26,021 (3%)	103,916 (6%)
Total Households	336,429	768,440	1,845,329

TABLE 3.5: POPULATION AGE 25 OR OLDER BY EDUCATION OF U.S. COMMUNITIES

Highest Level of Educational Attainment	City of Detroit	Wayne County	SEMCOG Area
Did not Graduate High School	171,253 (30%)	300,506 (23%)	538,420 (17%)
Graduated High School	169,475 (30%)	399,885 (31%)	891,629 (28%)
Some College, No Degree	132,540 (24%)	303,851 (23%)	733,402 (23%)
Associate Degree	28,875 (5%)	76,254 (6%)	207,969 (7%)
Bachelor's Degree	38,356 (7%)	141,866 (11%)	477,604 (15%)
Graduate or Professional Degree	23,480 (4%)	82,926 (6%)	300,669 (10%)
Total Population Age 25 or Older	563,979	1,305,288	3,149,693

This depicts the City of Detroit, which is at the core of the U.S. side of the FAA, as having a significantly lower income level than the SEMCOG area or the State of Michigan as a whole. Census 2000 figures also depict a city whose population is composed mostly of minorities, with African-Americans being the largest minority group at 82% percent of the population, followed by Hispanics at 5% percent of the general population. Exhibit 3.1 graphically depicts these areas of low-level income.


Detroit
Highland Park
Hamtramck
Grosse Pointe Farms
Grosse Pointe Park
Lake St. Clair
Belle Isle
Detroit River
Dearborn
Melvindale
River Rouge
Zug Island
Ecorse
Allen Park
Lincoln Park
Taylor
Wyandotte
Southgate
Riverview
Brownstown Twp.
Grand River Ave
Six Mile Rd
Lodge Fwy
Ford Rd
Vanborn Rd
Fort St
Sibley Rd
Beech Daly Rd
Grand Rd
Median Household Income USD*
$15,000 - $29,999
$30,000 - $44,999
$45,000 - $49,999
$50,000 - $64,999
$65,000 - $150,000
*Canadian data not available
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
Federal Highway Administration
Ontario
MDOT
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Median Household Income
EXHIBIT 3.1

This discussion of population characteristics and level of income is included because the requirements of Title VI and Environmental Justice must be considered in the study. Any potential impacts that may result from proposed alternatives must not fall disproportionately upon minority or low-income groups. Mitigation will be required for those impacts that are unavoidable.

3.3. Title VI – Non-discrimination in Federally Assisted Programs

United States CIVIL RIGHTS ACT OF 1964

42 USC 2000(d)-2000(d)(1)

Title VI of the Civil Rights Act of 1964 requires federal agencies to ensure that no person, on the grounds of race, color, or national origin, is excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance. A proposed project that has the potential for disproportionately high and adverse effects on populations protected by Title VI shall only be carried out if:

- A substantial need for the project exists, based on the overall public interest; and
- Alternatives that would have less adverse effects on protected populations have either:
  - Adverse social, economic, environmental, or human health impacts that are more severe; or
  - Would involve increased costs of an extraordinary magnitude.

To be seriously considered for further studies and implementation, any generated alternatives on the U.S. side of the FAA must be in compliance with Title VI of the Civil Rights Act of 1964; i.e., that discrimination on the grounds of race, color, or national origin shall not occur in connection with programs and activities receiving Federal financial assistance.

3.4. Environmental Justice

The President of the United States issued Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” on February 11, 1994. It requires federal agencies to identify and address disproportionately high and/or adverse human health or environmental effects of their programs, policies, and activities upon minority and low-income populations. The United States Department of Transportation (U.S.DOT) and the Federal Highway Administration (FHWA) issued parallel orders to address Executive Order 12898. These orders specifically address the following:

- The distribution and effects of environmental problems and the policies and the processes to reduce disparities among the recipients of environmental risks.

- The concern for the disproportionate burden placed upon any population group as defined by gender, age, income, and/or race.
- The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to environmental laws, regulations, and policies.
- Transportation projects with potential impacts to the public must consider:
- The composition of the affected area.
- The potential for multiple or cumulative exposure.
- The interrelated cultural, social, occupational, historical, and economic factors.

The U.S.DOT requires transportation agencies to develop an effective public participation process and to assure meaningful community representation when developing projects and assessing their impacts. The U.S.DOT order on Environmental Justice establishes a process for the integration of Environmental Justice and Title VI procedures into the planning, environment, public involvement, and right-of-way components of transportation projects conducted during the environmental assessment or environmental impact statement phase of a project.

3.5. U.S. Community Character and Cohesion

In the U.S., Community Cohesion is an environmental issue that has the potential, within the jurisdiction of the National Environmental Policy Act, to become significant once alternatives are developed and their impacts are assessed. The effect that the division of neighbourhoods by a transportation project can have upon them is well recognized. All efforts must be made to avoid or mitigate such an occurrence. While this issue cannot be fully addressed in this study, it would be an important component of any subsequent environmental assessment or environmental impact statement efforts.

3.6. Economic Overview

This section provides an economic profile of the FAA and its importance in the context of the regional economy. The primary source of employment in the study area is the service industry, representing approximately 38% percent of all jobs in the United States of the FAA and 40% of all jobs on the Canadian side of the FAA. Manufacturing and Retail Trade– led by the automotive industry – are the next largest classes contributing 18% percent of total jobs in Canada and the U.S. Table 3.6 provides the distribution of employment by industrial sector for the United States (similar data are unavailable for Canada). It also shows employment projections in the SEMCOG area favouring the service industry at 44% and 45% of the total employment figures for the next 20 and 30 years. These figures are followed by the Manufacturing, Wholesale, and Retail trade sectors.

TABLE 3.6: U.S. EMPLOYMENT BY INDUSTRIAL SECTOR

Industrial Sector	City of Detroit			Wayne County			SEMCOG Area		
	2000	2020	2030	2000	2020	2030	2000	2020	2030
Agriculture, Mining, and Natural Resources	1,597 (0%)	2,795	3,531	6,503 (1%)	10,318	12,788	31,441 (1%)	36,168	41,185
Manufacturing	46,925 (14%)	35,562	35,363	178,053 (18%)	167,695	157,524	491,029 (18%)	485,758	458,831
Transportation, Communication, and Utility	28,170 (8%)	21,472	20,950	77,960 (8%)	76,857	78,993	140,602 (5%)	148,360	153,843
Wholesale Trade	14,405 (4%)	16,007	16,665	51,616 (5%)	61,276	63,215	145,353 (5%)	174,120	179,258
Retail Trade	38,447 (11%)	35,814	35,180	170,906 (18%)	181,196	182,550	469,237 (18%)	533,969	548,902
Finance, Insurance, and Real Estate	22,262 (6%)	21,651	24,171	63,419 (7%)	68,577	74,473	206,324 (18%)	224,824	239,511
Services	161,202 (47%)	145,857	138,498	371,900 (38%)	410,205	417,623	1,096,525 (41%)	1,330,868	1,384,487
Public Administration	32,416 (9%)	30,386	30,437	50,174 (5%)	48,756	48,809	92,541 (3%)	100,490	103,464
Total Employment	345,424	309,544	304,795	970,531	1,024,880	1,035,915	2,673,052	3,034,557	3,109,481

The City of Windsor has a census population of 208,402 and is the largest population center in the FAA on the Canadian side. Approximately 27 percent of employment in Windsor is related to automotive manufacturing machine, tool, die, and mold industry. Its location adjacent to Detroit gives it unique access to the "Big Three" automobile original-equipment manufacturers. Approximately 37,000 jobs in the Windsor/Essex area are in the automotive manufacturing sector. The DaimlerChrysler Canada Auto Assembly Plant, Ford Motor Company Auto Parts Plant, and the Windsor Casino are the three largest employers and together directly provide over 20,000 jobs to the city. The opening of the Windsor Casino in 1995 gave the economy an added boost by increasing tourism from the United States.

Employment in Manufacturing dominates the different employment sectors in the area surrounding the City of Windsor. The presence of skilled labour in the Town of Tecumseh and in the Town of LaSalle keeps the area's industrial sector globally competitive, and supports a diverse employment base. In addition to these industrial pursuits, agriculture will remain one of the area's primary economic sectors. Unless the Official Plan is amended, the amount of land designated for urban purposes will remain unchanged until 2016. A majority of the agricultural land will be protected from urban development and will be designated and available for agricultural use or for the conservation and rehabilitation of remaining natural heritage features.

For over one hundred years Detroit and its surrounding area have been closely associated with the automobile industry. Although Table 3.6 reveals a relatively

slow growth in employment in the manufacturing sector contrasted to the rapid growth of the service sectors, the economy is still dominated by the manufacturing sector. Detroit, along with Wayne County, has been steadily losing jobs in the past 20 years as shown in Table 3.6. However, non-residential development in Detroit, as well as the region, continued its significant expansion into the year 2000; a total of 54 million square feet of new floor space has been completed or is under construction.

Influenced by strong economic growth and trade liberalization agreements such as the North American Free Trade Act (NAFTA), Canada-U.S. trade has grown significantly and has been one of the key contributors to the vibrant economies on both sides of the border. Detailed information on the volume of trade between the two countries is included in the Strategic and Geographic Area Overview Working Paper (under separate cover) that preceded this report.

3.7. Land Use

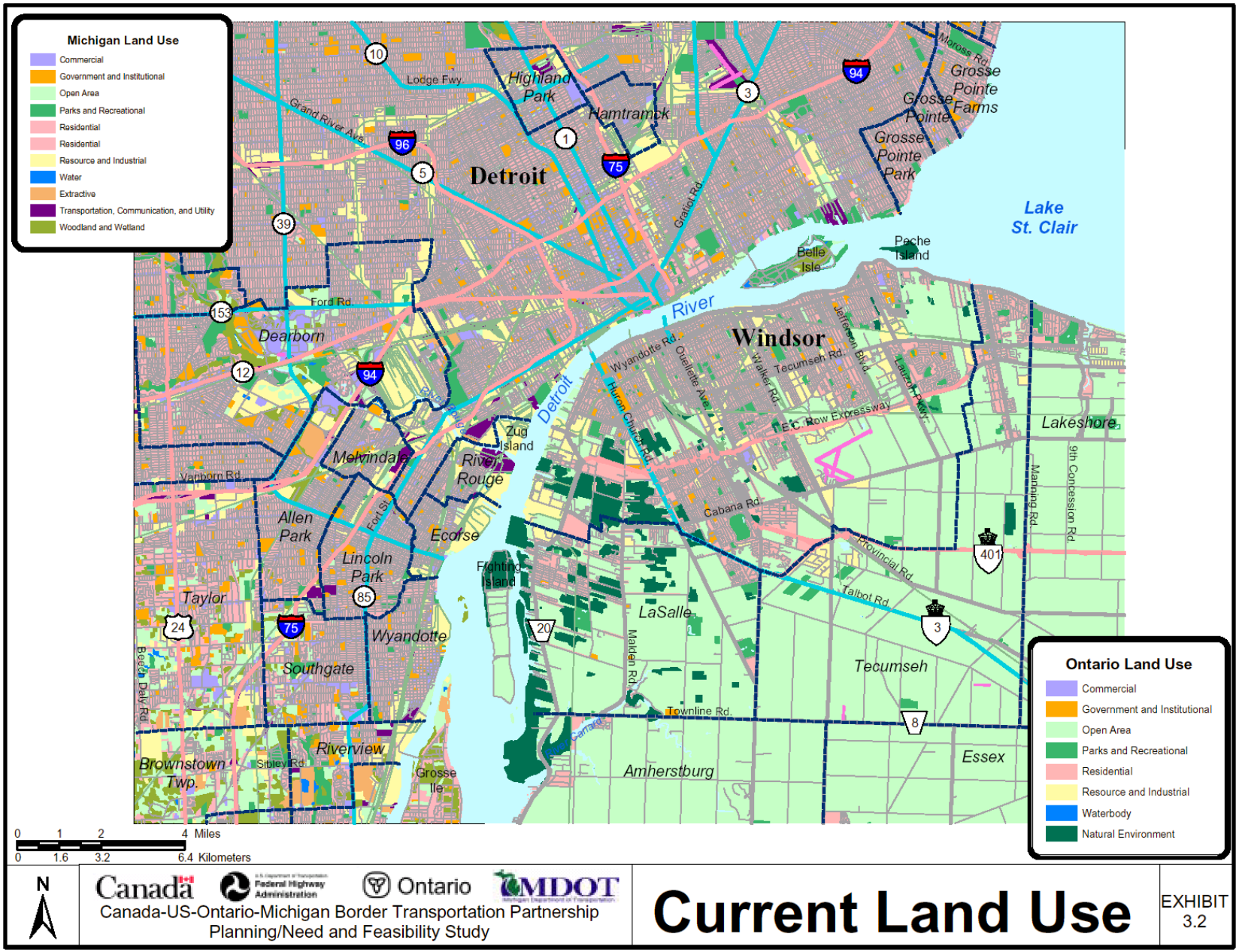
Zoning ordinances and land use policies control existing land use within the FAA. The land use pattern is shown in Exhibit 3.2. The FAA is mostly an urbanized region primarily consisting of residential, commercial and industrial land uses, with some land designation for open space and parks. There are also agricultural lands under tillage in the area surrounding the City of Windsor on the Canadian side of the FAA. The generation and assessment of alternatives must consider impacts to existing land uses and the implementation of future land use recommendations (Future land use recommendations are illustrated in Exhibit 3.3.

3.8. Implications

Although the FAA is geographically divided by a national border, its economy is not. The economies of the cities of Windsor and Detroit and their surrounding regions are strongly and increasingly intertwined and are likely to remain so in the future. Alternatives must attempt to avoid damage to this economy by avoiding the features which sustain it; i.e., central business districts, manufacturing plants, shipping centers, core population areas, etc., to the extent possible.

The waterfront of the Detroit River is the location of many heavy industrial plants. Many of these plants are no longer operational or are not operating at optimum capacity. Extensive efforts are underway to revitalize the waterfront on the U.S. side by promoting its redevelopment for residential or recreational uses. These efforts are extremely important to the long-term sustainability of the cities. Alternatives proposed must attempt to avoid hindering these efforts by avoiding to the extent possible the areas that have been renovated, are being renovated, or are planned for renovation.

There are many minority and low income neighbourhoods in the FAA. Every effort to ensure their extensive involvement will be made. With that input, every effort must be made to avoid impacts or to mitigate unavoidable impacts. On the


Michigan Land Use
Commercial
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Parks and Recreational
Residential
Residential
Resource and Industrial
Water
Extractive
Transportation, Communication, and Utility
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Hamtramck
Grosse Pointe
Grosse Pointe Farms
Grosse Pointe Park
Lake St. Clair
Peche Island
Belle Isle
River
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River Rouge
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Riverview
Brownstown Twp.
Grosse Ile
Fighting Island
LaSalle
Amherstburg
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Essex
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Ford Rd
Lodge Fwy
Grand River Ave
Gratiot Rd
Wyandotte Rd
Ouellette Ave
Walker Rd
Tecumseh Rd
Jefferson Blvd
Lauzon Pkwy
E.C. Row Expressway
Huron Church Rd
Cabana Rd
Provincial Rd
Talbot Rd
Malden Rd
Townline Rd
Vanborn Rd
Fort St
Sibley Rd
Meloche Dely Rd
9th Concession Rd
Manning Rd
Ontario Land Use
Commercial
Government and Institutional
Open Area
Parks and Recreational
Residential
Resource and Industrial
Waterbody
Natural Environment
0 1 2 4 Miles
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Canada
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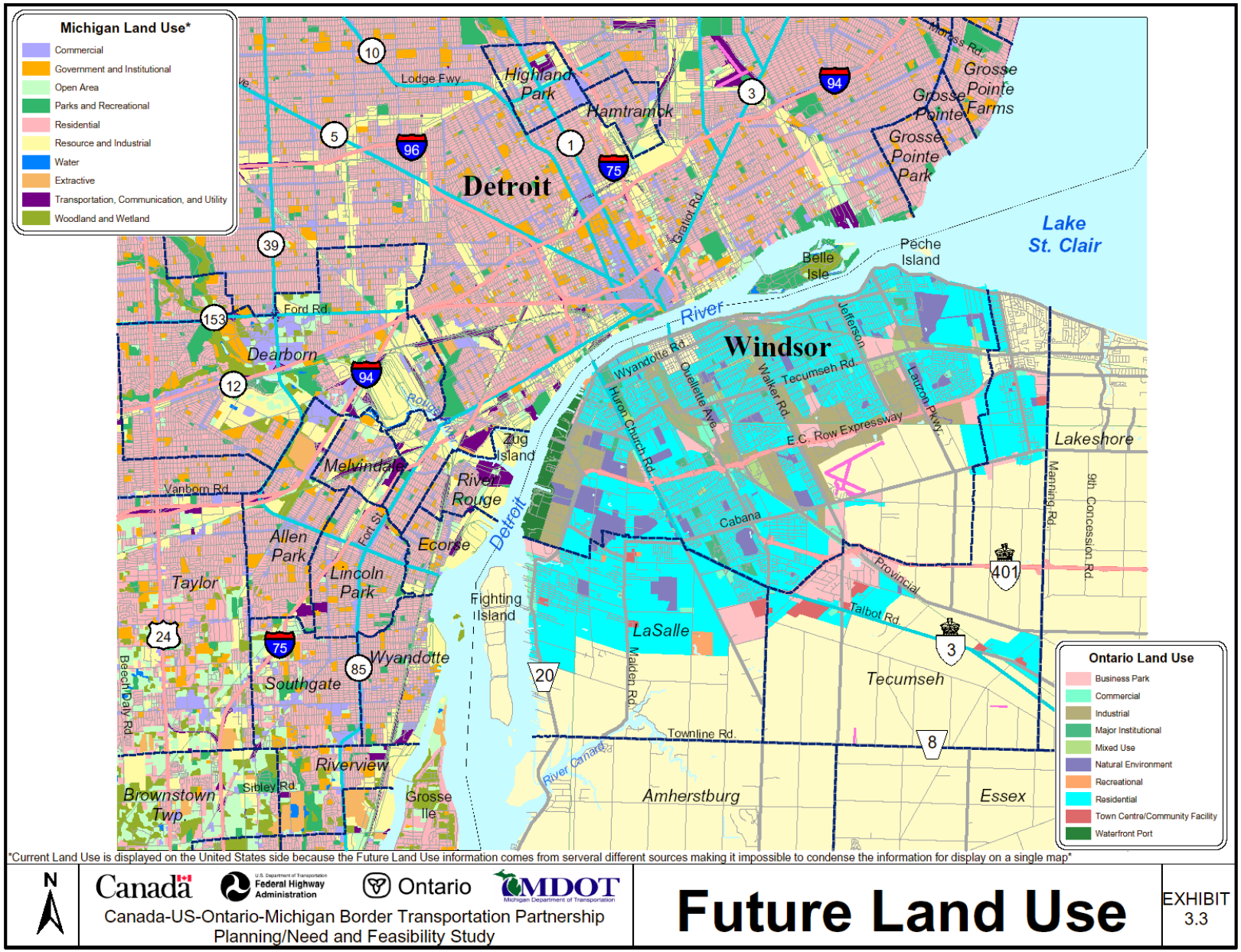
MDOT
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Current Land Use
EXHIBIT 3.2


Michigan Land Use*
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Resource and Industrial
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Extractive
Transportation, Communication, and Utility
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Riverview
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Grosse Ile
LaSalle
Amherstburg
Tecumseh
Essex
Lakeshore
Cabana
Townline Rd.
Talbot Rd.
E.C. Row Expressway
Ontario Land Use
Business Park
Commercial
Industrial
Major Institutional
Mixed Use
Natural Environment
Recreational
Residential
Town Centre/Community Facility
Waterfront Port
Current Land Use is displayed on the United States side because the Future Land Use information comes from serveral different sources making it impossible to condense the information for display on a single map
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Canada
Federal Highway Administration
Ontario
MDOT
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Future Land Use
EXHIBIT 3.3

U.S. side, these efforts must be conducted and documented in accordance with processes required by federal law.

Unfortunately, the density of the development within the FAA makes impact to some of these socioeconomic features almost inevitable. As alternatives are developed, it will be necessary to attempt to avoid as many impacts as possible, minimize to the extent possible those impacts which are unavoidable, and to mitigate for any impacts that are necessary in spite of these efforts. The meaningful participation by potentially affected neighbourhoods in the planning process will be critical to the successful development and planning of an alternative.

4. Air Quality and Noise

4.1. Overview

The Canadian air quality program is a complex mix of intergovernmental agreements between provinces, national law, and international agreements with the United States. The general approach is to regulate the sources of the emissions, align the Canadian emissions standards with those of the U.S. or promulgate more stringent standards where it is deemed necessary, and improve the air quality monitoring programs overall.

