

Appendix C6

Socio-Economic Profile



Stantec

**A SOCIO-ECONOMIC PROFILE OF
THE WOLFE ISLAND WIND
PROJECT STUDY AREA**

WOLFE ISLAND WIND PROJECT

TECHNICAL APPENDIX C6

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Prepared for

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1.0 Introduction

Canadian Hydro Developers, Inc., through its wholly owned subsidiary Canadian Renewable Energy Corporation (“CREC”), is proposing to develop a 197.8 megawatt (“MW”) wind plant on Wolfe Island, Township of Frontenac Islands, Frontenac County, Province of Ontario. Eighty-six 2.3 MW wind turbine generators will be placed strategically over the western portion of Wolfe Island (the “Project”).

Electricity from the Project will be transmitted via a new 230 kV electrical transmission line that will run underwater through a portion of the St. Lawrence River, known locally as the “Lower Gap,” to the mainland, where it will consist of an underground line that will connect with the provincial grid at Hydro One Network Inc.’s Gardiners Transformer Station in the City of Kingston. The study area for the Project is shown in **Figure 1.1 (Appendix A)**.

As part of the Ontario Ministry of the Environment’s (“MOE”) Environmental Screening Process for electricity projects (i.e., Ontario Regulation 116/01), Stantec Consulting Ltd. (“Stantec”) developed a profile of the socio-economic conditions within the study area. The profile provides a broad-level and statistical overview of these conditions using data from published sources. This profile also assists in supporting the Project response to the MOE’s Screening Criteria noted under section 6.0 “Socio-Economic”.

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2.0 Municipal Structure of Study Area

2.1 TOWNSHIP OF FRONTENAC ISLANDS

Wolfe Island is the largest of the Thousand Islands, located at the outlet from Lake Ontario to the St. Lawrence River. The Island is predominantly agricultural and rural in nature, with many seasonal residences and one main village, Marysville, located on the northern shore of the western portion of the Island. For the purposes of the Project, the Island is divided into eastern and western portions, roughly divided at the Wolfe Island canal. The western portion of the Island forms the study area for the Project (**Figure 1.1, Appendix A**).

Wolfe Island, in the former Wolfe Island Township, was amalgamated with Howe Island Township and Simcoe Island in January of 1998 to form the Township of Frontenac Islands in Frontenac County (Wolfe Island Business and Tourism Association, 2006). This was part of the widespread municipal amalgamations that occurred throughout Ontario in 1998.

The responsibilities of the Township include the operation of the Simcoe Island Ferry and the Howe Island Ferry, and the maintenance and collection of admission fees for the Big Sandy Bay Wetland. Furthermore, the Township is responsible for property taxes, maintaining roads, collecting garbage, and licensing dog tags and permits. The OPP (Grenville, and Leeds) provides policing services on the Islands and the Township is responsible for contributing a portion of the costs (Township of Frontenac Islands, 2005).

2.2 COUNTY OF FRONTENAC

Frontenac County was a traditional Ontario county until 1998 when it was restructured and formed into a management unit with limited powers; the County however remains a census division of Ontario. Development projects still require County approval, however, the County does not have the ability to propose new development. Furthermore, the current Frontenac County does not have a county road system and has minimal control over its social services. The County maintains control of ambulance services (Township of Frontenac Islands, 2005).

The County presides over the following regions: the Township of Central Frontenac, the Township of Frontenac Islands, the Township of North Frontenac, and the Township of South Frontenac. The City of Kingston is located within the County census division, but is not included within the County's administration (Frontenac County, 2005; Wikipedia, 2006).

2.3 CITY OF KINGSTON

The City of Kingston is located halfway between Montreal and Toronto south of highway 401 on the northern shore of Lake Ontario. The City has a long history, having been the primary military and economic centre of Upper Canada. The City is nicknamed the "Limestone City" for the many historic buildings built of limestone.

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Municipal Structure of Study Area

November 2007

The seat of Frontenac County, Kingston, has a well-established economy based primarily on health care, education, government (including the military and correctional services), tourism and culture, manufacturing, and research and development. A small portion of the City, comprising a corridor of approximately 1.3 to 2 km wide, and stretching from the Lower Gap to the Gardiner Transformer Station, forms the mainland portion of the study area for the Project **(Figure 1.1, Appendix A)**.

The mainland study area is located in the original Township of Kingston, which was officially amalgamated with the City of Kingston and the Township of Pittsburgh in January of 1998 to form the new City of Kingston (City of Kingston, 2006).

3.0 Community Statistics

3.1 INFORMATION SOURCES

Community statistics were gathered from published census data from Statistics Canada, specifically the Population Census of Canada, which is conducted every five years. The most recent censuses were conducted in 2006, but at the time of writing the most up-to-date data available was from the 2001 census (Statistics Canada, 2002). The 1996 Statistics Canada Census (Statistics Canada, 2002b) was also reviewed to establish population trends for the regions.