The U.S. air program regulates emission sources in much the same manner as Canada. However, the U.S. also regulates the amount of contaminants that the air in a given geographical area may contain. Because transportation is considered by the U.S. Congress to be a major contributor to the degradation of air quality, it has, through the Clean Air Act (CAA) Amendments of 1990, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the Transportation Equity Act for the 21st Century (TEA-21) tied the allocation of federal funds for transportation projects directly to the quality of the air in the area in which the projects will be constructed. Through these regulations, federally funded transportation projects may not, through their implementation, either degrade existing air quality or delay the attainment of air quality standards.

For these reasons, Cross Border project alternatives will require analysis of their potential impact upon both regional and local air quality conditions. The project improvements contained geographically in each country will be evaluated in the context of the legal and regulatory requirements in that country. The level of air quality impacts projected through such analysis will be an important factor in determining an alternative's viability.

4.1.1. Air Quality Background

United States

Air pollution is the presence of a pre-determined level of one or more substances in the air emitted from many sources such as factories, power plants, dry cleaners, cars, buses, trucks, windblown dust, and wildfires. At elevated concentrations, the presence of air pollutants in the atmosphere can threaten the health of flora, fauna, and human beings, as well as damage the ozone layer and buildings.

The U.S. Environmental Protection Agency (EPA), under the CAA of 1990, sets limits of eight identified air pollutants that are of nationwide concern: carbon monoxide (CO), sulphur oxides, hydrocarbons (or volatile organic compounds (VOCs), nitrogen oxides (NOx), ozone (O3), particulate matter sized 10 microns or less (PM10), particulate matter sized 2.5 microns or less (PM2.5), and lead (Pb).

The EPA Office of Air Quality Planning and Standards (OAQPS) has established National Ambient Air Quality Standards (NAAQS) for seven "criteria" air pollutants considered harmful to public health and the environment: CO, nitrogen dioxide (NO2), O3, PM2.5, PM10, sulphur dioxide (SO2), and Pb. The OAQPS further established two types of national air quality standards. ***Primary standards*** set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. ***Secondary standards*** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The U.S. NAAQS are listed in Table 4.1. The State of Michigan has adopted these same standards. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m3), and micrograms per cubic meter of air (mg/m3).

TABLE 4.1: U.S. NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Standard Value *	Standard Type
Carbon Monoxide (CO)		
8-hour Average	9 ppm (10 mg/m^3)	Primary
1-hour Average	35 ppm (40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)		
Annual Arith. Mean	0.053 ppm (100 μg/m^3)	Primary & Secondary
Ozone (O_3)		
1-hour Average	0.12 ppm (235 μg/m^3)	Primary & Secondary
8-hour Average	0.08 ppm (157 μg/m^3)	Primary & Secondary
Lead (Pb)		
Quarterly Average	1.5 μg/m^3	Primary & Secondary
Particulate Matter (PM_{10}) *Particles with diameters of 10 micrometers or less*		
Annual Arith.Mean	50 μg/m^3	Primary & Secondary
24-hour Average	150 μg/m^3	Primary & Secondary
Particulate Matter ($PM_{2.5}$) *Particles with diameters of 2.5 micrometers or less*		
Annual Arith.Mean	15 μg/m^3	Primary & Secondary
24-hour Average	65 μg/m^3	Primary & Secondary
Sulphur Dioxide (SO_2)		
Annual Arith. Mean	0.03 ppm (80 μg/m^3)	Primary
24-hour Average	0.14 ppm (365 μg/m^3)	Primary
3-hour Average	0.50 ppm (1300 μg/m^3)	Secondary
* Parenthetical value is an approximately equivalent concentration.		

Clean Air Act Amendments of 1990

The CAA Amendments of 1990 also direct the EPA to implement environmental policies and regulations that will ensure acceptable levels of air quality and conformance with the NAAQS. For proposed surface transportation system

projects, such as a proposed Border Crossing and its linkage to the existing transportation system, this is accomplished as part of the Final (Transportation) Conformity Rule (40 CFR, Parts, 51 and 93). According to the Transportation Conformity Rule "No federal agency may approve, accept, or fund any transportation plan, program, or project unless such plan, program, or project has been found to conform to any applicable State Implementation Plan (SIP). The Final Conformity Rule defines "conformity" as follows:

Conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and that such activities will not:

1) Cause or contribute to any new violation of any NAAQS in any area; increase the frequency or severity of any existing violation of any NAAQS in any area; or

2) Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

On the U.S. side of the FAA, the Southeast Michigan Council of Governments (SEMCOG) is the designated lead regional air quality planning agency. It is also the agency responsible for managing and facilitating the transportation air quality conformity process in Southeast Michigan. Through a formal and ongoing process, SEMCOG develops and constantly revises or updates a Regional Transportation Plan (RTP). A variety of factors are utilized in the development of the RTP. These factors include fiscal constraint (the availability of funding for a project), environmental justice, and air quality conformity.

Under the CAA Transportation Conformity Rule, the RTP undergoes a quantitative analysis that must demonstrate that the programs and projects it contains do not worsen the region's air quality and also conform to the SIP. Transportation projects proposed for this region must, therefore, also be shown to come from a conforming RTP and be consistent with the goals of the SIP. The 2025 Regional Transportation Plan was adopted by SEMCOG in June 2000, and reaffirmed in October 2002. The 2030 Regional Transportation Plan is under development with its adoption anticipated in 2004.

Current Air Quality in Southeast Michigan

Air monitoring data is utilized to evaluate ambient (i.e. "outdoor) air quality and determine if an area is meeting the NAAQS. Failure to meet any of the NAAQS can lead to the designation of an area as being in non-attainment. Based on historical air quality monitoring data, the Detroit metropolitan area was formally designated as a non-attainment area for the criteria air pollutants O3 and CO. However, in 1995 the area was redesignated by the EPA as a maintenance area for O3 and in 1999 redesignated as a maintenance area for CO. These redesignations to maintenance mean that the region is in transition from non-attainment to attainment and must maintain SIP's (or "Maintenance" Plans) for O3 and CO. In the case of ozone, the Maintenance Plan calls for the control of emissions for its precursor chemicals (VOCs) and oxides of nitrogen (NOx).

Canada

Standards for Pm and Ozone

In 1998, the federal and provincial environment ministers (exception Quebec) signed the Canada-Wide Accord on Environmental Harmonization, in which they agreed to develop Canada-Wide Standards (CWS) for certain air quality pollutants that threaten environmental and human health. For example, the recommended CWS for PM2.5 is 30 ug/m3 averaged over 24 hours, to be achieved by 2010. The recommended CWS for O3 is 65 ppb averaged over 8 hours, also to be achieved by 2010. Each jurisdiction is responsible for developing implementation plans outlining comprehensive actions to meet the standards for PM and ozone by the 2010 target date. Like the other jurisdictions in the CWS program, Ontario plans to produce a five-year progress report on the standards in 2006, with annual reporting beginning in 2011.

Environmental Protection Act

Ambient Air Quality Criteria Ontario Regulation 337

The province of Ontario has established desirable ambient air quality criteria of contaminants for a specific period of time under the Environmental Protection Act.

Ontario's ambient air quality criteria is summarized in Table 4.2

TABLE 4.2: ONTARIO AMBIENT AIR QUALITY CRITERIA

POLLUTANT	AMBIENT AIR QUALITY CRITERIA
Carbon Monoxide (CO)	
1-hour Average	30 ppm
8-hour Average	13 ppm
Nitrogen Dioxide (NO_2)	
1-hour Average	0.2 ppm
24-hour Average	0.1 ppm
Ozone (O_3)	
1-hour Average	0.08 ppm
Lead (Pb)	
24-hour Average	2.0 $\mu g/m^3$
PARTICULATE MATTER	
PM_{10} 24-hour Average	50 $\mu g/m^3$
$PM_{2.5}$ 24-hour Average	30 $\mu g/m^3$
Sulphur Dioxide (SO_2)	
1-hour Average	0.25 ppm
24-hour Average	0.10 ppm
1 year	0.02 ppm

Ontario's Air Quality Improvement and Information Programs

The Ontario Drive Clean Program, implemented in 1999, is a mandatory vehicle emissions inspection and maintenance program, designed to cut smog-causing emissions from vehicles (especially NOx and VOCs). The program requires that light-duty cars, trucks, and vans have an emissions test every two years for registration renewal. The program applies to vehicles that are more than three model years old and fewer than 20 model years old and requires a pass or conditional pass for vehicle registration renewal.

The Smog Patrol, a unit of the Ontario Ministry of the Environment, patrols highways to identify excessively smoking vehicles, both those registered in Ontario and those from out-of-province. The vehicles are stopped, inspected, and may be escorted to a mobile test facility to have their emissions checked.

The Ontario Ministry of the Environment administers the Smog Alert program for localities in Ontario, including Windsor. Citizens can register to receive email smog alerts at the www.airqualityontario.com website. This website also includes Air Quality Indices for various localities updated hourly, based on the concentrations of six common air pollutants. As a part of Ontario Regulation 127/01 - "Airborne Contaminant Discharge - Monitoring and Reporting", the Ministry also administers the OnAIR program, which gives citizens access to reports on emissions from stationary sources in the province's industrial, commercial, institutional and municipal sectors. The OnAIR website is http://www.ene.gov.on.ca/environet /onair/splash.htm.

Ontario's Smog Plan

The Ontario Ministry of the Environment has set an Air Quality Target for Smog. This target is to achieve, by 2015, a 75 percent reduction in the number of times the 80 ppb one hour ozone criterion is exceeded. The base for calculating the reductions is the average number of exceedences in the years 1990 to 1994. The Ontario Smog Plan works towards this target. Ontario's Smog Plan is a partnership effort that sets regional and sectoral targets for emission reductions. A goal of the plan is to reduce emissions of NOx and VOCs by 45 percent from 1990 levels by the year 2015.

4.1.2. Air Quality Status of the Focused Analysis Area

As discussed above, the Detroit-Ann Arbor area, which includes the counties of Macomb, St. Clair, Oakland, Livingston, Washtenaw and Monroe, was historically classified as a non-attainment area for the two criteria air pollutants CO and O3. Currently, this area is reclassified as a maintenance area for these two pollutants due to a successful completion of a set of specific conditions listed in Section 107 (d)(3)(E) of the 1990 CAAA. The Detroit-Ann Arbor area is designated as an attainment area for all the other criteria air pollutants for which there are NAAQS; i.e. SO2, NO2, Pb and particulate matter (PM10). Background data are now being collected to allow a determination of attainment status.

Notably, the one-hour ozone standard is being phased out and replaced with a new eight-hour standard set to protect public health against longer exposure

periods. The old one-hour standard remains in effect on a region-by-region basis. Conformity to the new standard could be applicable in 2005. Similarly, the U.S. EPA has recently instituted the new PM2.5 standard.

While Canada does not use an "attainment/non-attainment" designation, Ontario does measure local air quality against its ambient air quality criteria for contaminants. In "Air Quality in Ontario: 2000 Report", the Ontario Ministry of the Environment reported trends from 1991 to 2000 for ozone, inhalable particles, nitrogen dioxide, carbon monoxide, and sulphur dioxide, for nine U.S. and Canadian cities in the Great Lakes Basin Area, including Windsor. The report showed that Windsor's mean concentrations for these contaminants were below respective U.S. NAAQS and Ontario ambient air quality criteria, with the exception of ozone. The mean concentration of ozone in Windsor during this period exceeded Ontario's standard of 80 ppb, but was below the U.S. standard of 120 ppb. The report states that air quality in the province as a whole has improved significantly.

4.1.3. Canada/United States Bi-National Agreement

Convinced that transboundary air pollution[1] can cause major harm to natural resources of vital environmental, cultural and economic importance, and to human health in both countries, the governments of Canada and the United States have developed agreements to control it and to improve air quality. The text of these agreements can be found in the following memoranda and the long-range plans: the Memorandum of Intent Concerning Transboundary Air Pollution of 1980, the 1986 Joint Report of the Special Envoys on Acid Rain, as well as the ECE Convention on Long-Range Transboundary Air Pollution.

The general objective of the parties is to control transboundary air pollution between the two countries, and the purpose of these agreements is to establish practical and effective instruments to address shared concerns regarding transboundary air pollution. The two countries established a set of specific air quality objectives, which they undertake to achieve for emissions limitations or reductions of defined air pollutants. Two such pollutants are sulphur dioxide and nitrogen oxides.

4.1.3.1. Sulphur Dioxide

United States

The agreement specified a reduction of annual sulphur dioxide (SO2) emissions that amount to 10 million tons below 1980 levels by 2000 and an achievement of a permanent national emission cap of 8.9 million tons of sulphur dioxide per year for electric utilities by 2010.

[1] Transboundary air pollution has been defined as air pollution whose physical origin is situated wholly or in part with the area under the jurisdiction of one Party and which has adverse effects, other than effects of global nature, in the area under the jurisdiction of the other Party.

Canada

The agreement specified an annual emissions reduction in the seven easternmost provinces to 2.3 million tons per year by 1994 and the achievement of a sulphur dioxide emissions cap in the seven easternmost provinces at 2.3 million tons per year from 1995 through December 31, 1999. The agreement also specifies the achievement of a permanent national emissions cap of 3.2 million tons per year by 2000.

4.1.3.2. Nitrogen Oxides

United States

The agreement stipulates a reduction of total annual emissions of nitrogen oxides by approximately 2 million tons from 1980 emission levels by 2000 for stationary sources. For mobile sources, the agreement required the implementation of a mobile source NOx control program to the extent required by Title II of the CAA.

Canada

The Canadian government mandated an interim reduction requirement by year 2000 of annual national emissions of nitrogen oxides from stationary sources by 100,000 tons below the year 2000 forecast level of 970,000 tons. Since then, new requirements in annual national emissions reduction have been implemented. The goal was to achieve these new requirements by 2000 and/or 2005. For mobile sources, the Canadian government has since implemented a more stringent control program for gasoline and diesel powered vehicles.

In addition, the agreement establishes the rules and regulations for each government or party to follow for assessment, notification, and mitigation of proposed actions, activities and projects that, if carried out, would be likely to cause or affect significant transboundary air pollution. Further, the parties agree to establish and maintain a bilateral Air Quality Committee to assist in the implementation of the joint agreement.

The committee meets once a year and additionally at the request of either party to monitor progress and to refer to the International Joint Commission any unresolved dispute for negotiations.

4.1.4. Air Quality Monitoring

As discussed previously, air monitoring data is used to evaluate ambient ("outdoor") air quality conditions, determine compliance with the appropriate standards and, in the U.S., establish the attainment / non-attainment status of an area. Fortunately, there are a number of permanent air quality monitoring stations located in the FAA. The air pollutants measured include CO, NO2, O3, PM10/PM2.5, SO2, and lead.

On the U.S. side, these air monitoring stations are operated by the Michigan Department of Environmental Quality (MDEQ) and on the Canadian side by the

Ontario Ministry of the Environment. Exhibit 4.1 shows the locations of the monitoring stations. Table 4.3 contains the most recently available data collected from these air monitoring stations: The values shown are the highest recorded concentrations for the time periods that correspond to the appropriate standards or criteria, which are also shown. These results are summarized below, by pollutant.

Carbon Monoxide - For CO, measurements are collected at three stations (two on the U.S. side and one on the Canadian side) and the highest concentrations are well within the one and eight-hour standards or criteria. Importantly, CO is largely a product of motor vehicle exhaust and serves as a good indicator of the localized impact from surface traffic in the FAA.

Nitrogen Dioxide – NO2 levels are recorded at five locations in the FAA (two on the U.S. side and three on the Canadian side). On the U.S. side, the annual values are well within the NAAQS and on the Canadian side the 1 and 24-hour values are below the Ontario criteria.

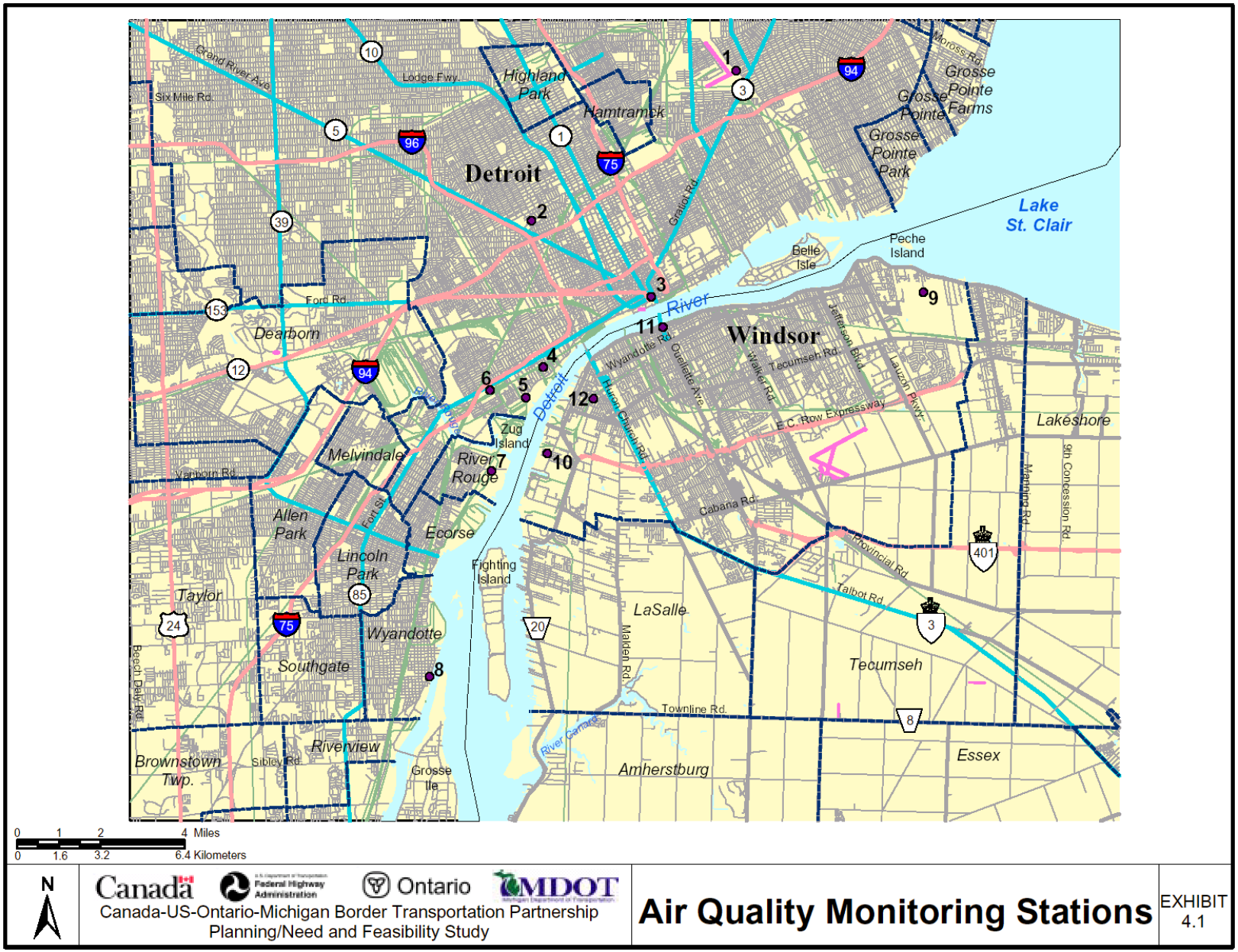
Ozone – O3 is measured at four locations in the FAA (two each on the U.S. and Canadian sides). The highest O3 values on the U.S. side are very close to the old one-hour NAAQS and equal, or exceed, the new eight-hour NAAQS. It is for this reason that the Detroit area was formally designated as a non-attainment area and is currently designated as a maintenance area for this pollutant. On the Canadian side, the highest one- hour values also exceed the Ontario criteria. Because O3 is a regional pollutant, formed from emissions of NOx and VOCs from many different sources, it is expected that elevated levels on both sides of the U.S. / Canadian border would be comparable.

Particulate Matter – PM10 is measured at six locations in the FAA (three each on the U.S. and Canadian sides). As shown, the highest 24-hour and annual values are well within the NAAQS on the U.S. side. However, the highest 24-hour values on the Canadian side exceed the Ontario criteria, which is set much lower than the U.S. standard. PM2.5 is measured at four locations on the U.S. side and one location on the Canadian side. For the former, the highest 24-hour values are within the NAAQS but the annual values exceed the U.S. standards. At the latter, the highest 24-hour value also exceeds the Ontario criteria for this pollutant.

Lead – Ambient lead levels are monitored at four locations on the U.S. side and three locations on the Canadian side. The highest recorded levels are well within the corresponding 24-hour and quarterly standards or criteria.

Sulphur Dioxide – SO2 levels are measured at five locations on the U.S. side and at four locations on the Canadian side. In all cases, the highest recorded levels are well within the 1-, 3- and 24-hour and annual standards or criteria established for this pollutant.