It should be noted that the 2001 census was the last time population statistics were calculated by Statistics Canada for Wolfe Island as an individual Island, separate from Howe and Simcoe Islands. Therefore, the statistics presented in the following sections are for the dissolved Township of Wolfe Island.

Similar to Wolfe Island, the census in 2001 was the last time population statistics were calculated by Statistics Canada for the Township of Kingston, separate from the City of Kingston and the Township of Pittsburgh. Therefore, the statistics presented in the following sections are for the dissolved Township of Kingston, since it encompasses the mainland study area. Statistics for the dissolved City of Kingston have also been included to give a more holistic picture of Kingston mainland. The dissolved City of Kingston includes areas to the east of the study area, a region which contains many socio-economic features on the mainland.

Community information was also gathered from the Official Plan of the Township of Kingston, the Official Plan of the Township of Wolfe Island, and from the City of Kingston Planning Area Official Plan. Various government agencies (such as Correctional Services Canada, Parks Canada, the Ministry of Transportation, Ministry of Natural Resources, Ministry of Environment, and City of Kingston) were also consulted for information on community statistics.

3.2 POPULATION

3.2.1 Wolfe Island Township

The population of Wolfe Island has fluctuated over the last three census periods. In 1991, 1,097 people lived on the Island. By 1996 the population had grown to 1,180, an increase of 7.6%. As of 2001, Wolfe Island had 1,142 residents, a decrease of 3.2% from the 1996 census (Statistics Canada, 2002). Population statistics for the former Wolfe Island Township are provided in **Table 3.1 (Appendix B)**.

The rate of population growth on Wolfe Island from 1991 to 1996 exceeded the rate of growth of Ontario as a whole (6.6%). Between 1996 and 2001, the population decrease on the Island contrasted to the growth rate of Ontario as a whole (6.1%) (Statistics Canada, 2002). The

Official Plan for the Township of Frontenac Islands predicts that the population of Wolfe Island will grow to 1,683 by the year 2020, a growth of 34% from current levels. Much of this growth appears to be through the conversion of existing cottages to permanent occupancy. Many recreational properties appear to be “maturing” into a demand for permanent occupancy by an aging population taking early retirement (Clark Consulting Services, 2003).

3.2.2 Township of Kingston

Statistics Canada 2001 census reported that the Township of Kingston had a population of 45,946, an increase of 5% since the 1996 census where the population was 43,756. In 1991, the population of the dissolved Township was 39,791 providing a 10% increase from 1991 to 1996 (Statistics Canada, 2002). Population statistics for the former Township of Kingston are provided in **Table 3.1 (Appendix B)**.

The rate of population growth in the Township of Kingston exceeded that of Ontario as a whole from 1991 to 1996. Between 1991 and 1996 in Ontario, the rate of increase was 6.6%, but in the Township of Kingston, the rate of increase had reached 10%. The rate of increase was, however, lower between 1996 and 2001 for the dissolved Township. The Province experienced a population increase of 6.1%, whereas the Township experienced a population increase of 5.0% (Statistics Canada, 2002). This could be explained in part due to the Township of Kingston’s original rural character, which is now developing into a more urban region. (Township of Kingston, 2005).

3.2.3 City of Kingston

The population in the now dissolved City of Kingston reached 56,597 in 1991, and decreased 1.1% in 1996 to 55,947, according to the Statistics Canada 1996 census. The population continued to decrease between the years 1996 and 2001. By the year 2001, the population in the dissolved City of Kingston had decreased another 2.7% to 54,456.

Compared to the Province’s population growth between those years, the dissolved City continued to decrease in population, while the province increased by 6.6% from 1991 to 1996, and by 6.1% from 1996 to 2001.

While both the Province of Ontario and the dissolved Township of Kingston have experienced stable population growth between all three census periods, the dissolved City of Kingston has experienced constant population decreases, and the dissolved Township of Wolfe Island, between the last census periods, also experienced a population decrease. The population of Kingston shows significant turnover because of its relatively large student population (about 10%) and the number of military residents associated with Canadian Forces Base Kingston (Wikipedia, 2007a)

The Kingston urban area exhibits population characteristics typical of the Province of Ontario as a whole. According to the City’s Official Plan, Kingston can be characterized as an inner urban region with similar growth and population characteristics as other typical inner urban areas in Ontario. These characteristics include: little population growth, declining numbers of children;

increasing numbers of seniors; and higher density of residential development. Some of these characteristics can be explained by the City's scarcity of undeveloped land for new development projects (City of Kingston, 1991).

3.3 AGE AND GENDER DISTRIBUTION

3.3.1 Wolfe Island Township

Tables 3.2 and 3.2.1 (Appendix B) show the age and gender distribution in the Province of Ontario and the dissolved Townships of Wolfe Island and Kingston as well as the dissolved City of Kingston for the 1996, and 2001 Census years (see **Figure 3.1, Appendix A**). Gender distribution on Wolfe Island is 51% male and 49% female and varies from the three larger regions as there are slightly more females than males in all other regions.