Based on air monitoring data collected within the FAA, ozone and particulate matter (PM10 and PM2.5) are the pollutants that currently exceed either the U.S. NAAQS or the Ontario air quality criteria. Importantly, the air quality impact assessment for the proposed Border Crossing project will include these pollutants.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Grosse Ile
Fighting Island
LaSalle
Amherstburg
Tecumseh
Essex
Lakeshore
Grand River Ave.
Six Mile Rd.
Lodge Fwy.
Ford Rd.
Warren Rd.
Fort St.
Beech Daly Rd.
Sibley Rd.
Gratiot Rd.
Wyandotte Rd.
Ouellette Ave.
Walker Rd.
Tecumseh Rd.
Jefferson Blvd.
Lauzon Pkwy.
E.C. Row Expressway
Huron Church Rd.
Cabana Rd.
Provincial Rd.
Talbot Rd.
Malden Rd.
Townline Rd.
River Canard
Matchett Rd.
9th Concession Rd.
Moross Rd.
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
Federal Highway Administration
Ontario
MDOT
Canada-US-Ontario-Michigan Border Transportation Partnership
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Air Quality Monitoring Stations
EXHIBIT 4.1

TABLE 4.3: 2000 AMBIENT AIR QUALITY DATA IN VICINITY OF THE DETROIT, MICHIGAN-WINDSOR, ONTARIO BORDER

Site No. *	Station	Carbon Monoxide (CO) (ppm)		Nitrogen Dioxide (NO_2) (ppm)			Ozone (O_3) (ppm)		Lead (Pb) (ug/m^3)		Particulate Matter (PM_{10}) (ug/m^3)		Particulate Matter ($PM_{2.5}$) (ug/m^3)		Sulfur Dioxide (SO_2) (ppm)			
		1-hr	8-hr	1-hr	24-hr	Annual	1-hr	8-hr	24-hr	Quarterly	24-hr	Annual	24-hr	Annual	1-hr	3-hr	24-hr	Annual
Detroit Area Air Monitoring Stations																		
1	E. Seven Mile	--	--	--	--	0.018	0.103	0.09	--	0.02	--	--	42.2	14.68	--	0.052	0.018	0.005
2	Linwood	8.2	4.7	--	--	0.025	0.092	0.08	--	0.03	--	--	54.8	15.60	--	0.098	0.030	0.006
3	Penobscot Bldg	7.2	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4	W. Fort	--	--	--	--	--	--	--	--	0.04	108	38	47.5	18.10	--	0.088	0.058	0.007
5	W. Jefferson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.103	0.046	0.008
6	Natl. Chem. Serv.	--	--	--	--	--	--	--	--	--	146	43	--	--	--	--	--	--
7	River Rouge	--	--	--	--	--	--	--	--	0.02	45	24	--	--	--	0.050	0.019	0.005
8	Wyandotte	--	--	--	--	--	--	--	--	--	--	--	45.8	17.45	--	--	--	--
U.S. NAAQS		35	9	--	--	0.053	0.12	0.08	--	1.5	150	50	65	15	--	0.50	0.14	0.030
Windsor Air Monitoring Stations																		
9	Tecumseh	--	--	0.073	0.040	--	--	--	--	--	--	--	38.6	--	0.098	--	0.019	0.004
10	Wright/Water	--	--	--	--	--	--	--	0.03	--	146	--	--	--	0.100	--	0.020	0.006
11	Downtown	11.8	3.6	0.104	0.045	--	0.103	--	0.04	--	82	--	--	--	0.091	--	0.025	0.006
12	West	--	--	0.061	0.042	--	0.106	--	0.04	--	78	--	--	--	0.182	--	0.045	0.009
Ontario AAQC		30	13	0.2	0.1	--	0.08	--	2.0	--	50	--	30	--	0.250	--	0.100	0.020

ppm = parts per million
ug/m3 = micrograms per cubic meter
CO = carbon monoxide
NO2 = nitrogen dioxide
O3 = ozone
AAQC = Ambient Air Quality Criteria
Pb = lead
PM10 = particles with diameters of 10 micrometers or less
PM2.5 = particles with diameters of 2.5 micrometers or less
SO2 = sulphur dioxide
NAAQS = National Ambient Air Quality Standards

Sources: Michigan Air Quality Annual Report for 2000
Air Quality in Ontario 2000 Report
U.S. Environmental Protection Agency Air Quality System (AQS)

4.1.5. Summary

Air quality is an extremely important issue in both Canada and the U.S. So much so that both countries have enacted an international agreement to reduce air pollutants and have taken internal measures to control them. In the U.S., federal funding for transportation projects is based on their ability to meet air quality standards thus requiring that proposed projects undergo an air quality analysis in order to demonstrate such capability. In Canada, the high level of concern attached to air quality is evidenced by the many vigorous efforts to control emissions at their sources, including those from vehicles.

4.2. Overview – Noise Mitigation

Mitigation of the noise created by traffic on new transportation projects is an important concern whose feasibility must be evaluated on a situation by situation basis. Such evaluation must take economic as well as technical factors into consideration. The determination of the potential need for mitigation is based upon the amount of noise increase over the ambient sound level that is generated by the transportation project.

Canadian noise mitigation operates on two regulatory levels, the Federal and the Provincial. While the Federal level establishes certain standards, the Provincial level may also develop and impose standards provided they are equivalent to, or more stringent than, the Federal standards. This has been done in the case of Ontario.

The United States employs a methodology and philosophy of noise control very similar to Canada's. While the details of the noise assessment methods and the standards themselves differ somewhat between the countries, both are based upon the increased level of noise generated by the transportation project. Likewise, the decision to mitigate or not mitigate is based upon economic considerations as well as technical factors.

As stated previously, noise impacts are an important issue in both countries but are generally not a decisive factor in either when evaluating alternatives, in part because the option exists to mitigate them. In any case, alternatives will require noise assessments in accordance with the governing requirements of the country in which they are located.

4.2.1. Noise Mitigation

United States

The National Environmental Policy Act of 1969 requires that traffic noise created by federally funded transportation projects be evaluated and, if found to be excessive, mitigated. The Federal-Aid Highway Act of 1970 further mandated that the Federal Highway Administration (FHWA) develop standards for the evaluation and mitigation of traffic noise, which it has done. These standards are known as the Noise Abatement Criteria (NAC).

There are two categories of projects to which the NAC are applied:

Type I = The construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.

Type II = Noise abatement on an existing highway.

Traffic noise impacts are defined as occurring when predicted traffic noise levels approach or exceed the NAC or when predicted traffic noise levels substantially exceed the existing noise level even though they may not exceed the NAC.

The traffic noise impact analysis is required on every Type I project although mitigation is not. The outcome of the analysis and the specifics of every circumstance determine whether mitigation is necessary or feasible on a particular project. While noise is an important factor to be considered in every alternative that is developed, it is not necessarily a key one in making a final determination as to the preferred alternative.

There are several kinds of noise abatement (mitigation) measures including noise barriers, vegetation, traffic management, building insulation, buffer zones, and pavement type which must be considered in every analysis. For a variety of practical reasons, noise barriers are the most commonly applied measure.

TABLE 4.4: U.S. NOISE ABATEMENT CRITERIA

NOISE ABATEMENT CRITERIA Hourly A-Weighted Sound Level in Decibels (dBA)*			
Activity Category	$L_{eq}(h)$	$L_{10}(h)$	Description of Activity Category
A	57 (exterior)	60 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	70 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	75 (exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands
E	52 (interior)	55 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

* Either $L_{eq}(h)$ or $L_{10}(h)$, but not both, may be used on a project.

L_{eq} = the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as a time-varying sound level during the same period.

$L_{eq}(h)$ = the hourly value of L_{eq}

L_{10} = the sound level that is exceeded 10 percent of the time (the 90^{th} percentile) for the period under consideration.

$L_{10}(h)$ = the hourly value of $L_{eq}(h)$

TABLE 4.5: MITIGATION EFFORT FOR ONTARIO HIGHWAY PROJECTS

CHANGE IN NOISE LEVEL ABOVE THE AMBIENT	MITIGATION EFFORT
0 – 5 dBA	None
> 5 dBA	Investigate noise control measures on ROW If project cost is not significantly affected, introduce noise control measure within ROW Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation over first row receivers. Mitigate to ambient, as administratively, economically, and technically feasible.

Canada

The Ministry of Transportation (MTO) has, in an agreement with the Ministry of Environment, established a noise control protocol. This protocol is applicable to the MTO Capital Construction Program for all classes of MTO Provincial roads, both urban and rural. Noise impacts will be predicted for all Provincial roads based on traffic projections for 10 years after completion or best available data if such projections are not available. For the construction of new transportation facilities or the expansion of existing transportation facilities, MTO must consider the noise impacts upon existing or approved residential areas. The assessment of the feasibility of noise control measures will include both technical and economic considerations. The determination of the need for mitigation is based upon the level of increase of noise over the ambient sound level and the objective of attaining an outdoor sound level Leq 55dBA or less.

Even though transportation corridors do not meet the definition of stationary sources, it is nevertheless required that noise levels at receptors not exceed certain maximums during specified parts of the day. This, in turn, means that noise analysis conducted in accordance with the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) or other provincially approved method will be required for alternatives analysis. Noise mitigation must be proposed if and where appropriate, as determined by the analysis.

4.2.2. Summary

The potential for noise generation by a proposed project is an important consideration. It will be necessary to conduct noise impact analysis to determine if mitigation measures are needed and, if so, what type. However, even though they are important, the noise impacts of a project are typically not a deciding factor in the question of whether or not it is implemented.

5. Cultural Environment

5.1. Historical and Archaeological Sites

Canada

Historic and archaeological sites are protected by a system of overlapping and interlocking statutes and the agencies that administer those statutes. The Ontario Heritage Act assigns responsibility for the stewardship of such sites to the Ministry of Culture. However, depending upon the nature of the proposed development and the nature of the site potentially affected by it, other federal and provincial agencies may become involved in the evaluation of the acceptability of the proposed project. Likewise, depending upon the nature of the project and site, various federal and provincial statutes come into play and interactively carry out the evaluation process.

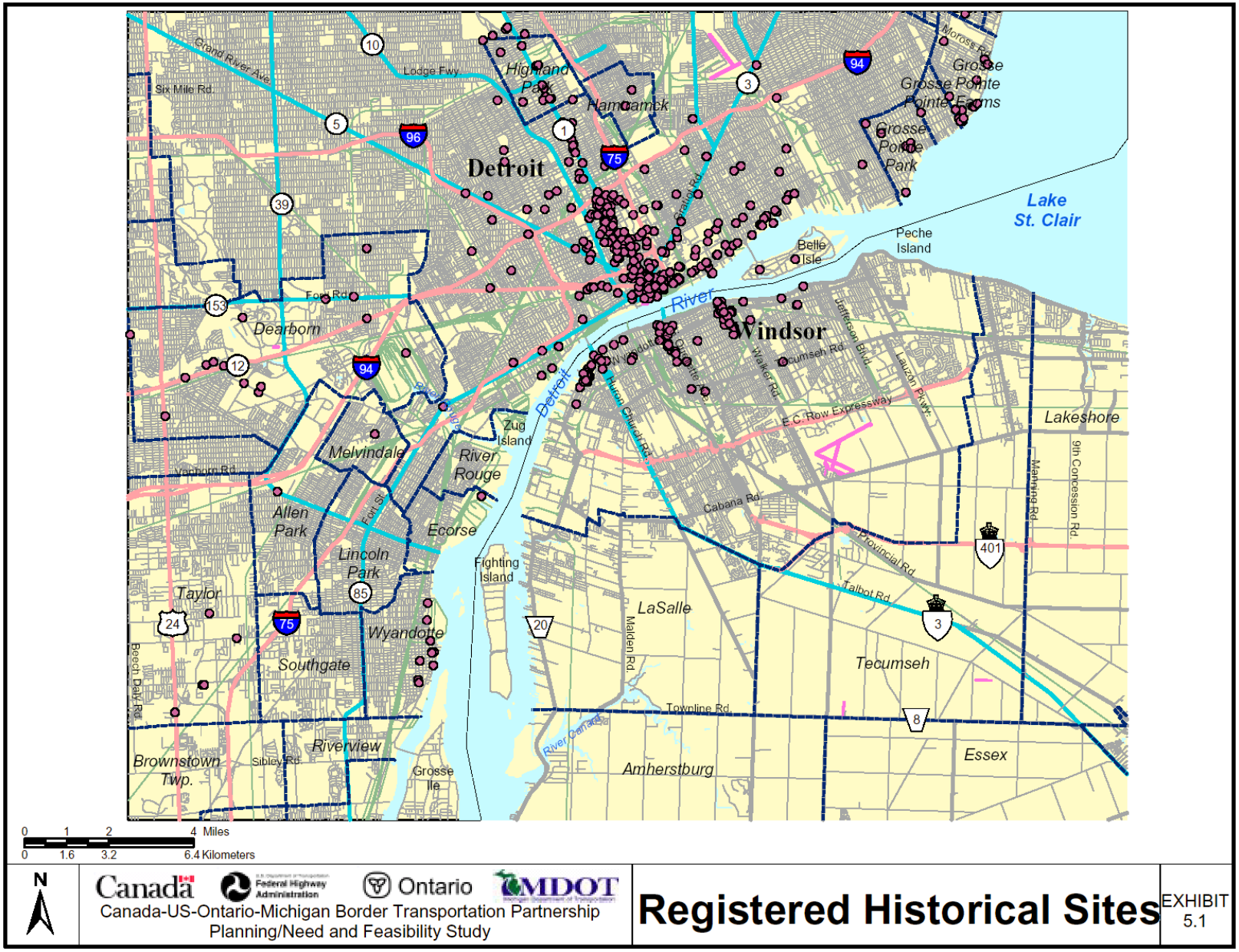
In the case of transportation projects, heritage assessments are undertaken as required by the Ontario Environmental Assessment Act. If clearance is granted, it is granted by the Ministry of the Environment acting with the concurrence of the Ministry of Culture. If the potentially affected site is under federal jurisdiction as set forth in the Historic Sites and Monuments Act, the Department of Canadian Heritage becomes involved with the process in an advisory role. Lastly, if the project involves a federal initiative, federal funding, land under federal jurisdiction, navigable waters, and/or impacts to fish habitat, clearance is required from the Canadian Environmental Assessment Agency. The likely nature of any proposed alternatives that may result from this study argues that all of the aforementioned statutes and agencies will apply to them.

Historic sites are typically structures that are important as representative or unique to their time, geographical locations where important events have taken place or which are associated with historically prominent people. There are 466 designated historic sites in the Canadian section of the FAA. These sites are depicted on Exhibit 5.1.

Archaeological sites are associated with the recovery and/or study of artifacts that provide information about the people that have occupied the land before its present occupants. Because archaeological sites are particularly vulnerable to vandalism and theft, they cannot by law be depicted in this report. There is a potential for more archaeological finds as new development occurs. Since areas along the Detroit River contain an especially high potential for such finds the undisturbed areas in the Canadian side of the FAA must be considered to have such potential.

United States

As of December 1998, there were 452 sites in the U.S. section of the FAA in Wayne County on the National Register of Historic Places (NRHP), the State Register of Historic Sites, and on the list of Michigan Historical Markers. There is


Detroit
Windsor
Dearborn
Melvindale
River Rouge
Allen Park
Ecorse
Lincoln Park
Taylor
Wyandotte
Southgate
Riverview
Brownstown Twp.
Grosse Ile
Zug Island
Fighting Island
LaSalle
Amherstburg
Tecumseh
Essex
Lakeshore
Hamtramck
Highland Park
Grosse Pointe
Grosse Pointe Farms
Grosse Pointe Park
Belle Isle
Peche Island
Lake St. Clair
Detroit River
Canada
Grand River Ave.
Six Mile Rd.
Lodge Fwy.
Fort Rd.
Vanborn Rd.
Beech Daly Rd.
Sibley Rd.
Jefferson Blvd.
Walker Rd.
Tecumseh Rd.
E.C. Row Expressway
Huron Church Rd.
Cabana Rd.
Provincial Rd.
Talbot Rd.
Malden Rd.
Townline Rd.
Manning Rd.
9th Concession Rd.
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
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also a possibility that archaeological sites might be encountered because of the age of the city and the likelihood that the area was the center of prehistoric activities due to its location on a river, which is also the strait between two Great Lakes. However, the constant development and redevelopment of the area over three centuries has probably destroyed many, if not most, of those sites.

Archaeological and historic sites are protected by Section 106 of the National Historic Preservation Act of 1966 (NHPA). In addition, the Section commonly known as "4(f)" of the Department of Transportation Act of 1966, further requires that the proposed impacts of a transportation project upon a historic or archaeological site that is listed or eligible for listing under NHPA undergo a rigorous evaluation to determine if there are prudent and feasible alternatives to such impacts.

In doing so, it will be necessary to delineate an Area of Potential Effect (APE) for each project alternative that is developed at the Practical Alternatives phase of this effort and investigate it for known or potential archaeological or historical sites in accordance with procedures approved by the State Historical Preservation Officer. If such sites are found, a 4(f) evaluation of the potential impacts and proposed mitigation measures will be necessary for each one. Mitigation measures may range from allowing no impact on the site to documentation of the site prior to its removal. Specific measures depend upon the nature and importance of the specific site.

Most of the U.S. historical sites depicted in Exhibit 5.1 are individual structures (houses, churches, commercial buildings, etc.) or historical districts. Any one of them has the potential to preclude a new route, bridge, or other transportation structure from using its location. A small number of the sites are historical markers denoting the occurrence of a historically important event. In such cases, after analysis that determines that there is no alternative other than to impact the site and that there is public concurrence on the necessity, it may be possible to utilize it for a new facility.

5.2. Parks/Recreational Areas

Canada

Parks and recreational areas are generally considered a social feature in Canada. However, because they are included in the broader definition of cultural features that is utilized by the U.S., they are included here for purposes of continuity, clarity and simplicity of discussion. There are no National Parks within the FAA. However, located within the City of Windsor and the Town of LaSalle is the Ojibway Prairie Provincial Prairie Reserve, which was regulated under the Provincial Parks Act in 1977 (OMNR 2002). Recently the Ojibway Prairie Park Management Plan was published, which sets out the park management directives for the next twenty years.

As outlined in the Official Plans for the City of Windsor and the Town of LaSalle, there are also numerous parks and Open Space Features that provide recreational opportunities for the public. Municipal parks of note include the Ojibway Park, located immediately adjacent to the Ojibway Prairie Park, and the

Black Oak Heritage Park. These parks are associated with lands described as Environmentally Sensitive Areas (ESAs) or Areas of Natural or Scientific Interest (ANSIs).

There are several local parks, playgrounds, and recreation areas located in the study area that are within the jurisdictions of the local municipalities. Two Conservation Areas (CA) in the jurisdiction of Essex Region Conservation Authority (ERCA) are located within the FAA; Devonwood in the City of Windsor and McAuliffe Woods in Tecumseh. These conservation areas are principally for pedestrian use on trail networks, with the natural heritage features serving as the attraction. The Devonwood CA is associated with the Devonwood ESA.

United States

There are several dozen parks, playgrounds, and recreational areas in the FAA, and the Section 4(f) provisions of the Department of Transportation Act of 1966, in conjunction with NEPA, protect publicly owned facilities. Any proposal to use such a facility will require an evaluation in accordance with Section 4(f) to ensure that all measures to avoid it or mitigate the affects upon it have been considered. If such lands have been purchased or enhanced through the use of grants from Section 6(f) of the Land and Water Conservation Fund, a "6(f) evaluation" will be necessary and any lands used ("converted") will require replacement.

The FAA is home to three major professional sports stadiums, several theatres, and several golf courses. They provide major focal points of cultural interest and activities on the part of the residents of the FAA and, in the case of the professional sports arenas, the population of the state as a whole. Proposals for the utilization of publicly owned recreational areas will require a 4(f) evaluation and, if the facility was purchased or enhanced with a grant from Section 6(f) of the Land and Water Conservation Fund, a 6(f) evaluation. Any 6(f) lands converted to transportation use will require replacement.

Privately owned parks, playgrounds, or recreation areas do not fall within the jurisdiction of Section 4(f). However, the Federal Highway Administration (FHWA) strongly encourages the preservation of such facilities. Therefore, any proposed use of such a site will require careful evaluation and consideration.

Parks and recreational area locations are depicted on Exhibit 5.2

Summary

Because of the way in which Canadian and Provincial laws are structured, it is possible, to some extent, to assign a hierarchical importance to parks, playgrounds, and recreational areas in Canada. This provides a degree of certainty in the planning of projects that is absent in the U.S. evaluation of the same type of projects. This allows proponents to identify priorities for environmental protection.

The evaluation of potential impacts to such facilities in a U.S. transportation project heavily depends upon the context in which the specific feature is situated. For example, a large impact to a regionally important park that did not impair the basic function of the park might be acceptable in some situations while a small impact to a small local park that did impair its basic function might be

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Parks/Recreation Areas

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unacceptable. Each of these situations must undergo a 4(f) evaluation of the impacts to the facility within the context of its setting before a definitive answer can be given. Any one of these facilities may preclude a new route, bridge, or other type of transportation project. In general, every effort must be made to avoid a park, playground, or recreation area.

5.3. Museums, Zoos, and Aquariums

Canada

There are no Canadian zoos or aquariums in the FAA. There are five museums. There is no legislation specifically directed at the protection or preservation of museums.

United States

There are several museums, zoos, and aquariums in the FAA. Publicly owned facilities of this type, if they are eligible for inclusion on the Historic Register or are associated with a public park, are protected by Section 4(f); otherwise, they are typically not protected by 4(f).

Privately owned museums, zoos, and aquariums do not fall within the jurisdiction of Section 4(f). However, the FHWA strongly encourages the preservation of such facilities.

Museums, zoos, and aquarium locations are depicted on Exhibit 5.3

Summary

Impacts to these facilities in Canada are evaluated on the basis of public need for the project and the ability to mitigate project impacts upon the facilities. In most cases, necessary impacts to a museum, zoo, or aquarium would likely not preclude a route, bridge, or other transportation project.

Impacts to this type of facility in the U.S. will require an analysis of the proposed impacts in the context within which the facility is situated. Any one of these facilities may preclude a route, bridge, or other transportation project. In general, every effort must be made to avoid a museum, zoo, or aquarium unless a 4(f) analysis provides otherwise.

5.4. Public Libraries

Canada

There are 11 public libraries in the FAA. One is located in the Town of Tecumseh and the balance are located in the City of Windsor. There are no policies or statutes that specifically protect libraries in the FAA.


Detroit
Windsor
Lake St. Clair
Highland Park
Hamtramck
Grosse Pointe Farms
Grosse Pointe Park
Grosse Pointe
Belle Isle
Peche Island
Dearborn
Melvindale
River Rouge
Allen Park
Ecorse
Lincoln Park
Taylor
Wyandotte
Southgate
Riverview
Brownstown Twp.
Grosse Ile
Fighting Island
Zug Island
LaSalle
Amherstburg
Tecumseh
Essex
Lakeshore
Grand River Ave.
Six Mile Rd.
Lodge Fwy.
Ford Rd.
Vanborn Rd.
Beech Daly Rd.
Sibley Rd.
Jefferson Blvd.
Tecumseh Rd.
Wyandotte Rd.
Walker Rd.
Lauzon Pkwy.
E.C. Row Expressway
Huron Church Rd.
Cabana Rd.
Provincial Rd.
Talbot Rd.
Malden Rd.
Townline Rd.
River Canard
Manning Rd.
9th Concession Rd.
Morosse Rd.
Grand Rd.
Detroit River
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
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United States

There are over two dozen libraries in the FAA, including the Detroit Public Library and its many branches. Many of the buildings in which the main Detroit Public Library and its branches are housed were constructed in the first half of the 20th century and may, therefore, be eligible for the National Register of Historic Places (NHRP) or the State Register of Historic Sites. Any proposals involving their use or impact upon them would require an evaluation of their eligibility for the NHRP and, potentially, a 4(f) evaluation.

Public libraries are depicted on Exhibit 5.4

Summary

Impacts to a public library in Canada would not preclude a route, bridge, or other transportation project if the public necessity of the project can be demonstrated.

Impacts to a public library in the U.S. would not, in general, preclude a route, bridge, or other transportation project if the public necessity of the project and the ability to mitigate its impacts can be demonstrated. However, it must be noted that many of the libraries in the U.S. side of the FAA are housed in structures that may be eligible for protection under 4(f). As such, any one of these facilities may preclude a route, bridge, or other transportation project and should be presumed to do so until a 4(f) analysis determines otherwise.

5.5. Churches, Mosques, Synagogues

Canada

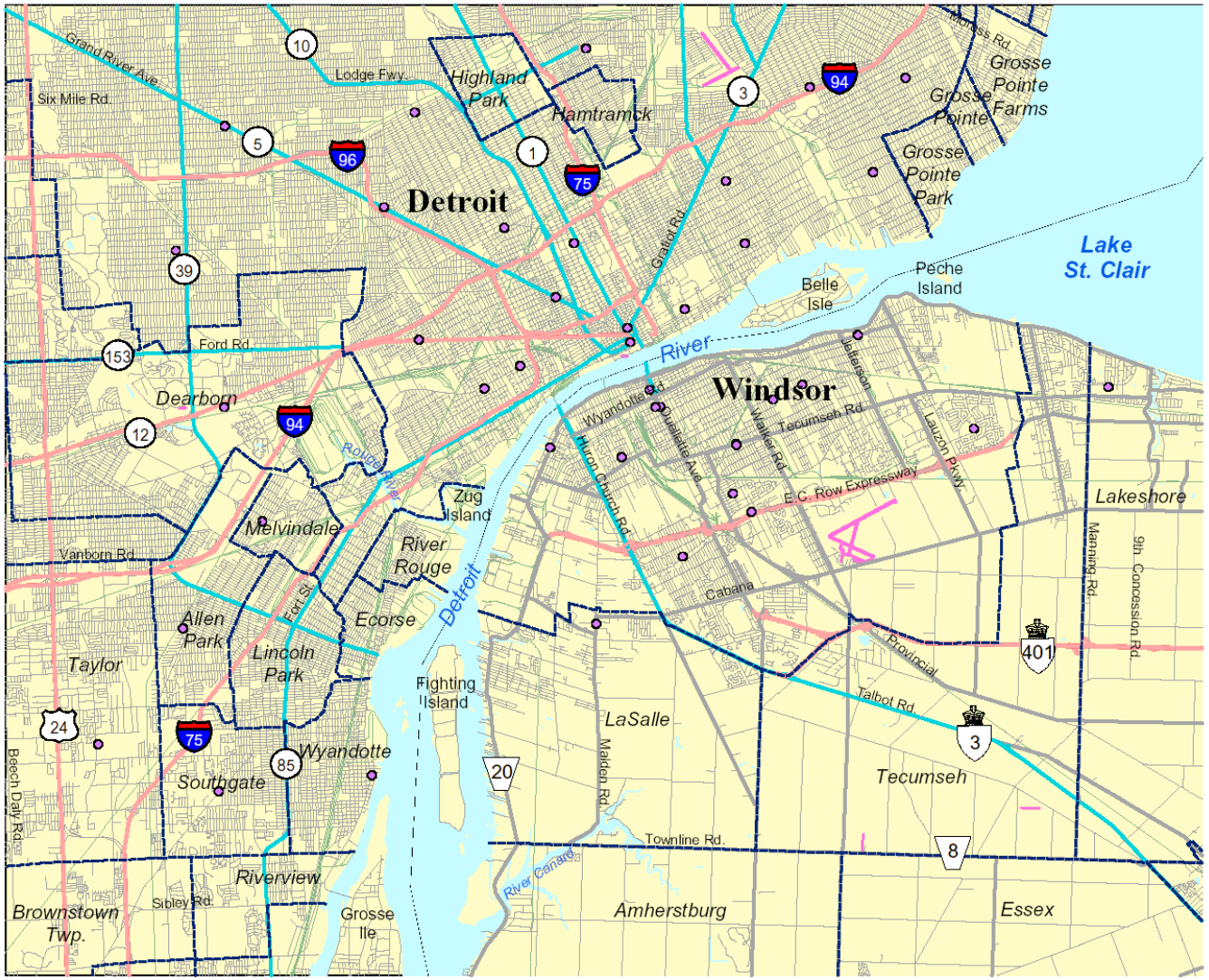
The FAA supports a diverse community and its diverse faiths. Houses or places of worship often also function as social, recreational, or cultural centers and often they are the anchors of community cohesiveness for the neighborhood. While these factors may be intangible, they are nonetheless real, and often carry with them large emotional attachments by the community they serve. Any alternative proposing the use of such a facility must carefully assess its function in, and ties to, the community.

United States

The FAA is rich in the houses of worship of all faiths. These facilities are vital parts of their neighborhoods and are often the social centers of the communities. The ethnic diversity of the FAA ensures that nearly every faith is represented. Any proposed use will require a careful evaluation of their impacts upon the community that they serve.

In addition to the cultural function that they serve, it is not unusual for these facilities to be historically important. Any proposed alternatives that may affect such a facility should include at least a preliminary assessment of its eligibility for inclusion on the National Register of Historic Places.

Churches, mosques, and synagogues are depicted on Exhibit 5.5



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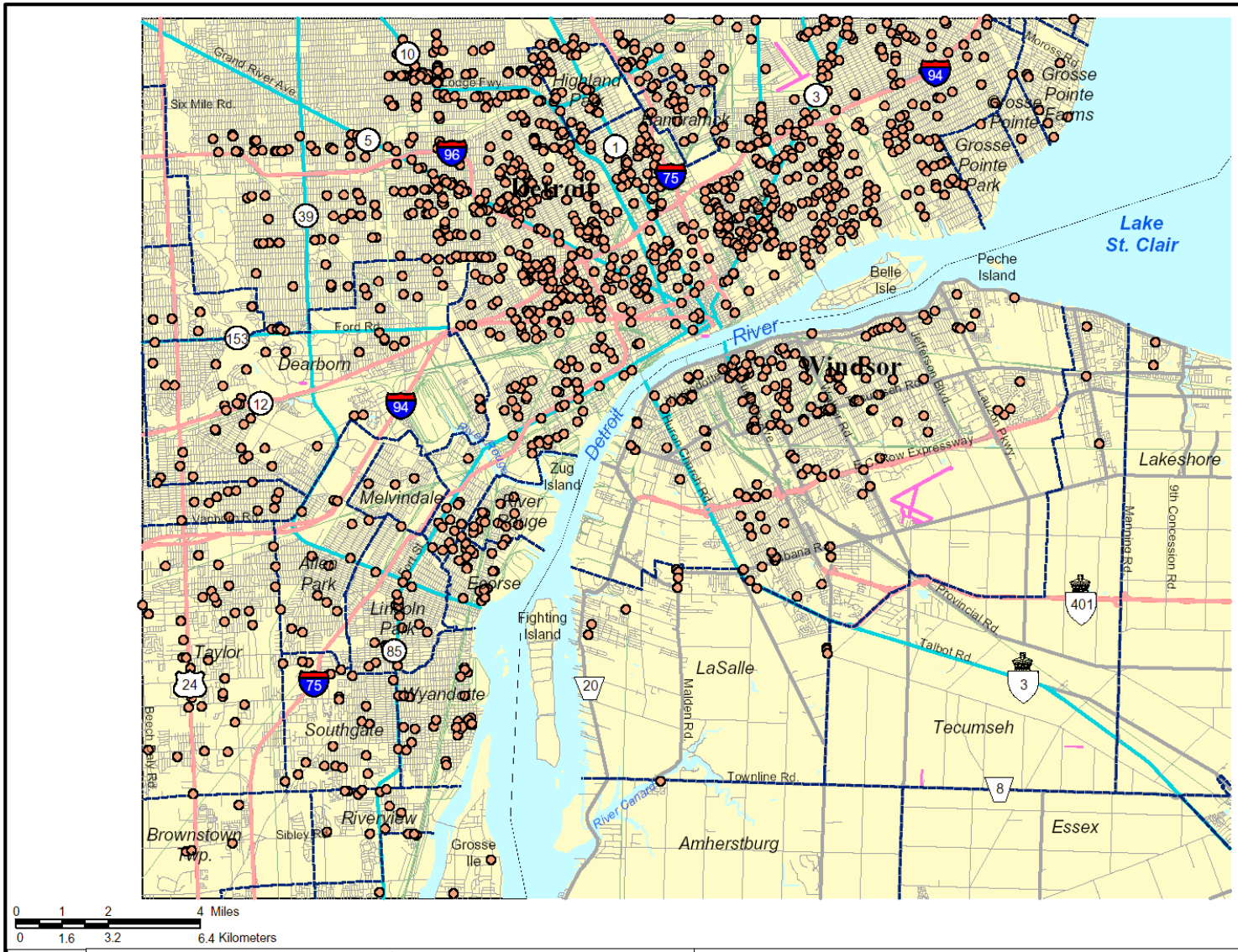

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Planning/Need and Feasibility Study

Churches, Mosques, Synagogues

EXHIBIT 5.5

Summary

Impacts to a church, mosque, or synagogue in Canada would not preclude a route, bridge, or other transportation project if the public necessity of the project can be demonstrated.

Impacts to a church, mosque, or synagogue in the U.S. may not preclude a route, bridge, or other transportation project if the public necessity of the project and the ability to mitigate its impacts can be demonstrated. However, many of these facilities in the U.S. FAA are also historical structures or sites of historical events, or are central to the community cohesion or activities of ethnic populations, minority populations, or low-income populations. Potential impacts will require analysis for environmental justice issues and possibly 4(f) issues. Any one of these facilities may preclude a route, bridge, or other transportation project and should be presumed to do so until these analyses determine otherwise.

5.6. Cemeteries

Canada

There are 9 cemeteries in the FAA. Because of their function, there is often a special attachment to them by the communities they serve. In addition to these intangible, powerful emotional attachments, the Cemeteries Act confers jurisdiction for the evaluation of projects that will have an impact upon human remains upon the Cemeteries Registrar of the Ministry of Consumer and Business Services. If the human remains are located on a heritage site, the Ontario Heritage Act will also apply, although jurisdiction remains with the Cemeteries Registrar. In the case of projects involving federal initiatives or funding, the Canadian Environmental Assessment Act will also apply. Proposed impacts upon cemeteries by any alternatives that are developed will, therefore, require careful evaluation and consideration. Several levels of archeological study of any cemetery potentially impacted by any proposed alternatives may be required; the degree of study and analysis is directly related to the certainty and nature of the potential impacts. Levels of archeological study range from a records search to test excavation and mitigation measures such as salvage and documentation, or removal of remains for re-interment elsewhere. In general, cemeteries should be avoided by transportation projects.

United States

Cemeteries, by their nature, tend to be or become historical sites. Several of the listed cemeteries (marked with an asterisk) are on the State Register of Historical Sites. The proposed utilization of a cemetery will require an evaluation of its eligibility for inclusion upon the National Register of Historic Places and its status as a publicly owned park as part of a potential Section 106 NHPA evaluation and a potential 4(f) evaluation. There may also be considerable public interest, involvement, and sentiment with such proposals.

Further, regulations require that a search be conducted for any remaining kin of

those buried in such a cemetery in order that proper notification and arrangements for reburial may be made. This is a lengthy and tedious process whose ultimate outcome is often uncertain and which may not be the one desired. Prudence usually favors the avoidance of public cemeteries if at all possible.

Cemetery locations are depicted on Exhibit 5.6

Summary

Because of the many legal and social entanglements associated with them, cemeteries should be avoided.

5.7. Implications

The area designated as the Focused Analysis Area has been the location of several thousand years of human activity. Its most recent 300 years of development has created a relative density of cultural features. The most densely packed area is in the immediate vicinity of the current Detroit River crossings.

Proposed alternatives that have potential for affecting a cultural feature will require an evaluation of that feature's status under one or more of the various federal, provincial, or state statutes and policies that may govern it. The range of impacts to a feature allowable by a transportation project range from none to complete utilization of the site's location, depending upon the nature of the specific feature and its legal and technical circumstances. In general, on the Canadian side of the FAA, impacts to a feature will not preclude a route, bridge, or other transportation project if public necessity is demonstrated. On the U.S. side of the FAA, any one of these features has the potential to preclude a route, bridge, or other transportation project and must be presumed to do so until the appropriate analysis or analyses demonstrates otherwise.

Once alternatives have been identified, it will be necessary to conduct database and map searches specific to those alternatives. A limited field inspection of alternative locations may then be necessary to determine if there are features that do not appear in the databases or maps but that may, nevertheless, be of concern. This screening activity will then be able to highlight any potential "fatal flaws" in any initial proposed alternatives.

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Planning/Need and Feasibility Study

Cemeteries

EXHIBIT 5.6

6. Natural Environment

6.1. Overview of Focused Analysis Area

In its original state, the FAA was a complex of wetlands, woodlands, rivers and streams that provided abundant wildlife habitat. European settlement commenced approximately 300 years ago and, as it progressed, the existing natural features were extensively modified or eliminated. Woodlands were cleared for residential, agricultural, or industrial use and wetlands were filled for the same reasons or drained in attempts to control malaria. As urbanization progressed, the quality of some streams and rivers significantly declined. In the last 30 years a general recognition of the declining quality of these features has become widespread and various programs to stop and reverse the decline have been introduced at all levels of the governments of, and even between, Canada and the United States. There is steadily increasing public knowledge, interest, support, and participation in these programs.

6.2. Regulatory Framework

Canada

Natural Heritage Process and Policy

The significance of natural heritage features, including wetlands, is highlighted in the Provincial Policy Statement (PPS) issued under the Planning Act. The PPS provides policy direction on key provincial interests related to land use planning and development. The policy considers both direct influences on the natural heritage features as well as potential indirect influence due to activities in the immediate vicinity of the features. Section 2.3.2 of the Provincial Policy indicates that development and site alteration may be permitted on adjacent lands if it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions for which the area is identified. Section 2.3.3 includes provisions for habitat diversity and conservation/enhancement of corridor and linkage function of natural features, specifically indicating that the diversity of natural features in an area, and the natural connections between them should be maintained, and improved where possible.

Local planning authorities provide Natural Heritage planning policies within strategic planning documents or Official Plans (OP). These documents outline the goals, objectives, and direction for the long-term growth and development of their communities. Typically these plans provide for an ecosystem approach to planning which involves integrated application taking economics, environment and the community into consideration, and provides a strategy for how significant Natural Heritage features will be protected and maintained. These plans provide the most basic level of municipal land use control and provide schedules, which outline the distribution, and general boundaries of recognized or designated wetlands or designated natural heritage features.

With respect to Section 2.3.2 of the Provincial Policy Statement, proponents of land development would typically be required to prepare an Environmental Impact Study (EIS) or similar document. This EIS process permits the confirmation that there will be no negative impacts that may influence the form and function of provincially significant and possibly regionally significant natural heritage features, or that the impacts to features of local significance can be minimized.

Studies for municipal and provincial infrastructure are conducted under an environmental assessment process requiring approval or clearance under the Environmental Assessment Act and, in some instances, the Canadian Environmental Assessment Act. Although these studies are not authorized under the Planning Act, the PPS is an important guiding document for such studies.

Environmental Policy Areas – Municipally Identified

The local municipalities, through their implementation of Official Plans, have identified natural heritage features that require environmental management considerations in order to sustain their form and function. In the City of Windsor and the Town of LaSalle, identified natural heritage features are managed in the general context of Environmental Policy Areas (EPA). The environmental management designations are intended to provide a formally identified level of protection, process, or constraint for proposed development within natural heritage features. The designations for the City of Windsor include Natural Heritage Features, and Environmental Policy Areas A and B. In the Town of LaSalle the designated areas are identified as Wetlands, Environmental Features and Candidate Natural Heritage Features (CNHS).

The recognition of the natural heritage features within the Official Planning Documents fulfills the commitment in the Provincial Policy Statement to recognize environmental features. In the context of the transportation feasibility study, the general categorization of the natural heritage features, and the varying dedicated level of protection policies for development in and around these features, permits the general recognition of relative significance and sensitivity.

The significance and sensitivity of the natural heritage features within the FAA can be qualified on the basis of the environmental policies of the local municipalities. General sensitivity, as interpreted in this study, is outlined below in terms of the hierarchical environmental protection policies associated with the natural feature's land use designation:

City of Windsor Official Plan

Natural Heritage Feature: "Is a land use designation that provides for the protection and conservation of Windsor's most environmentally significant and sensitive natural areas, including provincially designated areas of natural and scientific interest (ANSI) and wetlands". (Note: ANSIs are divided into two different categories, Earth Science or Life Science, and are identified by the Ontario Ministry of Natural Resources)

Environmental Policy Area A: "May be partially developed provided that the development conserves the significant natural features and/or functions"

Environmental Policy Area B: "May be developed provided the significant natural

features are incorporated as part of the development."

Candidate Natural Heritage Site: "Is land characterized by potential significant and/or sensitive environmental features or functions."

Town of LaSalle Official Plan

Wetland: Wetland areas that have been identified by the Ministry of Natural Resources as provincially significant. Development is to be prohibited within these areas, and development within the 120 meter (130 yards) adjacent lands may be permitted if it can be demonstrated that there will be no impact on wetland form and function.

Natural Environment: Natural heritage features including certain woodlots, prairie communities, ESAs, and ANSIs have been designated as Natural Environment. Permitted land use in these areas is limited to conservation uses, passive recreation and wildlife management.

Candidate Natural Heritage Sites: Natural heritage features that are of local significance. These areas have been designated as Residential land use and associated development activity will only be permitted if it can be demonstrated that the heritage site is being protected to the "greatest degree possible".

Environmental Policy Area B: "May be developed provided the significant natural features are incorporated as part of the development."

Candidate Natural Heritage Site: "Is land characterized by potential significant and/or sensitive environmental features or functions."