In the 2001 Census, as well as the 1996 Census, Wolfe Island has a higher proportion of residents in the older age groups of 45 to 84 years compared to Kingston Township, City of Kingston, and Ontario (Statistics Canada, 2002, and 2002b). This data suggests that Wolfe Island is a popular retirement community. The population of Wolfe Island is also known to double or even triple during the summer months (Wikipedia, 2006b).

3.3.2 Township of Kingston

The age distribution in the dissolved Township of Kingston follows similar trends to those of Ontario as a whole. The Township varies from Wolfe Island in that it has a high proportion of younger residents (54 and younger) in the 2001 and 1996 Census periods. For all regions, in both census periods, the highest percentage of residents fell within the middle age group (for the year 2001: 25-44) (for the 1996 Census: 25-54) (Statistics Canada, 2002 and 2002b).

3.3.3 City of Kingston

As mentioned in section 3.2.3, the 1996 Census indicated that The City of Kingston had a lower proportion of the population in the younger age groups than the older age groups, which is typical of an inner urban centre (Statistics Canada, 2002b). However, this trend does not continue into the 2001 Census, where the proportion of the younger population age groups is higher than that of the older population age groups (Statistics Canada, 2002). The overall population continued to decrease, which is typical of an inner urban area (City of Kingston, 1991).

3.4 VISIBLE MINORITY STATUS

Tables 3.3 and 3.3.1 (Appendix B) show the distribution of the most frequently reported visible minority groups making up the populations of Ontario, Wolfe Island, Kingston Township, and City of Kingston as of the 1996 and 2001 census. It is important to note that individuals may report more than one visible minority group.

3.4.1 Wolfe Island

The proportion of the population belonging to visible minority groups decreases as the areas become more rural in character. The province of Ontario, in the 2001 census, reported 19.08% of the population as a visible minority and the Township of Wolfe Island reported 0.88%. In the 1996 Census, Wolfe Island reported no representation from the visible minority groups. In the 2001 Census, Wolfe Island had representation from one visible minority group, which was black males. (Statistics Canada, 2002 and 2002b)

3.4.2 Township of Kingston

The dissolved Township of Kingston reported 4.95% of the population as a visible minority in the 1996 Census, and 4.66% as visible minority in the 2001 Census. This percentage is lower than that for the City of Kingston and the Province of Ontario; however, it is larger than the Township of Wolfe Island, thus following the pattern that as regions become more rural in character, the racial diversity decreases (Statistics Canada, 2002 and 2002b).

3.4.3 City of Kingston

The dissolved City of Kingston reported 6.26% of the population in 1996 as a visible minority, and 7.32% as a visible minority in 2001. These percentages are higher than those for the dissolved Townships of Wolfe Island and Kingston, both of which are more rural in character than the dissolved City of Kingston (Statistics Canada, 2002 and 2002b).

3.5 RELIGIOUS AFFILIATIONS

Various forms of Christianity represent the dominant form of religion practiced in the Province of Ontario, the dissolved Townships of Wolfe Island and Kingston and the City of Kingston, with Protestantism and Catholicism forming the largest groups (**Table 3.4, Appendix B**). Statistics on Religious Affiliations were not available for the 1996 Census; therefore the reported statistics are for the 2001 Census only (Statistics Canada, 2002).

3.5.1 Wolfe Island

For all the regions, Protestantism is reported as representing a higher percentage of the population than Catholicism. Similar to the dissolved Township of Kingston, 45.53% of the population of Wolfe Island are reported to practise Protestantism, while a lower percentage practises Catholicism at 42.47%. The percentage of the population practising a form of religion other than Christianity, for example Buddhism, Hinduism, and various other Eastern religions, on Wolfe Island is zero (Statistics Canada, 2002).

3.5.2 Township of Kingston

In the dissolved Township of Kingston, 45.50% of the population identified themselves as Protestant, while 35.44% of the population identified themselves as Catholic. Unlike Wolfe Island, the dissolved Township of Kingston reported portions of the population as practising a religion other than Christianity. The 2001 Census reported 1.94% of the population as practising

a form of religion other than Christianity for the dissolved Township of Kingston, while 3.5% of the population in the dissolved City of Kingston reported practising a religion other than Christianity (Statistics Canada, 2002).

3.5.3 City of Kingston

The 2001 census reported 34.28% of the population as Catholic, almost equal to the percentage of people practising Protestantism at 34.49%. The dissolved City of Kingston reported 40.30% of the population as Protestant, and 28.39% of the population as Catholic.

3.5.4 Summary – Non-Christian or No Religious Affiliation

In all 4 regions, there is a higher percentage of the population who identify themselves as having no religious affiliation and those identifying themselves as practising a religion other than Christianity. The highest percentages of the population having no religious affiliation is found in the dissolved City of Kingston, at 22.12%, which is lower than (compared to the trend for) Ontario, at 16.14%. The population within the dissolved Township of Kingston and the dissolved Township of Wolfe Island reported having no religious affiliation at 12.88% and 10.07% respectfully.

The highest percentage of the population identifying themselves as practising a religion other than Christianity is found in the province of Ontario, followed by the dissolved City of Kingston, the dissolved Township of Kingston, and lastly the dissolved Township of Wolfe Island. This follows the trend that there is more representation of a variety of religions in urban areas, whereas as the area becomes more rural in nature, the representation of religions decreases. In fact, there is no reported representation of the various non-Christian religions present on Wolfe Island (Statistics Canada, 2002).

3.6 EDUCATION LEVELS

Table 3.5 and **Table 3.5.1 (Appendix B)** shows the highest levels of education attained by residents of Ontario, the dissolved Townships of Wolfe Island and Kingston and the City of Kingston.

3.6.1 Wolfe Island

Wolfe Island and the Township of Kingston have very similar patterns of schooling, likely due to the proximity and attendance at schools in the City of Kingston (Statistics Canada, 2002). The 2001 Census reported that 12.59% of the population on Wolfe Island had earned a trades certificate or diploma. This is higher than for the other three regions. As noted in **Table 3.8, Occupation**, 21.71% of the Wolfe Island population is employed in the trades sector, which is higher percentage of the population than Ontario, and the City and Township of Kingston.

3.6.2 Township of Kingston

The Township of Kingston had the lowest percentage of the population (12.75%) with less than a high school graduation certificate when compared with the City of Kingston, Wolfe Island, and the Province of Ontario (Statistics Canada, 2002).

3.6.3 City of Kingston

The dissolved City of Kingston and the province of Ontario have similar patterns of education levels achieved, with the exception of the percentage of the population with a university certificate, diploma or degree in the City of Kingston. The percentage of the population with a university certificate, diploma or degree in the dissolved City of Kingston (27.83%) is larger than the percentages found in the province of Ontario (23.67%), and the dissolved Township (24.26%) (Statistics Canada, 2002). This could be due to the fact that the City is host to two Universities and one College.

3.7 HOUSEHOLD INCOME

Table 3.6 (Appendix B) provides data on the level of household incomes in the Province of Ontario, the dissolved Townships of Wolfe Island and Kingston, and the City of Kingston in 2000.

3.7.1 Wolfe Island

On average, people on Wolfe Island, the dissolved Township of Kingston, and the City of Kingston have lower incomes than people in Ontario as a whole. Wolfe Island had lower earnings than the Township and City of Kingston, but a higher median income (i.e., the dollar value where half of the population earn more and half of the population earn less) than the province and the City of Kingston (Statistics Canada, 2002).

3.7.2 Township of Kingston

The most notable income characteristic for the Township of Kingston was that it had higher dollar values for all the categories than the City of Kingston and the Township of Wolfe Island; however, lower dollar values than the Province for average earnings, all persons with earnings, and average earnings, worked full year, full time (Statistics Canada, 2002). The data does not indicate the reason for these differences.

3.7.3 City of Kingston

The City of Kingston had very similar average earnings to the Township of Kingston, this could be explained in part due to their close proximity to each other, and their similar trends in Occupation and Employment as seen in **Table 3.7** and **Table 3.8** (Statistics Canada, 2002).

3.8 EMPLOYMENT

Table 3.7 (Appendix B) depicts employment of people fifteen years of age and over in Ontario, the dissolved Townships of Wolfe Island and Kingston, and the City of Kingston, based on 2002 Statistics Canada data. Each geographic area examined had different major industry employers, as depicted in **Figure 3.2 (Appendix A)**. Manufacturing and construction industries are a major employer in all four geographic areas, as is wholesale and retail trade, and business services. All four geographic areas had a significant percentage of the labour force employed by industries listed as “other services” in the census (Statistics Canada, 2002).

3.8.1 Wolfe Island

The high level of employment in the agricultural sector on Wolfe Island, 13.16% of the population (i.e., in comparison to the Township of Kingston, City of Kingston, and Province) indicates that agriculture is a main component of the Wolfe Island economy (Statistics Canada, 2002). The agricultural industry on Wolfe Island is further described in **Technical Appendix C1, Agriculture**.

3.8.2 Township of Kingston

The City of Kingston and the Township of Kingston had similar trends in Industry Employment. Agriculture and other resource based industries employed the lowest percentage of the population as both regions are more urban in nature. The highest percentage of the population in the Township of Kingston is in health and education (24.77%) (Statistics Canada, 2002).

3.8.3 City of Kingston

Health and education employed the greatest percentage of the labour force in the dissolved City of Kingston and represented the second largest industry employer in Kingston Township. In the dissolved City of Kingston, 25.58% of the population is employed in healthcare and education,.