Environmentally Significant Areas and Areas of Natural and Scientific Interest – Provincially Identified

The FAA natural heritage features were evaluated for the purpose of identifying Environmentally Significant Areas (ESAs) by Oldham (1983). The evaluations were undertaken based on several physical, ecological, and social criteria that included:

Criterion 1: Significant Landforms

Criterion 2: Linkage System

Criterion 3: Migratory Stopover

Criterion 4: Significant Communities

Criterion 5: Hydrological Significance

Criterion 6: Diversity

Criterion 7: Significant Species

Criterion 8: Size

Criterion 9: Research/Education

Criterion 10: Aesthetic/Historical

Several Environmentally Significant Areas (ESAs) and Areas of Natural and Scientific Interest (ANSIs) have been identified in the FAA, the majority of which are concentrated in an area of west Windsor. The ESAs, as described in Oldham

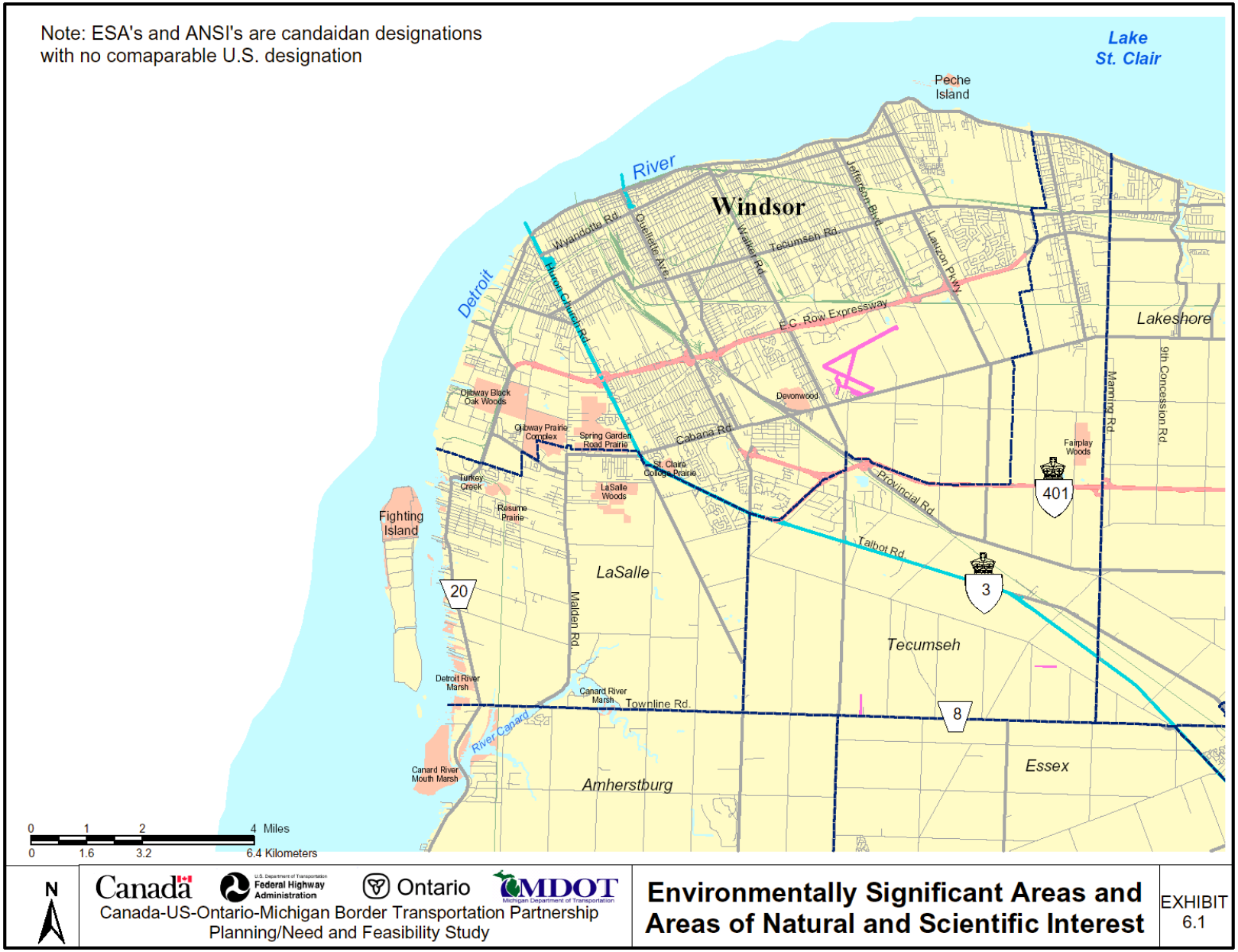
(1983), updated in 1994 and mapped by ERCA (2001) include 14 sites, with several locations exhibiting overlapping designation as Provincially Significant Wetlands and ANSIs. The ESAs and ANSIs within the FAA are identified in Exhibit 6.1 and include the following:

- Ojibway Prairie Complex (ESA 3 and ANSI)
- Canard River Mouth Marsh (ESA 13)
- LaSalle Woods (ESA 18)
- Ojibway Black Oak Woods (ESA 19 and ANSI)
- Spring Garden Road Prairie (ESA 29 and ANSI)
- Peche Island (ESA 30)
- Fighting Island (ESA 32)
- Fairplay Woods (ESA 38)
- Devonwood (ESA 45)
- St. Claire College Prairie (ESA 49)
- Reaume Prairie (ESA 64)
- Turkey Creek (ESA 76)
- Detroit River Marshes (ESA 77)
- Canard River Marshes (ESA 78)

The ESAs are identified on the basis of fulfilling environmental criteria that provide recognition of these areas as being representative of sensitive ecological functions and significant ecological, physical and social attributes. Based on this evaluation and ESA designation, these areas have been included in local environmental policies as areas that require particular attention during development planning to protect their ecological form and function.

Candidate Natural Heritage Sites

Both the City of Windsor and Town of LaSalle have undertaken biological inventories of the remnant forest and prairie habitat features to provide detailed information regarding local significance (ERCA/Windsor 1992; Silani & Waldron 1996). The inventories were undertaken in an effort to identify whether the remaining natural areas within the communities that were not designated and afforded some form of preservation status in planning documents, should be included under an Open Space/ Greenway system or ESA or similar policy to assist in preserving these areas. The areas under review were considered as Candidate Natural Heritage Sites (CNHS). The CNHS were evaluated on the basis of study specific criteria that included:


Note: ESA's and ANSI's are candaidan designations
with no comaparable U.S. designation
Lake
St. Clair
Peche
Island
River
Windsor
Detroit
Wyandotte Rd.
Ouellette Ave
Walker Rd.
Tecumseh Rd.
Jefferson Blvd.
Lauzon Pkwy
E.C. Row Expressway
Lakeshore
9th Concession Rd
Manning Rd.
Ojibway Black Oak Woods
Ojibway Prairie Complex
Spring Garden Road Prairie
Cabana Rd.
St. Clairs College Prairie
Devonwood
Fairplay Woods
401
Provincial Rd.
Talbot Rd.
Turkey Creek
LaSalle Woods
Resume Prairie
Fighting Island
LaSalle
20
Malden Rd.
3
Tecumseh
Detroit River Marsh
Canard River Marsh
Townline Rd.
8
River Canard
Canard River Mouth Marsh
Amherstburg
Essex
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
U.S. Department of Transportation Federal Highway Administration
Ontario
MDOT Michigan Department of Transportation
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Environmentally Significant Areas and
Areas of Natural and Scientific Interest
EXHIBIT
6.1

CITY OF WINDSOR CRITERIA (1992)	TOWN OF LASALLE CRITERIA (1996)
• Significant ecological function • Diversity • Significant Communities • Significant Species • Size • Representation • Condition; and • Significant Earth Science Features.	• 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

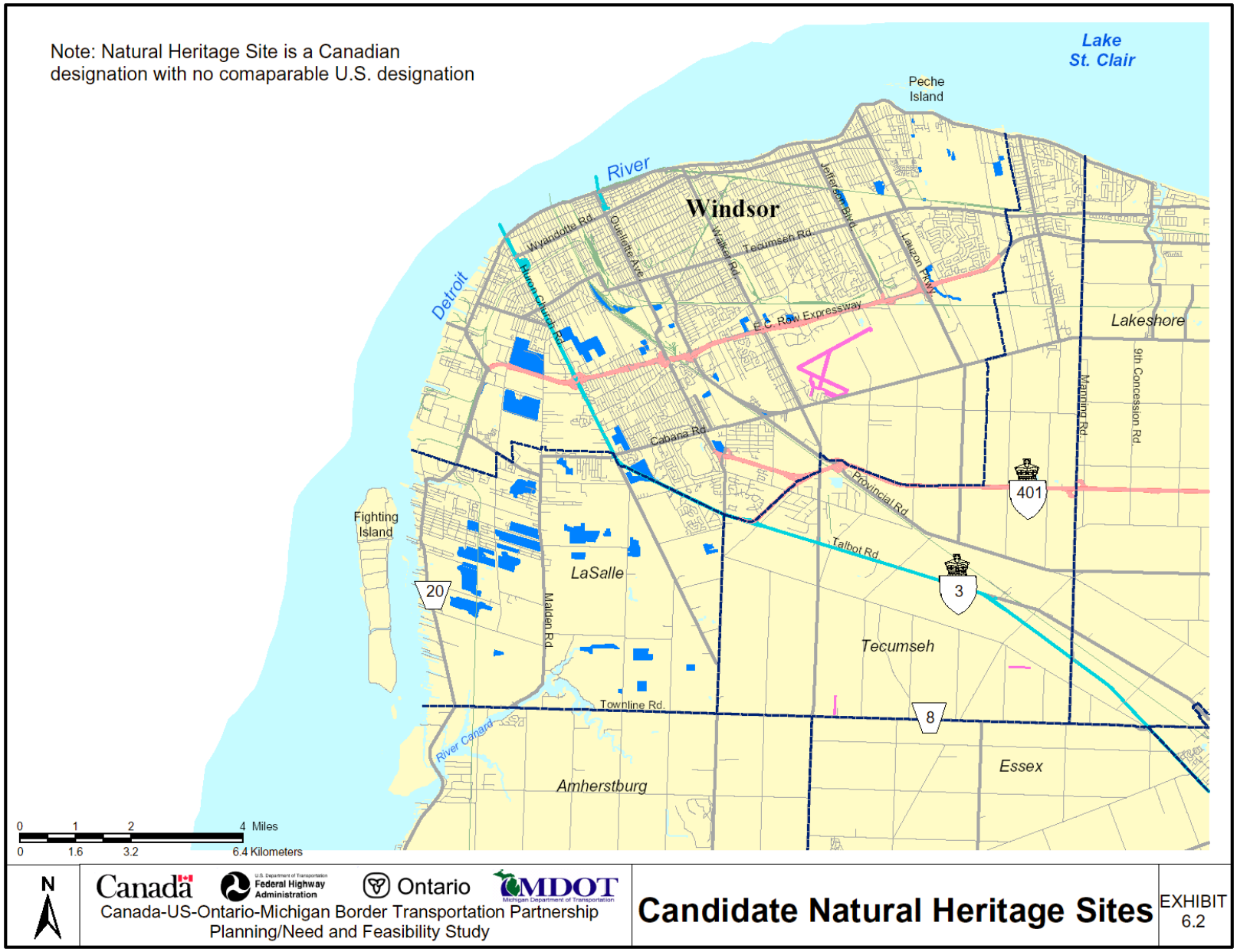
Within the City of Windsor, 38 CNHS were inventoried and described, and a total of 27 CNHS were inventoried in the Town of LaSalle (see Exhibit 6.2).

Since the CNHS inventories were completed, some influential land use and planning considerations have been applied. Within the Turkey Creek and Little River subwatersheds, Dillon (1998) summarized recommendations and subsequent actions addressing the preservation of the CNHS. To address planning issues, CNHS were categorized in the 1998 study as:

- Environmental Policy Areas (EPA), which affords them special recognition in the form of Official Plan protection policies;
- Sites Recommended for EPA or equivalent status;
- Sites not recommended for EPA designation;
- Sites removed from consideration because they no longer exist; and
- Sites requiring further study.

These categorizations with respect to the individual CNHS within the Turkey Creek and Little River subwatersheds are summarized as follows:

PLANNING CONSIDERATIONS	CNHS IDENTIFICATION NUMBER
• Environmental Policy Areas (EPA), which affords them special recognition in the form of Official Plan protection policies,	1, 2, 7, 26, 30, 32
• Sites Recommended for EPA or equivalent status	3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 20, 23, 25, 29, 31, 33, 34, 35, 37, 38, TC2 to TC8, SS1, SS2 and SS3
• Sites not recommended for EPA designation	8, 18, 19, 21, 22, 27, 28, 36 and TC1
• Sites removed from consideration because they no longer exist	15, 16, 17


Note: Natural Heritage Site is a Canadian designation with no comaparable U.S. designation
Lake St. Clair
Peche Island
River
Detroit
Windsor
Wyandotte Rd.
Ouellette Ave.
Walker Rd.
Tecumseh Rd.
Jefferson Blvd.
Lauzon Pkwy.
Ruston Cutoff Rd.
E.C. Row Expressway
Lakeshore
9th Concession Rd.
Manning Rd.
Cabana Rd.
Provincial Rd.
401
Talbot Rd.
3
Fighting Island
LaSalle
20
Malden Rd.
Tecumseh
Townline Rd.
8
River Canard
Amherstburg
Essex
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
Federal Highway Administration
Ontario
MDOT
Michigan Department of Transportation
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Candidate Natural Heritage Sites
EXHIBIT 6.2

Further categorization of the CNHS outside of the Turkey Creek and Little River subwatersheds is based on a review of the Town of LaSalle Official Plan. The CNHS identified in the OP schedules (M2, M3, M4, M5, M6/CH1, M7, M8, M9, M10, CH3/M11, CH2, CH4, CA2, CA3 and CA5), are considered residential, and all residential development or site alterations will only be permitted if, to the satisfaction of the ERCA and Council, it is demonstrated that the CNHS will be protected to the greatest degree possible. This is generally consistent with EPAs as they are applied in the City of Windsor OP.

Any impacts to these features will require analysis of the specific impact proposed upon the specific features. However, the sensitivity of these features to development, based upon the foregoing discussion of designations by the jurisdictions, can be ordered roughly as follows:

1) Natural Heritage/Provincially Significant Wetland (which also include ESAs);
2) Policy Area A;
3) Policy Area B;
4) CNHS suggested as Environmental Policy Areas (EPA), which affords them special recognition in the form of Official Plan protection policies, to be included as Policy areas;
5) CNHS Recommended for EPA or equivalent status; and
6) CNHS not recommended for EPA designation or sites removed from consideration because they no longer exist.

United States

Environmental protection in the United States is feature specific. That is, there exists an individual statute and program for each type of feature. Many of these individual programs are administered by different agencies. In many cases there is some overlap or interrelationship between the statutes and programs; e.g., the issuance of a wetlands permit may require compliance with threatened and endangered species programs and/or with soil erosion and sedimentation control regulations as a condition of issuance. Alternatively, the permit may simply demand compliance with all applicable environmental statutes as a condition for its continued validity.

Environmental protection is also layered. That is, the federal government in many cases establishes a minimum level of protection and/or regulation for each feature. A state government may then establish equal or more stringent protections under its own statutes and programs. In some cases, if the federal statute provides for it and the state has the necessary regulatory framework and resources, the administration of a particular federal program may be delegated to a state. Such is the case in Michigan, wherein several federal environmental protection programs have been delegated to the state agencies and are carried out with federal oversight.

In those cases where delegation has not occurred, both the federal and the state agencies must be dealt with. This is generally not a problem because the regulatory programs tend to be both parallel and complementary. In some cases, processes have been developed by the regulatory agencies to coordinate

their reviews and approvals on specific projects.

There is no hierarchy of importance of features in the U.S. as there is in Canada. Each proposed project is evaluated upon its potential impacts to environmental features of concern. The project must generally demonstrate and document that it has done everything feasible to avoid impacts upon feature(s) of concern. Failing that, the proposed project must demonstrate and document that it has attempted to minimize impacts upon the features to the maximum extent feasible. Lastly, the proposed project must develop mitigation for the damage that it will cause. While, in many cases, it may be possible to impact a natural feature if mitigation measures alleviate the damages, this is a decision that is made on a case-by-case basis. In other words, some features may have such a high value that no impacts to them will be allowed while, in others, it may be allowable to totally displace features if appropriate mitigation is developed.

It is generally very difficult to make such a determination in advance of carrying out a "miss, minimize, mitigate" analysis for each proposed alternative and its potential impacts as each feature is evaluated not only for its intrinsic value, but also for the context in which it exists. As an example, an otherwise low quality wetland may take on a very high value if it is the one of the last remaining in an urbanized or industrialized area, while a high quality wetland on the fringe of a large wetland complex in a rural area might not have the same level of value attached to it. Because of this context issue, the nature of the potential impact is also very important. Some impacts may be considered negligible in certain contexts while they may be considered major in others.

This layered, context-driven regulatory framework inherently precludes a hierarchical rating system for environmental features. However, in the context of the urbanized and industrialized FAA, it can be safely assumed that potential impacts to the remaining natural environment features will receive more scrutiny by environmental regulatory agencies and the public than they might in another context. The "miss and minimize" efforts made by any proposed alternative will be rigorously examined by those agencies to determine their adequacy. It may be necessary to assume that proposed alternatives, which involve potential impacts to natural environmental features, are not viable until a level of investigation is completed which demonstrates otherwise.

6.3. National Conservation Areas and Wildlife Preserves

Canada

The Detroit River has been designated a Canadian Heritage River. As such, the preservation and enhancement of its natural features, as well as its cultural and recreational values, is considered to be of both federal and provincial importance. Any proposed impacts to its wetlands and/or wildlife habitat, or fisheries will therefore undergo a rigorous scrutiny and their approval would be very much in doubt. This designation adds weight to the regulatory framework discussed previously in that it is the mechanism whereby the goals of the Heritage River program will be realized; e.g., designation of a wetland as

Provincially Significant means that no development of any kind will be allowed within it.

United States

The Detroit River has been designated under the American Heritage Rivers Initiative (AHRI) as an American Heritage River. The goals of the AHRI are to lend federal support to local and state initiatives for natural resource and environmental protection, economic revitalization, and historic and cultural preservation. What this means in practice is that federal permitting agencies such as the Army Corps of Engineers, the Fisheries and Wildlife Service, and the Coast Guard will include any environmental management plans in their deliberations involving permit applications. The heightened sensitivity to the value of the various remaining environmental features of the River undoubtedly translates into a much higher standard that must be met in the "miss, minimize, mitigate" process before a permit allowing an impact to a natural feature can be issued.

Detroit River

The Detroit River is the first river to be designated a bi-national Heritage River. The governments of Canada and the U.S. are actively cooperating to develop management plans to preserve and enhance the remaining natural features, as well as the cultural and recreational values, of the entire River.

Canada and the U.S. have also initiated the establishment of the Detroit River International Wildlife Refuge. When fully established, the Refuge will include the marshes, coastal wetlands, islands, shoals, and riverfront lands from Mud Island on its north extent to the southern border of Sterling State Park in Monroe County at its southern extent. This will be the first international wildlife refuge and its charge is quite broad: to preserve and restore the natural features of the Detroit River to protect the wildlife habitat.

The Heritage River programs and the International Refuge designation are integrated and mutually supporting. In addition, there are numerous programs, such as the Downriver Linked Greenways Initiative, of which Heritage Rivers and the International Refuge are a component. Many of these programs are locally driven but receive important support and cooperation from local, state, and federal agencies.

The ultimate import of these bi-national designations and efforts is to provide great regulatory weight to the preservation and enhancements of the remnant natural features on both sides of the border. The regulatory framework described in the previous section will have a heightened sensitivity to any proposed impacts to the natural features in the entire extent of the Detroit River and the "miss, minimize, mitigate" analyses for such alternatives will receive rigorous scrutiny by them.

6.4. Surface Water

Canada

Turkey Creek conveys stormwater flows from a largely urbanized watershed, while the Little River drains a combination of urban and rural areas. The Canard River and Pike Creek convey drainage from terrain that is largely rural with intensive agricultural land use. Within the FAA watersheds, combined sewer overflows, stormwater runoff, dry weather seepage, septic tank seepage, industrial plant outlets, wastewater treatment plant effluent wet weather bypass and contaminated run-off from agricultural fields and uncontained manure piles contribute to the degradation of the local surface waters. Surface waters also receive effluent discharges from overflowing septic systems and/or illegal connections to surface drains and storm sewers. The City of Windsor is estimated to contribute from 1% to 5% of contaminants to the Detroit River.

Water quality monitoring of the local watersheds that drain to Lake St. Clair and the Detroit River has indicated that episodic enrichments of metals, fertilizers, and bacteria and exceedances of the "Provincial Water Quality Objectives" (PWQOs) are commonly observed. Such conditions represent considerable limitations to aquatic life, and potential human health hazards.

In the Turkey Creek and Little River Subwatershed Planning Study, surface water quality targets have been set to preserve, protect, or restore surface waters for use by humans and aquatic biota. Water quality targets include:

- Targets for human bodily contact recreation should meet or exceed PWQOs;
- Targets to avoid excessive growth of algae and aquatic plants;
- Targets to maintain acceptable aesthetic conditions; and
- Targets to support fish and aquatic communities should meet or exceed PWQOs.