3.9 OCCUPATION

Table 3.8 (Appendix B) analyzes the occupations of people fifteen years of age and over in Ontario, the dissolved Townships of Wolfe Island and Kingston, and the City of Kingston.

3.9.1 Wolfe Island

Occupations relating to trades, transport, and equipment operation were the most common type of occupation on Wolfe Island, with more than double the occurrence of this type of occupation on the mainland portion of the study area. Occupations unique to primary industry which include; agriculture, agribusiness, fishing, forestry and all mining and quarrying industries (Wikipedia, 2007c) were significantly higher on Wolfe Island, employing 12.5% of the population, as opposed to only 2.74% in the province, 1.39% in the City of Kingston, and 1.59% in the Township of Kingston again illustrating the importance of agriculture on the island (Statistics Canada, 2002).

3.9.2 Township of Kingston

The occupation with the largest percentage of the population is sales and service in the Township of Kingston as well as the City of Kingston, and as mentioned earlier, this could be due to their close proximity (Statistics Canada, 2002).

3.9.3 City of Kingston

Social science, education and government services and religion is the second largest occupation according to the population of the City of Kingston. This follows the percentages found for Industry Employer in **Table 3.7** which showed the second largest industry employer as being health and education (Statistics Canada, 2002).

4.0 Transportation and Linear Features

4.1 WOLFE ISLAND

4.1.1 General Accessibility

The Ontario Ministry of Transportation (“MTO”) operates the Wolfe Island Ferry (named the Wolfe Islander III) year-round from 5:45 am to 2:00 am. The Wolfe Islander III holds approximately 55 cars and 330 passengers per trip. The crossing time is 20 minutes with 38 (19 round trips) scheduled crossings daily between Wolfe Island and Kingston. The Wolfe Islander III operates from the Marysville Dock during most of the year from ice out to ice in, at which time it moves to the Dawson Point (Winter) Dock during the winter. Low water conditions at the Marysville Dock can result in earlier use of the winter dock.

Two other ferries service Wolfe Island. One is the Simcoe Island Ferry, with a three-car capacity, is operated by the MTO seasonally across the Boat Channel on a variable schedule (i.e., on demand) between 6:00 am and 1:00 am. The second is a privately operated ferry, known as Horne’s Ferry, which has a 12 car capacity and runs hourly from 8:00 am to 8:00 pm on a daily basis from 01 May to 22 October (Wolfe Island Business and Tourism Association, 2006). Port Alexandria, on the southern shore of the Island, has a customs office to accommodate ferry traffic to and from Cape Vincent, New York (approximately 1.5 km away).

4.1.2 Linear Features

4.1.2.1 Roads

The transportation network on Wolfe Island includes Frontenac County Roads 95 and 96, both formerly of the Provincial Highway system prior to 1998 (Bessert, 2006). County Road 95 runs from Marysville southeast to Port Alexandria (location of ferry dock to Cape Vincent, U.S.A.). County Road 96 runs from 2nd Line at the northwestern part of Wolfe Island, through Marysville, and ends at Port Metcalf at the eastern tip of the Island. A series of local roads are also present throughout the Island, arranged in a rough grid pattern (**Figure 1.1, Appendix A**).

4.1.2.2 Buried Utilities

Throughout the Wolfe Island study area, a variety of buried utilities may be present. (e.g., telecommunications). The specific locations of underground utilities will be determined prior to construction work.

4.1.3 Electrical Transmission Lines

Electricity distribution networks service residences and businesses on Wolfe Island. The main power supply to the Island comes from the Kingston mainland via an existing 8.4 kV submarine cable owned and operated by Hydro One. The cable runs from the west side of Sand Bay on the mainland to Simcoe Island, then via underwater cable to Wolfe Island.

4.1.4 Communication Systems

The CKWS television station is available throughout Eastern Ontario and North/Central New York State and its transmitter tower is located on Wolfe Island standing at 304.8 m tall (Wikipedia, 2007b). Further discussion of Communication Systems in the vicinity of the study area, and the potential effects of the Project on these systems, is discussed in **Technical Appendix C17 – Communications Report**.

Wolfe Island has an active 911 communication system in the event of an emergency. This system provides access to fire, ambulance and police services (Wolfe Island Business and Tourism Association, 2006).

4.2 KINGSTON MAINLAND

4.2.1 General Accessibility

The City of Kingston has many points of accessibility and is located just south of Highway 401. In 2004 annual average daily traffic volumes for the Division Street Interchange 617 to Sir John A MacDonald Blvd Interchange 615, a distance of 1.6 km, was 43,600 (Ministry of Transportation, 2005).

The City is located at the outlet of Lake Ontario into the St. Lawrence River, and is a major port to cruise the Thousand Islands. Kingston has the sixth busiest passenger rail (VIA) station in Canada, and is served by 20 trains per day, transporting an average of 295,000 passengers per year (City of Kingston, 2006).

Additionally, the Norman Rogers Airport, Kingston's municipally owned airport located eight kilometres west of the City's downtown core, offers five daily scheduled flights from Kingston to Toronto. The airport is also a home base for private business, cargo, and recreational flying. In 2005, the Norman Rogers Airport moved a total of 68,895 passengers, and handled a total of 29,739 aircraft movements. The airport employs 144 people, and contributed \$39 million to the provincial economy in gross revenue in 2005 (City of Kingston, 2006).

4.2.2 Linear Features

4.2.2.1 Roads

The City is responsible for maintaining roads within Kingston; which as of 1998 includes the former Township of Kingston. As one might expect in an urban setting, the mainland study area contains a number of roads and side streets. Main roads within the study area include Front

Road and Bath Road, running east to west at the southern and northern boundaries of the Correctional Service Canada ("CSC") property, respectively. Running north to south, main roads are Days Road at the western boundary of the CSC property, Sunny Acres Road in the southern portion of the mainland study area, and Gardiners Road in the northern portion of the mainland study area. A network of access roads is present on the industrial lands south of Front Road and on the CSC property (City of Kingston, 2006).

4.2.2.2 Railways

Kingston's railway station is among the busiest in Canada. This can be explained in part by the number of people visiting Kingston due to the two major universities, the college and the armed forces base. Furthermore, the Kingston railway station provides connections to southwestern Ontario, western Canada, and the Maritimes. One railway travels generally east-west across the northern section of the mainland study area. This rail line is owned and operated by the Canadian National Railway (CN Rail) (City of Kingston, 2006).

4.2.2.3 Buried Utilities

Throughout the study area, a wide variety of buried utilities are present. (e.g., telecommunications, sewer, water, natural gas, etc.). The specific locations of underground utilities will be determined prior to construction work.

4.2.2.4 Electrical Transmission Lines

Electricity distribution networks service residences and businesses in the area. Existing distribution lines in the area include the 44 kV line running overhead along Sunny Acres Road, through CSC lands, to the Gardiners TS; this line follows an almost identical route as the proposed 230 kV underground line for the Project. A 44 kV transmission line runs along Front Street servicing Invista and DuPont facilities and then Utilities Kingston.

4.2.2.5 Communication Systems

There are many television and radio stations that service the Kingston area. The Queen's University campus radio was founded in 1922 and is one of the oldest stations in the world. Kingston has many local television and radio stations, and has access to many stations coming from New York State (Wikipedia, 2007a).

Emergency Services for the City of Kingston are provided with a 911 operating system. Dialing 911 connects the caller with emergency police, ambulance, and fire services (City of Kingston, 2006).

Further discussion of Communication Systems in the vicinity of the study area, and the potential effects of the Project on these systems, is discussed in **Technical Appendix C17 – Communications Report**.

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5.0 Land-Use

5.1 GUIDELINES ON RENEWABLE ENERGY PROJECTS

The study area lies within two municipal jurisdictions in Frontenac County. They are the Township of Frontenac Islands and the former Township of Kingston (following amalgamation in 1998, this Township is now within the City of Kingston).

5.1.1 Wolfe Island

The Township of Frontenac Islands Official Plan (“OP”), as amended by Official Plan Amendment (OPA) No. 1, states in Section 5.1 that the principal purpose of the agricultural designation is to protect land suitable for agricultural production from scattered development and land-uses which are unrelated to agriculture. The predominant use of lands designated Agricultural shall be for agriculture and farm-related uses. Such uses include general farming, livestock, fish hatcheries, and nurseries. Furthermore, section 5.1.2 of the OP states that other uses permitted in the agriculture designation shall include Wind Farms. This is consistent with the 2005 Ontario Provincial Policy Statement under the *Planning Act*.

Section 4.14 of the OP outlines the wind energy policies for the Township. It states that Wind Farms within the Rural or Agricultural designation will require a site-specific amendment to the zoning by-law. Wind Farm operations shall generally be located in accordance with specified criteria, including:

- Being located on large parcels of agricultural or rural land having limited development on-site or nearby;
- Being separated from sensitive land uses, wildlife habitat, and commercial and institutional uses in order to minimize potential conflicts and safety hazards;
- Having sufficient setbacks to provide for safety from structural collapse or falling ice;
- Outline of mitigation measures that may be required.

The OPA also enables council to request studies considered appropriate, if it so wishes. Such studies are to be submitted by the applicant to council prior to a decision. Such studies may deal with matters such as noise, visual impact, and impact on natural heritage features. Section 4.14 of the OP outlines the wind energy policies for the Township. It states that, Wind Farms within the Rural or Agricultural designation will require a site-specific amendment to the Zoning By-law. The Township has amended and approved the Zoning By-Law to allow for the construction and operation of “wind plants” and “accessory facilities”. An appeal of the Zoning By-law was successfully resolved between the parties involved at an Ontario Municipal Board

Hearing in July 2007. The Board rendered an oral decision upholding the By-Law and a written decision, consistent in content with the oral decision, was issued on October 25, 2007.