In terms of stormwater drainage and considerations for management of road/highway drainage, it is recognized in the Subwatershed Plan that implementation of appropriate management practices for enhancing urban runoff are required. Given the local land use, urbanized nature of the watercourses and expected use of the surface water resources, potential target levels could be based on biological uses represented by the fish and aquatic communities (Dillon 1998). Protection Level 2 was identified as a preferred level where applicable, with Level 3 applying to areas where physical constraints limit the attainment of Level 2. Protection Levels for other watercourses such as the Detroit River, Canard River, and Pike Creek will require review during future planning investigations depending on transportation corridor details and route alternatives.

United States

Wayne County drinking water is surface water withdrawn from Lake St. Clair and the Detroit River and then treated before distribution. While quantity has never been a problem, quality has become a concern. The Detroit River has been designated an Area of Concern (AOC) under the United States and Canada Great Lakes Water Quality Agreement. Under this agreement, there are 14 water

quality parameters known as "beneficial uses." Specific water use goals have been established for each of these beneficial uses and a Remedial Action Plan (RAP) has been developed and is being implemented to attain them.

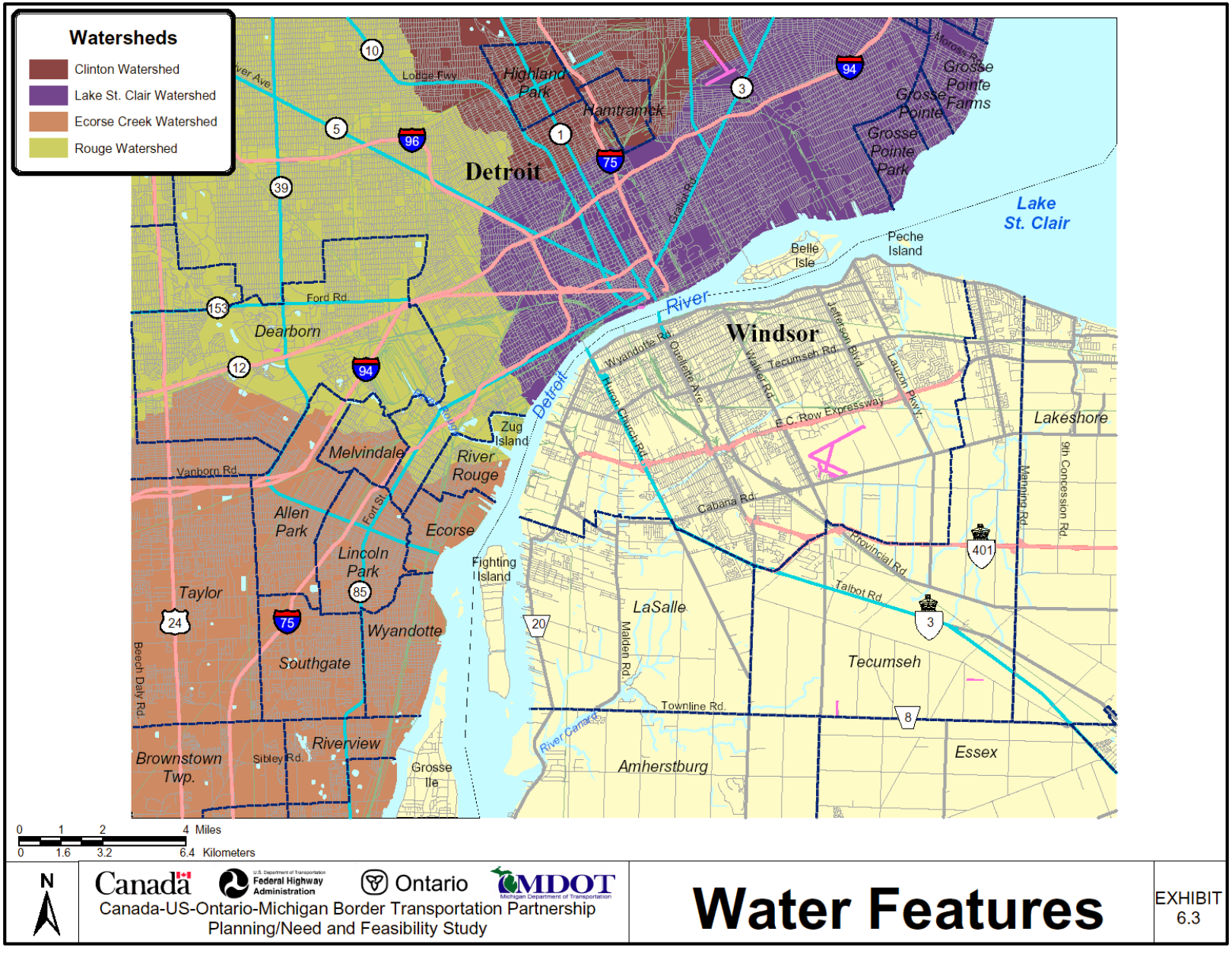
The Detroit River is a binational AOC. Nine of its beneficial uses have been determined to be impaired. These impairments consist of restrictions on fish and wildlife consumption, tainting of fish and wildlife flavour, fish tumours or other deformities, degradation of benthos, restrictions on drinking water consumption, dredging activities, taste and odour problems, beach closings, degradation of aesthetics, and loss of fish and wildlife habitat. The RAP designates certain areas of contaminated sediment for removal and restricts dredging in other areas to prevent dislodgment of contaminated sediments. It also pushes for the following:

- Elimination of Combined Sewer Overflows (CSO);
- Reduction of spills from point and non-point sources;
- Zero loss of wetlands; and
- No net loss of the productive capacity of fish habitats in the AOC.

As a result, any activities involving dredging or the use of wetlands within the AOC will involve sensitive and potentially complicated permitting issues.

The Rouge River is also designated as an AOC. Its watershed is heavily urbanized and industrialized and it is considered to be severely degraded. Its RAP, implemented under the leadership of the Michigan Department of Environmental Quality (MDEQ), includes the federally funded Rouge River National Wet Weather Demonstration Project, CSO and Sanitary Sewer Overflow (SSO) abatement, formation of local citizen watershed protection organizations, wetland protection and creation, contaminated soil and sediment cleanup, and community involvement and education programs. Any activities involving the potential for degradation of the watershed wetlands, wildlife habitat, and water quality will be subject to intense public and permitting agency review and approval.

In addition to the permitting requirements that use of these areas for transportation projects may entail, these areas are also subject to the Section 4(f) requirements of the Department of Transportation Act. Section 4(f) requires that publicly owned parks, recreational areas, and wildlife and waterfowl refuges be avoided unless it is demonstrated that no prudent and feasible alternatives to their use exist, and any use must be mitigated. In cases where the subject site has been acquired or enhanced through grants from the Land and Water Conservation Fund Act, replacement of lands will be necessary in accordance with Section 6(f) of that act. See Exhibit 6.3 for surface water features.


Watersheds
Clinton Watershed
Lake St. Clair Watershed
Ecorse Creek Watershed
Rouge Watershed
Detroit
Windsor
Lake St. Clair
Highland Park
Hamtramck
Grosse Pointe
Grosse Pointe Farms
Grosse Pointe Park
Belle Isle
Peche Island
Dearborn
Melvindale
River Rouge
Zug Island
Allen Park
Ecorse
Lincoln Park
Taylor
Wyandotte
Southgate
Riverview
Brownstown Twp.
Grosse Ile
Fighting Island
LaSalle
Amherstburg
Tecumseh
Essex
Lakeshore
Detroit River
Ford Rd.
Vanborn Rd.
Fort St.
Beech Daly Rd.
Sibley Rd.
Wyandotte Rd.
Ouellette Ave.
Huron Church Rd.
Walker Rd.
Tecumseh Rd.
Jefferson Blvd.
Lauzon Pkwy.
E.C. Row Expressway
Cabana Rd.
Provincial Rd.
Talbot Rd.
Malden Rd.
Townline Rd.
River Canard
9th Concession Rd.
Manning Rd.
Lodge Fwy
Gratiot Rd.
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
Federal Highway Administration
Ontario
MDOT
Michigan Department of Transportation
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Water Features
EXHIBIT 6.3

6.5. Fisheries Resources

Canada

Within the FAA, fisheries resources are associated with the principal watercourses including the Detroit River, Turkey Creek, Little River, Pike Creek, and Canard River. The inland creek systems have been heavily altered by the agricultural and urban development that dominates the study area. Most of the systems, particularly the headwater or first order systems, have been heavily channelized. This has resulted in the loss and/or degradation of available fish habitat, in rather limiting conditions, and the development of barriers that influence fish distribution and movement. These physical habitat limitations have been exacerbated by the relatively poor water quality resulting from urban and agricultural runoff.

Despite the aquatic habitat limitations in the inland subwatersheds, fish are well distributed throughout the 4 watercourses and their numerous tributary channels. Typically, the lower reaches of the watercourses have exhibited communities of both coarse and sport fish species that characterize a warmwater habitat. No species that are representative of coldwater habitats were encountered. However, a mottled sculpin, common to cool and coldwater streams, has been reported in a headwater tributary to Pike Creek. In the upstream reaches, the fish communities are dominated by coarse and forage fish species, which are better adapted to the limiting conditions that may be encountered during low flow periods. According to the Essex Region Conservation Authority (ERCA) fish collections records, some sport fish have found access to the upper reaches in drains of the Little River and Pike Creek drainage basin, confirming that selected channelized systems maintain some form of aquatic corridor function. However, this may possibly be seasonal given the limited availability of baseflow provided by groundwater. Sport fish species have included largemouth bass, smallmouth bass, and northern pike.

Critical habitats for spawning, rearing, and nursing life functions of the warmwater fish communities are anticipated to be important components of the Provincially Significant Wetlands that are distributed in the Detroit and Canard Rivers, as well as in Turkey Creek. Other habitats within the more urbanized and agricultural areas may serve more general life cycle functions for the local warmwater fish communities, with some exception anticipated in the more naturalized reaches where ecological form and function may be relatively intact.

The requirement for the installation of road/highway crossing structures at the various watercourse crossings has potential for encroachment into fisheries habitat. Should such encroachment be necessary, future impact investigations will be required to determine whether the impacts constitute a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat productive capacity. Should a HADD be determined to exist, then authorization for the works will be required under the federal Fisheries Act. Such an authorization has project process implications as it also triggers a screening under the Canadian Environmental Assessment Process. Typically any loss of habitat associated with works would require appropriate compensation as negotiated with the Department of Fisheries

and Oceans.

United States

There are no trout streams or other cold water fisheries in the FAA; i.e., all of the rivers and streams are warm-water fisheries. As with the major rivers previously discussed, the intense long-term development and industrialization of the subject area have adversely affected many of the minor streams and creeks. Most of them are tributaries of the previously discussed rivers and are the subject of the same restoration efforts. Any proposals that may adversely affect the water quality, fisheries, wildlife habitat, or wetlands associated with the streams will require documented efforts to avoid or minimize such impacts and efforts to mitigate for those effects. The designation of the Detroit River as both a binational (Canadian and American) Heritage River and an international Area of Concern will put any proposals which involve adverse impacts upon fisheries, water quality, wildlife habitat or wetlands under significant scrutiny by the permit issuing federal and state regulatory agencies.

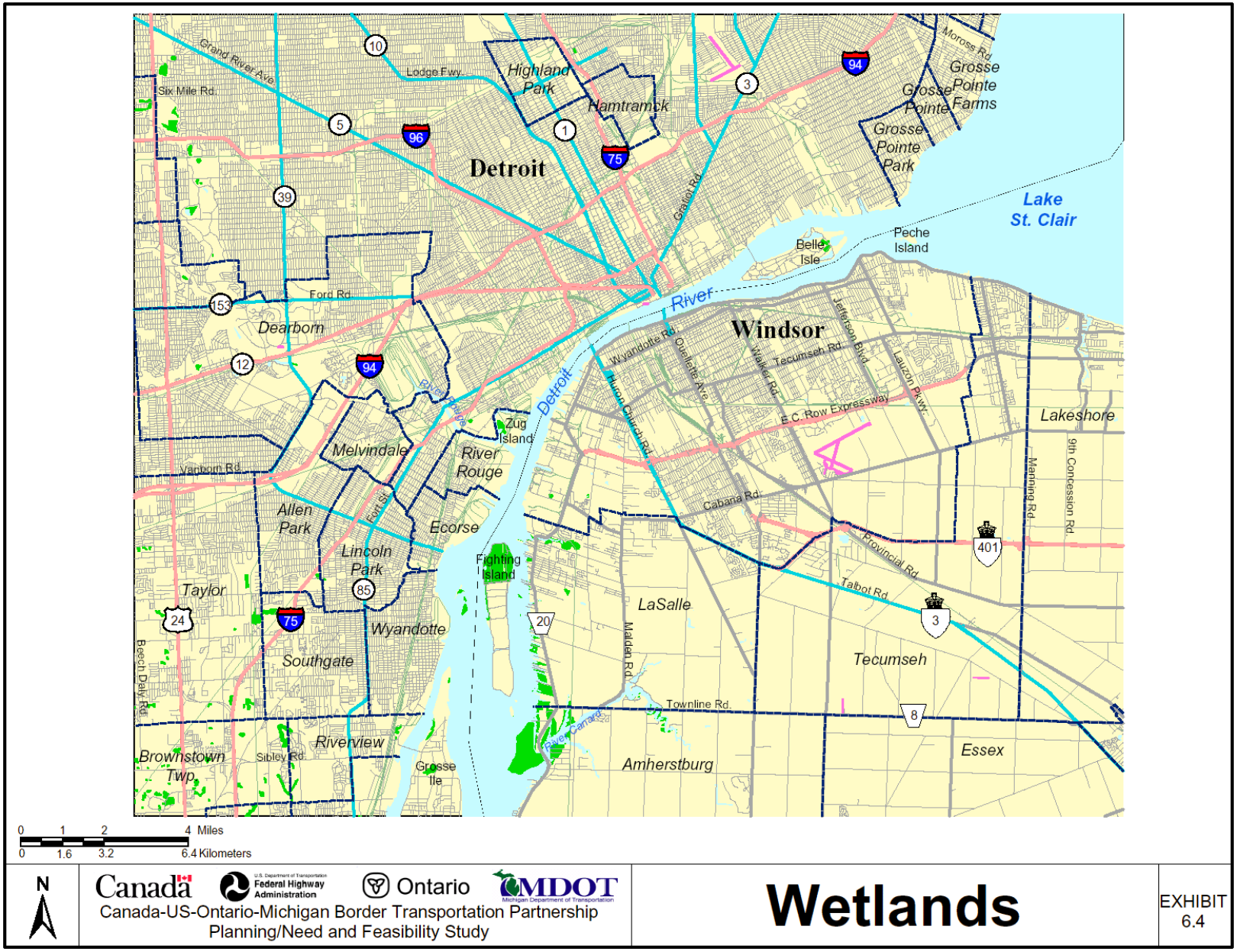
6.6. Wetlands

Canada

Several wetlands are located on the Canadian side of the Detroit River, and are remnants (4%) of the submergent and land-based wetlands that once made up the more extensive Detroit River Wetland. These remaining coastal and river-mouth wetlands were evaluated, as per the Evaluation System for Wetlands of Ontario South of the Canadian Shield, by the Ministry of Natural Resources and ERCA in

1993 and are recognized as being Provincially Significant (Prince, Silani and Waldron 1996; ERCA 2001). The Detroit River Wetlands encompass 462.5 hectares (1149.8 acres), and extend mostly along the Town of LaSalle and Amherstburg coastlines with minor expression adjacent to the City of Windsor. The local wetlands also include the Canard River Mouth Marsh, the Canard River Marshes, Fighting Island Marsh, Grassy Island Marsh, Turkey Creek Wetlands, and areas of Peche Island. In review of available secondary source information for this study, the wetlands identified within the FAA are designated as Provincially Significant (Prince, Silani and Associates Limited 1998). These Provincially Significant wetlands are indicated in Exhibit 6.4. The designation as Provincially Significant links the protection of these features to the international goals of the Heritage Rivers and International Wildlife Refuge programs, which are now developing, or already in place. Additionally, the Detroit River system provides an important regional linkage between Lake St. Clair and Lake Erie. The wetland component of this system is particularly important because it links the St. Clair Flats, the largest wetland complex in the Great Lakes, with Lake Erie.

At the federal level, the basis for wetland conservation is the Canadian Federal Government Policy on Wetland Conservation (1991). This policy is not supported by any specific legislation that explicitly regulates wetland protection.


Detroit
Windsor
Lake St. Clair
Highland Park
Hamtramck
Grosse Pointe
Grosse Pointe Farms
Grosse Pointe Park
Belle Isle
Peche Island
Dearborn
Melvindale
River Rouge
Zug Island
Allen Park
Ecorse
Lincoln Park
Taylor
Wyandotte
Southgate
Riverview
Brownstown Twp.
Grosse Ile
Fighting Island
LaSalle
Amherstburg
Tecumseh
Essex
Lakeshore
Grand River Ave
Six Mile Rd.
Lodge Fwy.
Ford Rd.
Vaughn Rd.
Fort St.
Beech Daly Rd.
Sibley Rd.
Wyandotte Rd.
Ouellette Ave.
Huron Church Rd.
Walker Rd.
Tecumseh Rd.
Jefferson Blvd.
Lauzon Pkwy.
E.C. Row Expressway
Cabana Rd.
Provincial Rd.
Talbot Rd.
Malden Rd.
Townline Rd.
9th Concession Rd.
Manning Rd.
Moross Rd.
Grand River
Detroit River
River Canard
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
U.S. Department of Transportation Federal Highway Administration
Ontario
MDOT Michigan Department of Transportation
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Wetlands
EXHIBIT 6.4

The policy encourages federal and provincial governments to strive to meet the objective of the federal policy which is to "promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future". Although no federal legislation specifically addresses wetlands, several federal statutes may control activities undertaken within wetland areas. Federal statutes that may have direct or indirect bearing on activities within wetlands include the Canadian Environmental Protection Act (CEPA 1999), the Canadian Environmental Assessment Act, the Federal Fisheries Act, and the Navigable Waters Protection Act.

There is no specific legislation in the province of Ontario that addresses wetlands or expressly the protection and conservation of wetlands. Several other provincial and federal statutes, as previously indicated, represent efficient mechanisms for indirect or direct protection of wetland features. The relative sensitivity of wetland features is reflected in Section 2.3 “Natural Heritage” of the Provincial Policy Statement that indicates that “With respect to specific consideration of wetlands that are located in southern Ontario, and within the FAA the following provincial policy applies:

“Development and site alteration will not be permitted in significant wetlands south and east of the Canadian Shield”

As indicated previously, the Provincial Policy indicates that development and site alteration may to some extent be permitted on adjacent lands to wetlands (120 meters/130 yards) depending on whether wetland form and function can be maintained. With respect to land use impacts on wetlands, there may be some variation to the detailed approach outlined in municipal Official Plans, depending on the level of detailed resource information that is available about the distribution and character of individual wetland features. However, the general principles are consistent with respect to adherence to the Provincial Policy Statement. Wetland evaluation review and confirmation of ecological form and function is the responsibility of the Ministry of Natural Resources (Ontario Wetland Evaluation System, Southern Manual). The land use planning implications of Operational Plans are that development is not typically permitted in provincially evaluated wetlands that have been designated as having provincial significance. While the Provincial Policy Statement does not apply to road projects, it and the Official Plans demonstrate a level of concern for the preservation of wetlands that must be observed at the Environmental Assessment stage of any project that may result.

Local planning authorities generally rely on technical input from the Ministry of Natural Resources for the review of proposed development activities around wetlands and the confirmation of consistency with Provincial Policy. Conservation Authorities are regulatory agencies that administer floodplain / valley management regulations within dedicated regions or significant watersheds. Several have entered into formal agreements with the local planning authorities to assist in the conservation and management of natural areas. These Authorities now provide input and comments upon planning matters based upon their own mandates, as well as certain programs previously delivered by the Ministry of Natural Resources (e.g. Fisheries Act administrative assistance). As such, Conservation Authorities can be expected to provide input to development planning in and around wetland features.

United States

The wetlands remaining after the urbanization in the FAA are typically small, scattered fragments which in aggregate total approximately 334 hectares (835 acres). Because of the proximity of the FAA to the Detroit River and its tributaries, it can be generally expected that their use will require permits from both the Michigan Department of Environmental Quality (MDEQ) and the U.S. Army Corps of Engineers (U.S.ACOE) in accordance with Section 404 of the federal Clean Water Act.

These agencies may, in their permit application processing deliberations, be expected to consider the goals of the various preservation and enhancement programs active in the FAA, including the Detroit River Area of Concern Remedial Action Plan, the American Heritage Rivers Initiative, and the International Wildlife Refuge. Further, Federal Executive Order 11990 actively discourages the use of federal funding for construction of projects within wetlands unless it can be established that there is no alternative. It also requires that there be no net loss of wetlands. Therefore wetlands used in transportation projects must be replaced or otherwise suitably mitigated. Wetland mitigation in the FAA is often extremely difficult or infeasible because of high land costs and/or lack of sites suitable for conversion to wetland.