Section 4.4 of the OP deals with Community Facilities, Public Uses and Utilities. Public utilities are permitted in all designations of the OP except for generating stations, transformer stations, maintenance yards or public works depots that are permitted in all designations except Wetlands, ANSIs, and Environmentally Sensitive Areas.

The OPA was approved by the Minister of Municipal Affairs and Housing on December 6, 2006 and is now in force. The proposed Wind Farm and required utility systems are consistent with the intent of the OP for Frontenac Islands Township as amended by Official Plan Amendment No.1 (Township of Frontenac Islands, 2003).

5.1.2 City of Kingston

The OP for the former Township of Kingston designates the majority of the mainland portion of the study area as 1) Major Recreational Open Space, 2) Institutional, 3) Environmental Protection, 4) Commercial, and 5) Light Industrial. The policies for each of the respective designations allow uses consistent with the designation. The Institutional designation shall be for public and institutional uses that are, as a result of their size or nature, generally incompatible with residential uses. Within the Recreational Open Space designation, the predominant use of lands is to be for outdoor recreational activities. Within the Environmental Protection designation, lands are to be used primarily for the preservation and conservation of the environment. Within the Commercial and Light Industrial designation, uses permitted include warehousing, manufacturing, assembling, railway uses, transportation depots, and commercial uses compatible with industrial uses.

The Official Plan, in section 4-2.7 in a policy that applies to All Areas, specifies that public utilities, and public uses are permitted in all designations except for the Environmental Protection designation unless permitted by policy section 3-5 of the Environmental Protection Areas policies. Section 3-5(3) permits new private and/or public utilities such as pipelines, roadways, parking areas, and hydro facilities approved by the Cataraqui Region Conservation Authority and/or the Ministry of Natural Resources, where suitable locations outside the Environmental Protection Areas designation are not feasible

As designed, the Project will utilize these lands within the former Township of Kingston for electrical transmission facilities and tie into the existing Hydro One Networks Inc. Transformer Station known as Gardiners TS. Thus, the Project is consistent with the intended land-use policies for the lands the transmission line is intended to cross. It should be noted that the lands designated Institutional and Environmental Protection lands currently support electrical transmission infrastructure associated with nearby institutional and industrial uses. The new transmission line will be located parallel and east of an existing Hydro One easement wherein the existing distribution lines are located on CSC lands. In conclusion, the location of the proposed transmission line within the former Township of Kingston is consistent with the intent

of the OP subject to the approval of the Conservation Authority and/or the Ministry of Natural Resources (Township of Kingston, 2005). The Project is consistent with permitted uses and will also require the following City approvals: 1) Site Plan Approval, 2) Cut Permit, and 3) Municipal Consent to facilitate the implementation of the power line system.

5.2 LAND-USE DESIGNATIONS

5.2.1 Wolfe Island

Wolfe Island is dominated by Rural and Agricultural land-use designations. Other designations delineated in the Official Plan for Wolfe Island include Environmentally Sensitive Areas, Wetland, Village, Waste Management, and Aggregate and Mineral Resource areas (Clark Consulting Services, 2003). Mapping of land-use designations within the study area for Wolfe Island is provided in **Figure 5.1 (Appendix A)**. Recreational land-uses are discussed in Section 7.

5.2.1.1 Agricultural and Rural Land-Uses

Areas with Rural designations include the majority of the shoreline areas, most of Simcoe Island, the northern half of the Old Survey lots, and an area south and east of Marysville. The remainder of Wolfe Island is generally designated Agriculture (**Figure 5.1, Appendix A**).

The OP states that the predominant uses of land within the Rural designation may include all agricultural uses, forestry, "Wind Farms," reforestation, conservation, community facilities, home occupations and professional offices in residences and accessory buildings, outdoor recreational facilities such as golf courses, hiking and cross-country ski trails which require a large land area, bed and breakfast establishments and similar, small scale accommodation which caters to tourists and is compatible with the rural character of the area. Single dwelling houses on existing lots of record or lots created by Consent to a land severance are also permitted provided they are compatible with adjacent land-uses.

As stated above in **Section 5.1.1** the amended OP outlines permitted land uses within the agricultural land designation. These include: general farming, livestock, fish hatcheries, nurseries, and also Wind Farms (Township of Frontenac Islands, 2003).

5.2.1.2 Residential, Commercial, and Institutional Land-Use

There are no lands designated within the OP as Residential, Commercial, or Institutional, although these land-uses exist on the Island.

Residential land-use throughout much of the interior of Wolfe and Simcoe Islands is comprised almost entirely of loosely aggregated farmhouses with associated farm buildings. Higher density residential areas are found in Marysville (see **Section 5.2.1.3**), along the northern shoreline of Wolfe Island, and along the southern shoreline of Reeds Bay.