6.7. Floodplains

Canada

Major floodplain areas located within the jurisdiction of the local municipalities have been identified within a Floodplain Development Control Area (LaSalle) and the Development Constraint Areas (City of Windsor). These areas correspond with flooding under regulatory flood conditions, which are generally represented by either the 1:100 year or maximum observed event, determined in consultation with the Essex Region Conservation Authority. The floodplain development control or constraint areas are subject to Ontario Regulation 535/91, administered by ERCA under its Fill and Construction Regulations.

The municipalities have established official planning policies to control any proposed development activities within the floodplains to prevent possible flooding and erosion issues. These policies consider closely the administrative requirements and involvement of the ERCA and its jurisdictional requirements.

Typically, development is prohibited within the floodway of a watercourse. Certain development activities, such as road crossings, may be permitted within floodplains provided that it can be demonstrated that the proposal will not significantly alter the hydrology or hydraulics of the floodplain, that facilities can be adequately protected from flooded conditions and erosion processes, and that the biophysical processes of a watercourse can be maintained. The Detroit River flood prone area has independent but similar consideration in municipal planning policies. These policies also require the consideration of such aspects as wave and current patterns, flows and water levels, water quality including the local physical conditions and processes, and environmental sensitivities.

Proposed infrastructure work within the flood prone areas may also involve review and authorization by federal agencies under the Fisheries Act, as described previously, and the Navigable Waters Protection Act, in the event of potential impacts to fisheries habitat or navigation safety, respectively.

United States

Many of the streams and rivers within the FAA have attendant floodplains. Floodplains are specifically regulated by Part 31 of the Michigan Natural Resources and Environmental Protection Act (NREPA). Any proposed encroachments upon a floodplain will require analysis to document that the "miss, minimize, mitigate" process has been conducted. If the proposal is approved, the MDEQ may, as a permit condition, require that any fills in a floodplain be offset by compensating cuts to the floodplain. Such a permit condition is especially likely in a heavily developed urban area, such as the FAA, which has already experienced much floodplain encroachment.

Any proposed transportation project encroachments upon a floodplain which involve federal funding are also subject to the requirements of federal Executive Order 11988 – "Floodplain Management". This Executive Order basically requires that floodplains not be encroached upon unless it can be demonstrated that there is no prudent and feasible alternative and that mitigation is provided for any such encroachments.

6.8. Groundwater

Canada

The overburden within the FAA watersheds is generally characterized by a thick (25-50m) low permeability clay soil, and exhibits a shallow water table at a depth of 3 to 5m (10 to 16 feet) (Dillon 1998). The shallow groundwater system tends to move horizontally through fractured clays, and within silty sands that characterize eastern areas of the study area. Due to the low permeability soils, the strong groundwater flow influence of the local creek channels, and the numerous excavated drains that have been constructed to readily convey flows, no regional groundwater flow patterns are evident. There is negligible recharge and no significant baseflow contribution.

United States

There are no sole source aquifers in Michigan, as designated under the Federal Safe Drinking Water Act, and there are no communities in Wayne County that are served by groundwater supplies. Clay-rich glacial till and lacustrine deposits containing confined aquifers dominate the surficial geology of the FAA. Groundwater is generally high in mineral content ("hard") or brackish. Normal precautions taken to prevent or rapidly clean up spills of fuels or other materials during construction are sufficient to protect groundwater resources.

6.9. Areas of Natural and Scientific Interest

Canada

There are several Areas of Natural or Scientific Interest (ANSI) in the FAA as discussed in 6.2.1.

United States

There are no designated areas of natural or scientific interest as such in the FAA. There are also no designated Michigan Natural Rivers nor federal Wild & Scenic Rivers within the FAA.

6.10. Woodlands

Canada

The comprehensive inventory and evaluation of natural heritage features, which includes the delineation of provincially significant wetlands, ESAs, and locally significant CNHS, has accounted for the majority of woodlot features that could be considered to serve some form of ecological function. Other woodland stands of trees are also included in the recreational and Open Space features that make up the greenway systems of the local communities.

The sensitivity of the woodlot features is largely reflected in their individual designation as wetlands, ESAs, Environmental Policy Areas, CNHS, or as components thereof. The process and policies applied to protect the physical and functional attributes of these areas are consistent with the associated land use designations as described previously.

United States

Although there are stands of trees within various public parks scattered throughout the FAA, there are no forests or woodlands as such within it.

6.11. Endangered Species

Canada

The remnant prairie areas within the FAA provide wildlife habitats that are unique in southern Ontario and in some cases nationally. It is in these habitats that the majority of “sensitive species” or “species of concern” have been reported in the various biological inventories reviewed for this planning study. Although no records of endangered species were encountered, several threatened and vulnerable prairie species were noted in the ESAs, ANSIs, and CNHS that provided appropriate habitat conditions. Key threatened species include the Eastern Massassauga Rattlesnake, Eastern Fox snake; Butler’s Garter snake, the Colicroot, and the Red Mulberry. Observed vulnerable species include the Dense Blazing Star, Prairie Rose, Shummard Oak, Cooper’s hawk and Gray Fox. These species and their associated habitat requirements have been noted

as occurring in, but not limited to, several CNHS in LaSalle and in such significant areas as the Ojibway Prairie Complex, Spring Garden Road Prairie, LaSalle Woods, and Peche Island. Spring Garden Prairie and the Reuame Prairie have also been reported as containing certain plants that have their only known Canadian expression at these locations.

The presence of these species has contributed to the designation of such natural heritage features as ESAs or ANSIs. As key attributes of these features, these species persist as a result of the availability of appropriate habitat within the natural heritage features. Consistent with the consideration of environmental protection policies for identified and formally designated Natural Heritage Features, ESAs, ANSIs, wetlands and Natural Environment, as identified previously, the objective of maintaining ecological form and function addresses the requirements of these species. This may involve the consideration of species specific habitat conditions within the overall boundaries of the designated natural heritage features in the evaluation of potential impacts associated with proposed transportation corridor routes.

United States

The federal Endangered Species Act and the Michigan's Endangered Species Protection Act are directed at the protection of bird, plant, animal, insect, and fish species that are near extinction (endangered) or on the verge of becoming endangered (threatened). Under the Michigan law there is also a category of "special concern" listing animals whose populations are declining or whose habitat have undergone significant changes on a statewide basis.

The heavy urbanization and industrialization of the FAA does not mean that species protected by these acts do not exist within it. However, information regarding specific locations of species is not available, although there is a listing of those that have been found in various parts of Wayne County. For this reason, an environmental review of each alternative should be requested from the Michigan Natural Features Inventory at the Practical Alternatives stage of the National Environmental Policy Act process.

6.12. Agricultural Lands

Canada

The lands of Essex County outside the Cities of Windsor and the Town of LaSalle in the FAA are predominantly agricultural in use. They are interspersed with PSAs, EPAs, ESAs, ANSIs, and CNHSs. While agricultural lands are afforded no specific protections under statute, Section 2.1 of the Provincial Policy Statement contains policies for protection of prime agricultural lands. Prime agricultural land is defined in the Provincial Policy Statement as land that includes specialty croplands and/or Canada Land Inventory Classes 1,2, and 3 soils in the order of priority for protection. Impacts to agricultural lands by a transportation project would be evaluated during the process of environmental assessment and in the context of community development and Official Plans. Such factors as the affected land's importance as the cumulative effects of urban sprawl would be weighed in such an assessment of the impacts upon the

agricultural lands.

United States

The FAA is a heavily developed mixture of residential, commercial, and industrial areas. There are no known agricultural lands operating as such within it. Review of recent aerial photographs of the area failed to disclose agricultural lands within it.

6.13. Implications

Although the Focused Analysis Area is heavily developed and intensely farmed rural area, there are still the remnants of many natural environmental features within it. These features are valued all the more because of their relative scarcity and, in some cases, they enjoy a higher level of concern and protection than they might in a less developed, out-state area. Any proposed alternatives that may affect these resources will receive extensive scrutiny and review by local, provincial, state, and federal authorities and by the public. The concentration of wetlands and other environmentally significant features on the Canadian side of the Detroit River may be particularly challenging for the development of proposed alternatives. The scarcity and dispersion of such features on the United States side may be somewhat less challenging, but any features, which do become involved, may demand a very high level of protection.

The two countries value the same features and have developed regulatory systems consisting of overlapping and interlocking statutes and regulations to protect them. Both systems are complex and have their own characteristics and emphasis. In both systems, the evaluation of the potential impacts upon a protected feature may be complex and time consuming, depending on the type of feature and the nature of the impact. In general, it may be said that environmentally sensitive features on the Canadian side have been delineated and appropriate protections established or proposed for the individual features. On the U.S. side, individual sites are regulated by specific statutes that may or may not permit impacts to them, depending upon the context in which the site exists as well as its value and function. Whether or not impacts to them will be permitted will depend upon the outcome of an evaluation of the value of the site in the context of its location; i.e., it will be necessary to make such a determination on a case-by-case basis.

The general approach to the generation of alternatives in the U.S. side is to identify natural features and then conduct a “miss, minimize, mitigate” assessment of them. That is, potentially affected environmental features such as a wetland are identified and the value of the feature is assessed in the context of its setting. In some cases, the feature may be considered so valuable that no impacts to it will be permitted. In some cases, minor impacts may be permitted if it can be demonstrated that it is impossible to avoid impacts altogether and if it is further demonstrated that everything possible has been done to minimize necessary impacts to the extent possible. Mitigation for any unavoidable impacts is usually necessary. The level of assessment in this feasibility study does not enable the level of analysis that would be necessary at the Practical Alternatives stage of a National Environmental Policy Act environmental assessment.

On the Canadian side of the FAA, a general analysis is possible because of the identification and classification of features that has been done (this level of identification and classification is not yet available on the U.S. side). Environmentally Sensitive Areas (ESAs) and Areas of Natural and Scientific Interest (ANSI) should be avoided while impacts to wetlands and Candidate Natural Heritage Sites should be minimized.

7. Landfills and Hazardous Waste

7.1. Brief History of the Focused Analysis Area

Canada

The City of Windsor is the focal point of the FAA on the Canadian side. From 1748 to 1860, agricultural settlement developed along the Windsor side of the river, paralleling a similar settlement on the Detroit side. The automotive industry provided its main impetus for growth in the community in the 20th century. Today, Windsor is a cosmopolitan city of 200,000 people and is best known as the 'automotive capital' of Canada. General Motors, Ford and Chrysler all have large manufacturing facilities in the City. The FAA, after years of industrialization, has been left with a legacy of environmental issues related to industrial wastes and waste disposal issues.

United States

The City of Detroit is the focal point of the FAA on the United States side. It began as a frontier fort in 1701 and quickly became a trade and commerce center. The 1870s saw the beginnings of its development as an industrial center, with much heavy industry being located along the Detroit River waterfront area. Its development as the center of the automotive industry in the United States led to its intense development and industrialization beginning at the end of the 19th century and continuing until the present day. This 130 years of industrial and commercial activity generated an enormous amount and variety of industrial wastes, many of which were improperly disposed. A multitude of the resulting contaminated sites and waste disposal issues are still being addressed.

7.2. Contaminated and Potentially Contaminated Sites

Canada

The Government of Canada introduced the Federal Contaminated Sites and Solid Waste Landfills Inventory Policy on July 1, 2000. This policy states that departments and agencies that hold property must establish and maintain a database of their contaminated sites and solid waste landfills, and that this information must be submitted to the Treasury Board Secretariat for inclusion in a central inventory.

The inventory includes all known federal contaminated sites for which departments and agencies are accountable. It also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. Suspected sites are not added to the inventory until assessments have confirmed contamination. The inventory does not include properties owned by Crown corporations.

To date the inventory lists 1,211 properties with contaminated sites (204 are located in Ontario), but at this time the inventory does not list solid waste landfill sites. Of the 204 sites in Ontario, 1 site was identified near the City of Windsor, in the Maidstone Township. However, the Maidstone Township does not fall within the boundaries of the FAA.

United States

The regulatory scheme in the United States consists of both federal and state laws aimed at specific types of contaminated sites, wastes, or operations. These laws overlap and interact. In general, responsibility for any contamination rests with the generator of the contamination. While the purchaser of a property is responsible for conducting an investigation sufficient to discover contamination on it, the seller of the property has an obligation to disclose any contamination of which they are aware. Transportation agencies are partially protected from liability for contamination on properties purchased for right of way and the use of "brownfield" sites in transportation projects, where feasible and reasonable, is encouraged by the Federal Highway Administration (FHWA).

7.2.1. Contaminated Sites

Canada

Legislation applicable to contaminated sites in Ontario is enforced at a provincial level unless the land is owned by the Federal government, a First Nations, is deemed to be of national significance, or has the potential to cross a provincial or international boundary. As noted previously, there were no federal contaminated sites listed in the available database that was searched.

Under the Ontario Environmental Protection Act (EPA), liability regarding contaminated sites rests with the owner of the land. Any known liabilities associated with a property must be disclosed at the time of property transfer. For this reason, Phase I and Phase II Environmental Site Assessments are normally conducted prior to property transfer. The onus is on the purchaser of the property to assess whether current or historical contamination exists prior to property transfer. The responsibility for any contamination that is discovered after the transaction rests with the new owner of the property.

The Ministry of Environment has also produced a Waste Disposal Site Inventory that lists all the industrial sites that produced or used coal tar and related tars in Ontario prior to 1988. For each site, information is provided on the location, operating period, evidence of buried wastes, site conditions, site assessments conducted, resource characteristics (i.e., surface water, groundwater, wells), etc. In Ontario, 41 sites are listed on the closed municipal coal gasification plant site inventory and 44 sites are listed on the inventory of industrial sites producing and using coal tar and related tars. A review of the listings identified 3 sites located in the study area that produced coal tar. Sites contaminated with coal tar tend to involve expansive contamination that can involve extensive clean up of soil and groundwater prior to re-use. Alternative risk management methods for controlling movement and seepage of coal tar can be conducted to mitigate contamination migration and allow the potential re-use of these properties.

United States

The federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) established joint and several liability for contaminated sites that meet its criteria for listing on the U.S. Environmental Protection Agency (EPA) National Priorities List. This means that ownership of a site in any degree constitutes liability for the site, regardless of participation in the actual contamination of the site. This liability may only be avoided if the prospective owner conducted a "due diligence" investigation of the property prior to purchase and that investigation failed to disclose its contaminated condition. Because of the liability concerns, the generally extremely expensive cleanup costs, and the legal entanglements generally attached to these sites, they should usually be avoided.

There are two Superfund sites located within the FAA: one is Carter Industries, Inc., which is located near the intersection of Warren and Mulberry Selden avenues (a.k.a. Grand River Avenue), and the other is the Lower Ecorse Creek Dump located in Wyandotte. Both have been the subject of cleanups, and the Carter Industries site has been deleted from the National Priority List. The cleanup has been completed at the Lower Ecorse Creek Dumpsite. Because these sites have been remediated, it is probable that, with careful evaluation and legal precautions, the sites could be acquired and used for a variety of purposes.

Part 201 of the Michigan Natural Resources and Environmental Protection Act (NREPA) refers to contaminated sites that are not Superfund or Leaking Underground Storage Tank (LUST) sites. While these sites are often industrial in origin, they also include a wide variety of operations, which range from agricultural sites to salvage yards.

NREPA provides limited liability protection for transportation agencies that acquire sites or portions of sites for right-of-way purposes. However, due care must be taken by the transportation agency that the contamination situation is not exacerbated by its use of the site. It is permitted to limit the extent of cleanup to only that necessary to safely support the type of use to which the site is to be put. Additionally, necessary cleanup costs may be recovered from potentially responsible parties.

Use of these sites for a transportation project is possible and is encouraged by the FHWA if it can be demonstrated that such use is feasible, reasonable, within acceptable limits of liability exposure, when cooperating partners are available, and when parties responsible for the contamination are pursued to the maximum extent practicable. There are approximately eighty-nine 201 sites in the FAA.

Summary

While the utilization of contaminated sites must be approached with caution, they do not preclude a route, bridge, or other transportation project. In Canada, the owner of a contaminated property is responsible for the liabilities associated with that contamination. In the U.S., the use of contaminated sites for transportation projects are permitted and encouraged by the FHWA when certain conditions are met.

7.2.2. Underground Storage Tank Sites

Canada

In Canada underground storage tanks containing petroleum products are primarily regulated under the Technical Standards and Safety Act (TSSA) and the Ontario EPA. The Technical Standards and Safety Authority (TSSA) and the Ontario Ministry of the Environment and Energy (MOEE) TSSA will co-ordinate clean up efforts depending on the extent of contamination, whether there are off-property contaminant migration issues, and whether continued use of the property as a fuelling station is desired. The TSSA maintains a database of all registered tanks containing petroleum products that includes a listing of any work orders associated with the property. There are hundreds of listings within the FAA. This database can be accessed once a more refined transportation route is chosen.

United States

Underground Storage Tank (UST) sites are regulated by Part 211 of NREPA and by RCRA. There are extensive requirements for installation, operation, and monitoring of tanks and piping. These sites can be safely reused with proper closure and removal of the UST systems. The liability provisions of Part 213 of NREPA as discussed previously offer further protections. There are almost 12,000 registered UST sites in Wayne County, however a count is not available for the FAA.

Leaking Underground Storage Tank (LUST) sites are regulated under Section 213 of NREPA and by the federal Resource Conservation and Recovery Act (RCRA). The same liability provisions and protections as Section 201 sites apply to LUST sites. This is the most common type of contaminated site in Michigan. They are typically, though not exclusively, a current or former gasoline service station.

In the FAA, the generally heavy soil conditions tend to limit the spread of lost fuels unless there are available paths such as storm sewers, pipe trenches backfilled with gravel or sand, or similar conduits available to them. The contamination tends to be localized and these sites can, with careful evaluation, be acquired and used by transportation agencies.

As with Part 201 sites, the contamination situation must not be exacerbated by the transportation activities, and it is permitted to limit the extent of cleanup to that necessary to safely reuse the site for a specific purpose. The use of these sites would also be permitted and encouraged by FHWA if the conditions of feasibility previously discussed are met. There are approximately 1,400 LUST sites listed in Wayne County by the Michigan Department of Environmental Quality (MDEQ).

Summary

While underground and leaking underground storage tanks should be avoided if possible, they do not preclude routes, bridges, or other transportation projects. The contamination problems that they pose tend to be localized and relatively easy to address.

7.2.3. Landfills

Canada

A Waste Disposal Site Inventory has been prepared by the Ministry of Environment and Energy, which contains a list of all known active and closed waste disposal sites in the Province of Ontario as of October 31, 1990. The inventory includes 1,358 active sites and 2,334 closed sites. For each site, information is provided on the type of wastes, site locations, and operating period. The inventory includes both sites that were previously approved and operated under an Approval for which there is adequate information regarding the types of wastes that were deposited, and unapproved sites where information regarding waste burial is limited. The sites are classified according to the type of waste, the type of waste it received if known, (industrial, commercial, municipal) and the adjacent land use (urban or rural). Two open sites and 31 closed sites were identified in the study area. The re-use of these sites is dependent on the setting and previous landfilling activities and could involve extensive remediation and/or waste removal. The Ontario EPA restricts the re-use of any former landfill site for any other use for a minimum of 25 years from the day of closure and therefore these types of sites should be avoided as they would require extensive legal negotiation for re-use.

United States

Landfills are regulated by Part 115 of NREPA and by RCRA. These facilities by their very nature are concentrated repositories for a variety of wastes. In the case of older closed dumps and landfills, records of the wastes disposed there are often sparse or non-existent. Extensive and potentially protracted efforts would typically be necessary to evaluate, acquire, and utilize a landfill site safely.

In the case of currently operating landfills, cost-effectiveness would be a primary issue as the effort to acquire, prepare for use, and mitigate for the loss of the disposal site would be potentially enormous. These sites should be avoided. There are seven operational landfill sites listed by the MDEQ in the FAA.

Closed landfills and dumps are included in the Part 201 list of contaminated sites in Michigan. A search of this database should be conducted at the selection of alternatives stage to not only determine the location of these facilities, but also contaminated sites of other types. In general, closed landfills and dumps should be avoided because of the typically extensive time and funding requirements necessary to investigate and remediate them. There are 4 Part 115 sites in the FAA.

Summary

These sites are associated with extensive technical, legal, and economic liabilities. They should be avoided.

7.2.4. Hazardous Waste Generators

Canada

Ontario sites that generate subject wastes must register the types of waste classes that are produced under Regulation 347. Generators range from small printing shops to large automotive parts manufacturers. A database of waste generators is maintained and can be accessed. However, as most of these wastes are shipped off-site for disposal a listing of a waste generator does not necessarily provide any additional information as to the relative risk of acquiring such a site for the purpose of transportation planning.

United States

Many kinds of industries and activities generate wastes classified as hazardous under Part 111 of NREPA or by RCRA. The majority of these generators periodically remove their wastes for disposal in proper facilities in accordance with the storage time limits of the referenced statutes. Use of these facilities should present no concerns if they are properly inspected in accordance with Superfund and Part 201 processes prior to acquisition. However, some generators treat, store, or dispose (TSD) of their wastes onsite.

While the same protections of Superfund and Part 201 apply to these TSD sites, and they are regulated under RCRA and Part 111, they should be subjected to a higher level of scrutiny before being considered for use. The cost effectiveness of acquiring and properly closing such sites should be very carefully considered prior to acquisition. There are thirty-five Part 111 TSD sites in Wayne County.

Summary

While these facilities may use, generate, store, or dispose of hazardous materials or wastes, they do not preclude a route, bridge, or other transportation project. Their utilization should be approached with caution, but issues associated with their use are generally readily resolved.

7.2.5. Oil, Gas, Mineral, and Disposal Wells

Canada

The type of well determines the approvals that are needed for operation. Wells used for disposal of hazardous wastes through deep well injection are regulated under the Ontario Environmental Protection Act by the Ministry of Environment. There are very few licenses for deep well injection of hazardous wastes. Their location can be identified through a search of Class V certificate of approvals under the Ontario Environmental Protection Act. These types of sites should be assessed for potential contamination prior to acquiring for transportation planning.

The Ministry of Natural Resources regulates oil and gas wells. Databases of approved wells for the study area are available and are estimated to include over 1,500 listings that exist mainly in the un-urbanized area of the FAA. The

locations of these wells can be determined once the transportation route is more defined. The same use restrictions noted for the U.S. would apply to the Canadian oil and gas wells.

United States

There are several different kinds of wells in the Focused Analysis Area, including oil and gas, mineral production, disposal, and hazardous waste disposal. They are regulated by the federal Safe Drinking Water Act (SWDA) and some are also regulated by Part 615 of NREPA. In the case of hazardous waste disposal wells, they are regulated jointly by the SWDA and by the federal Resource Conservation and Recovery Act (RCRA).

In general, the liability provisions of Part 201 of NREPA apply to these sites. That is, transportation agencies may acquire these sites for ROW purposes without incurring liability for any contamination that may exist on them. However, in the case of hazardous waste injection wells, the regulatory authority of RCRA may be broadened to include the liability provisions of Superfund. This means that acquiring a hazardous waste injection well in need of remediation would potentially subject the transportation agency to total or partial liability for any required cleanup. In all cases, a careful evaluation of the environmental condition of active, inactive, or closed sites will be required to make a determination of any safety, liability, or cost issues which may be involved in using them. If it is determined to be feasible and reasonable, their use in a transportation project is approvable and may be encouraged by the FHWA. Any project expenses incurred due to environmental contamination may, in some cases, be recovered from the potentially responsible parties.

Active oil and gas production well sites and mineral and disposal well sites will also require careful evaluation of their environmental condition for the same cost and safety reasons outlined above. In addition, an economic analysis will be required to determine the cost-effectiveness of utilizing an actively producing site, or a disposal site which may be a key part of the production process of a mineral, oil and gas site, or of an industry (Exhibit 7.1).

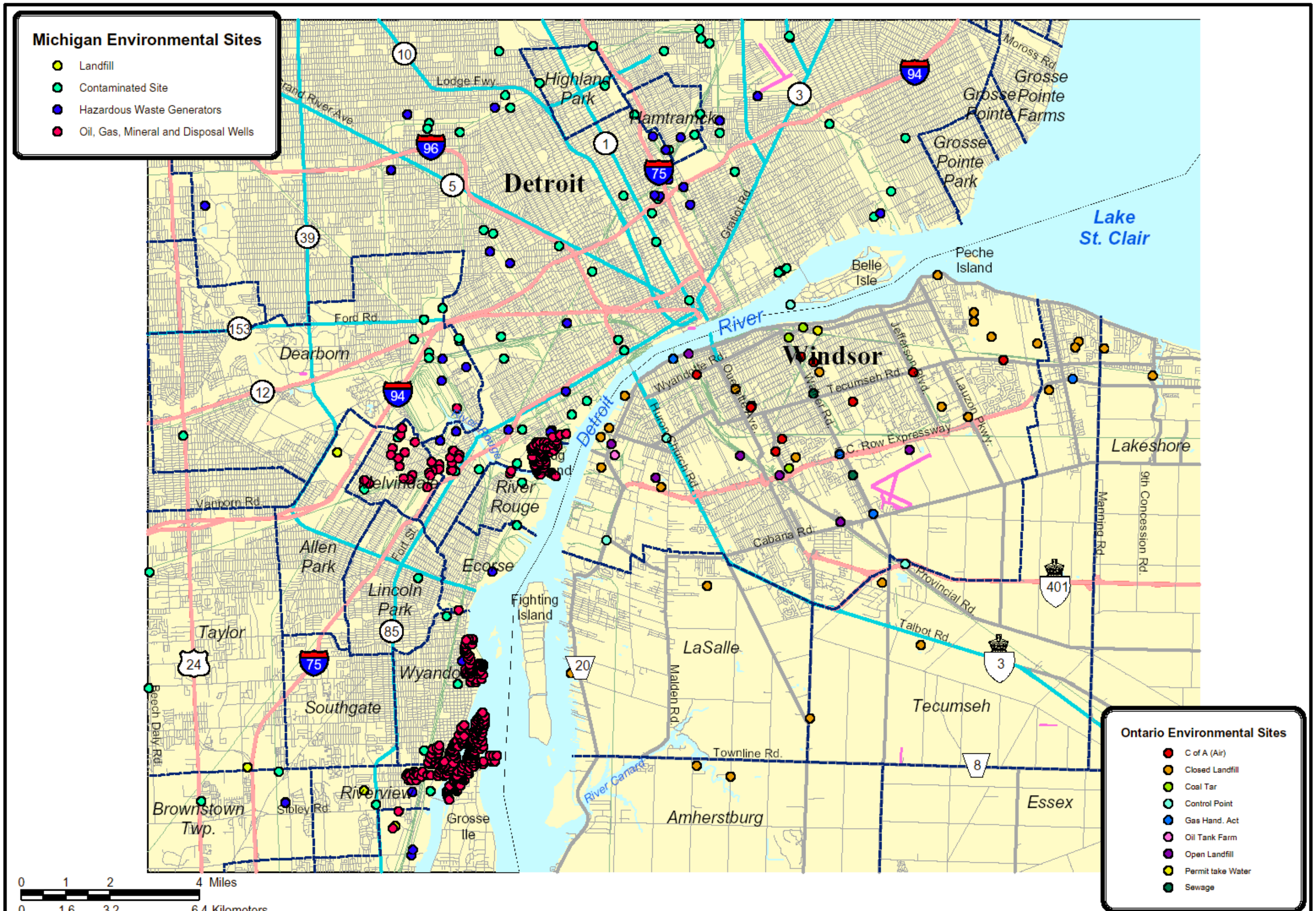
Summary

While their use should be approached with caution, these facilities and sites would not preclude a route, bridge, or other transportation project and may even, as previously discussed, be encouraged by the FHWA in certain circumstances.

7.2.6. Undiscovered Sites

Canada

In Ontario the test of whether a Site is contaminated is determined by the presence of an adverse effect, which is broadly defined under the Ontario Environmental Protection Act. Owners of properties where an adverse effect has been determined to exist or which has migrated onto adjacent properties must notify the appropriate authority (usually the Ministry of Environment).



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Canada | U.S. Department of Transportation Federal Highway Administration | Ontario | MDOT Michigan Department of Transportation

Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study

Landfills and Hazardous Waste

EXHIBIT 7.1

Notification to the Occurrence Reporting Incidence System (ORIS) is also required if a spill or release occurs onsite. If the site files an RCS in relation to the contamination it will be listed in a database which can then be searched to determine the presence of these sites along the chosen transportation routes. However, in Ontario, contaminated sites, which are undergoing remediation, are not necessarily public information unless a clean up Order or other legislative instrument has been enacted to control the contamination. The Ministry of Environment will only release information regarding contamination issues if permission from the owner of the property is obtained under the Freedom of Information Act. Once a transportation route is chosen, suspect properties along the route should be more thoroughly investigated by requesting this information from the Ministry of Environment in agreement with the property owners.

In addition, known impacts to soil or groundwater on a property that are demonstrated not to have migrated off-site or which do not fit the definition of an adverse effect need not necessarily be reported. Typically these types of sites may have low levels of contamination which are stable in the environment but which would be disturbed if re-development occurred. Information regarding these types of sites can only be obtained once a transportation route is chosen and property purchase is negotiated at which time an owner must disclose all information regarding potential environmental liabilities on the property.

United States

The FAA has undergone development and industrialization for over 300 years. There may be sites that have been the location of hazardous waste generating activities in the past and are now the location of an entirely different type of activity, or there may be sites whose nature has not yet been discovered. For this reason, properties being considered for acquisition should undergo Phase I and, if necessary, Phase II environmental assessments prior to acquisition. These assessments will assist in determining the nature of the property, the regulatory statutes that a property may fall under, the legal protections against liability available, and an idea of the difficulty and cost of reuse.

Summary

While they should be approached with caution, these sites would not preclude a route, bridge, or other transportation project.

7.3. Summary

The Focused Analysis Area is intensely developed and industrialized and, as such, there are several hundred contaminated and/or potentially contaminated sites located within it. These sites vary in the amount of concern that they represent because of the differing degrees of contamination or potential for contamination.

In Canada, the owner of a property is responsible for any contamination on it. However, whether the degree of contamination rises to the actionable level depends upon the context within which it exists. Contaminated properties may be used for transportation projects but the cost-effectiveness and legal

entanglements must be carefully evaluated for each specific parcel.

Although it is the policy of the Michigan Department of Transportation (MDOT) to avoid contaminated sites where possible, the density of sites in the FAA may make it impossible or impractical to avoid all of them. Depending upon the type of site, there are protections from liability under Michigan and federal laws that may allow contaminated sites to be acquired and used. In addition, the FHWA now has policies in place which encourage the use of such sites if it is feasible and reasonable to do so. In all cases, care must be taken to evaluate each individual site in accordance with the statutes applicable to it prior to its acquisition.

Once alternatives have been identified, it will be necessary in both countries to conduct database and map searches specific to those alternatives. A limited field inspection of alternative locations may be necessary in order to determine if there are features that do not appear in the databases or maps but that may, nevertheless, be of concern.

While there are a few exceptions, such as landfills, contaminated or potentially contaminated sites do not preclude a route, bridge, or other transportation project. Barring some unusual factor or circumstance, the technical, legal, and economic issues associated with them are usually resolvable and their use in a transportation project may even be encouraged in the U.S. under certain circumstances.

8. Summary

8.1. Summary

This Environmental Overview Report has documented the current social, economic and environmental conditions in the Focused Analysis Area in order to identify constraints that may be faced in the development of proposed alternatives or the expansion or conversion of existing corridors. Those constraints, while made up of similar elements, may have a different focus on each side of the Detroit River. Their sheer number and density mean that there are no open corridors awaiting the placement of a new route, bridge, or other transportation project.

On the Canadian side, the density of protected natural features located along the Detroit River may present particular challenges. Because these natural features are small remnants of the original, they are particularly high in value and accordingly protected by statute, regulation and policy and international agreement. Any alternatives that impact them will undergo scrutiny by the public and by all levels of government agencies. Extensive studies to thoroughly document the current condition of such features and to completely understand the potential affects upon them may be required. These studies may undergo successive review by several different agencies and levels of government. Second to these natural features in concern may be historical and archeological sites, which are likewise highly valued and appropriately protected.

On the United States side, cultural features may present the greatest challenges. Environmental Justice, in particular, may become a very important issue during the analysis of any proposed alternatives. Cultural features such as historical sites, parks, and cemeteries may, because of their sheer number and density of location, pose challenges second only to environmental justice. While natural features such as wetlands are particularly highly valued because of their scarcity, that scarcity may make it unlikely that any will be encountered or that they may be relatively easily avoided. Contaminated sites may present opportunities rather than challenges because the extent of cleanup is now limited to that which is commensurate with the safe re-use of the property. The liabilities for such properties, if acquired for right of way for transportation projects, are very limited if cleanup and use are conducted in accordance with applicable statutes and standards. In other words, the issues for the re-use of such sites tend to be technical and funding rather than social impacts or preservation.

The following features are considered to limit the location for transportation corridors. In developing alternatives, the following guiding principles are proposed:

- Minimize impacts to commercial and residential areas
- Minimize impacts to natural features
- Seek compatible land uses or areas that are in transition to compatible land uses – these are opportunities

- Utilize the existing infrastructure to the maximum extent
- The following features may constrain, but do not preclude the generation of transportation alternatives for this study:
  - Churches, mosques, synagogues
  - Historical or archaeological sites
  - Parks, playgrounds, recreation areas
  - Wetlands, fisheries, wildlife habitat
  - Museums, zoos, and aquariums
  - Cemeteries

  Please refer to Exhibit 8.1.

8.2. Environmental Issues

The individual social, economic, and environmental issues, all of which are referenced under the umbrella term "environmental" in this paper, each carry their own intricacies and complexities. A characteristic that they share, however, is that they are all site-specific. Any analyses of potential impacts upon them are, therefore, necessarily also site specific. The following is a general summary of the nature of the challenges that each type of feature presents in this Focused Analysis Area.

8.2.1. Socioeconomic

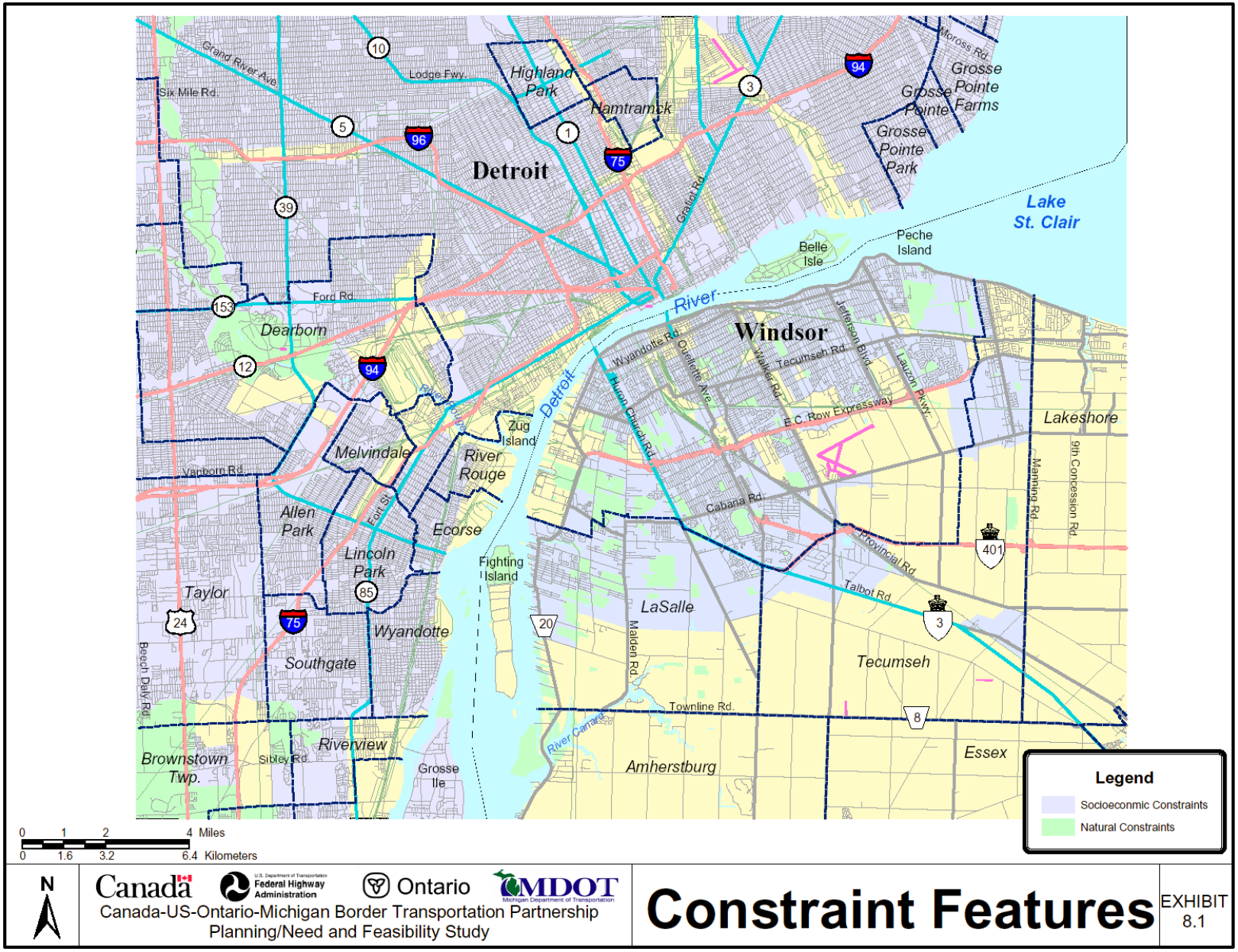
The ethnic makeup and economic income level of many neighbourhoods found on the United States side of the FAA provide indications that the proposed alternatives will require sensitivity to environmental justice issues. These issues can be particularly time consuming and intractable.

8.2.2. Cultural

Both countries in the FAA place high value on the heritage that survives to them and therefore place a high priority on the preservation of historical and archeological sites. The importance of these sites is often linked to their location and the context in which they are found. Any proposed alternatives that have the potential to impact such sites may face significant challenges.

8.2.3. Natural Environment

The original environment on both sides of the Detroit River has been extensively modified or obliterated. On the Canadian side of the River, extensive efforts are underway at all levels of government to delineate and protect many of those natural features that remain. On the United States side, similar efforts are underway but the remaining natural features are fewer and smaller. Additionally,


Detroit
Windsor
Lake St. Clair
Highland Park
Hamtramck
Grosse Pointe
Grosse Pointe Farms
Grosse Pointe Park
Belle Isle
Peche Island
Dearborn
Melvindale
River Rouge
Zug Island
Allen Park
Ecorse
Lincoln Park
Fighting Island
Taylor
Wyandotte
Southgate
LaSalle
Tecumseh
Lakeshore
Amherstburg
Essex
Riverview
Brownstown Twp.
Grosse Ile
Grand River Ave
Six Mile Rd.
Lodge Fwy.
Ford Rd.
Vaughn Rd.
Fort St.
Beech Daly Rd.
Sibley Rd.
Wyandotte Rd.
Ouellette Ave.
Walker Rd.
Tecumseh Rd.
Jefferson Blvd.
Lauzon Pkwy.
E.C. Row Expressway
Huron Church Rd.
Cabana Rd.
Provincial Rd.
Talbot Rd.
Malden Rd.
Townline Rd.
9th Concession Rd.
Manning Rd.
Moross Rd.
Grand Rd.
River Canard
Detroit River
Legend
Socioeconmic Constraints
Natural Constraints
0 1 2 4 Miles
0 1.6 3.2 6.4 Kilometers
N
Canada
U.S. Department of Transportation Federal Highway Administration
Ontario
MDOT Michigan Department of Transportation
Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study
Constraint Features
EXHIBIT 8.1

Canada and the United States have joined together to create international programs dedicated to the preservation and enhancement of the natural features of the Detroit River and its tributaries. Because of the high value that is placed on these natural features, any

proposed alternatives which have the potential to directly or, in some cases, indirectly impact these natural features may face significant challenges.

8.2.4. Landfills and Hazardous Wastes

The industrialization that has occurred on both sides of the River for approximately 150 years has left a legacy of contaminated sites. Ongoing industries continue to generate wastes and dispose of wastes, albeit in more stringently regulated circumstances.

On the Canadian side of the river, liability accrues to the owner of the property on which contamination is located, which may have a somewhat limiting effect upon transportation projects. However, the density of such sites also appears to be low.

In an effort to reclaim many of the contaminated sites on the United States side of the river, environmental laws have been amended to limit liabilities and degrees of cleanup in order to promote their re-use. Transportation projects, in particular, have liability exposure limited to such a degree that contaminated sites may present opportunities rather than obstacles.

8.2.5. Air Quality/Noise

Air quality in both countries is a growing concern as a health issue as much as an environmental issue. Both countries place very similar limits upon the emissions of certain particulates and gases by transportation, industries, and other sources. In the United States, additional limits are placed upon the amount of these materials that may be contained in the air of an area at any given time. Areas that exceed these limitations are subject to various sanctions, including the loss of federal funding for any transportation project which may promote the violation of these standards or which may delay their attainment. While the limitations on both sides of the River are important, the stringency of the United States air quality statutes may present the largest challenge. The analysis of any air quality changes that any proposed alternative may impose on the border crossing area will be important for that reason.

Noise is a component of the environment. Excessive noise can detrimentally affect residences, businesses, and environmental sites. Both the Canadian and Unites States governments have recognized this and have implemented very similar noise mitigation policies and programs to alleviate the impacts of the noise from transportation projects. While a very important issue, noise is seldom a determining factor in the location of a transportation project. However, any proposed alternatives will require assessment of the potential noise impacts and possible measures that can be considered.