While not officially designated, residential areas comprise a mix of permanent residents and seasonal cottages. Cottages are mainly located along the shorelines of both Islands.

Some retail commercial land-use is located in the Village of Marysville (i.e., several shops and restaurants), and is further described in Section 5.2.1.3. Several bed and breakfast facilities are situated throughout Wolfe Island.

Institutional land-use on the Island includes schools, churches, and a library.

The schools present on the Island include the Marysville Public School and Sacred Heart Catholic School.

There are four churches on Wolfe Island, including the Trinity Church, and Christ Church, both Anglican Parishes, Sacred Heart of Mary Roman Catholic Church, and Wolfe Island United Church. There are also three cemeteries on the Island; they include Sacred Heart Cemetery, Trinity Anglican Church Cemetery, and lastly, Saint Lawrence United Church Cemetery.

Library services on the Island are provided for by the Kingston Frontenac Public Library (City of Kingston, 2005).

5.2.1.3 Village of Marysville

Marysville has been given a “Village” designation in the OP (**Figure 5.1, Appendix A**). The OP states that the predominant form of land-use in Marysville will be single detached dwellings. Other residential land-uses are also permitted such as senior citizen’s housing and bed and breakfast establishments, among others.

Limited commercial and industrial-uses are also permitted within the Village designation, including manufacturing, warehousing and storage facilities, building supply yards, among others. In addition, parks, playgrounds, and community facility uses such as schools, places of worship, assembly, and meeting halls are permitted land-uses in the Village designation.

5.2.1.4 Industrial Land

There are no lands designated as Industrial in the OP; furthermore, no major industrial activities exist on Wolfe Island.

5.2.1.5 Aggregate and Mineral Resources

Lands on Wolfe Island with an Aggregate and Mineral Resources designation include all lands currently licensed under the *Aggregate Resources Act* (1989) for extractive uses. This designation also includes those lands identified as areas of primary aggregate or mineral potential for aggregate or mineral extraction by the Ministry of Natural Resources or lands having Mineral or Building Stone potential identified by the Ministry of Northern Development and Mines.

There is one small quarry west of Marysville and two pits (Concession 7, Lot 11 SBL and Concession 8, Lot 5 SBL). Additionally, several areas of Aggregate Reserve are identified in the OP (**Figure 5.1, Appendix A**).

5.2.1.6 Waste Management

There is one Waste Management area on Wolfe Island, east of Marysville (**Figure 5.3, Appendix A**). Permitted uses include solid waste transfer stations, waste diversion facilities (such as recycling depots and composting facilities), and solid waste landfill sites. Waste disposal sites in the general vicinity of the study area are discussed further in Section 5.3.

5.2.1.7 Hazard Lands/Unstable Lands

The Hazard Land designation in the OP applies to those lands having environmental hazards including flood or erosion susceptible lands as defined by Provincial Policy and soils with poor drainage, or other physical characteristic or limitation which, if developed, could cause property damage or loss of life (Clark Consulting Services, 2003). Permitted land-uses in the Hazard Land designation may include agricultural uses, public or private parks, outdoor recreation, education and interpretive activities provided that such activities do not negatively impact the features or functions for which the area has been identified.

Hazard Lands on Wolfe Island are considered to be all lands along the shore of the St. Lawrence River and/or Lake Ontario. Areas requiring particular attention have been delineated as "Sensitive Shoreline". Sensitive shorelines in the Wolfe Island study area include the shorelines of: Bayfield Bay, south of Button Bay, the points extending on either side of Big Sandy Bay, the shoreline starting north of Reeds Bay extending to the south of Sandy Bay, the western shoreline of Simcoe Island, and on a small portion of the shoreline on the western half of Barrett Bay (**Figure 5.1, Appendix A**).

5.2.1.8 Natural and Cultural Heritage Features

Natural Heritage Resources are defined in the OP as including significant wetlands, significant portions of the habitat of endangered and threatened species, valley lands, wildlife habitats, fish habitats, and Areas of Natural and Scientific Interest ("ANSIs"), as well as locally significant wetlands, groundwater recharge and discharge areas, large tracts of vegetation, and other environmentally sensitive areas identified by the Municipality. Many of these features have not been mapped in the OP. Features that have been delineated are discussed below.

Wetlands

One Provincially Significant Wetland ("PSW"), consisting of a complex of 12 individual wetlands, has been identified within the Wolfe Island portion of the study area. These features are designated as Natural Heritage Features in the OP. The wetland complex is further described in **Technical Appendix C7, Natural Environment**, but is primarily located along the Island's shoreline areas.

Areas of Natural and Scientific Interest

ANSIs are areas of land and water containing natural landscapes or features that have been identified as having values related to protection, appreciation, and scientific study or education. One ANSI has been identified within the vicinity of Big Sandy Bay PSW (**Figure 5.1, Appendix A**). This ANSI is further described in **Technical Appendix C7, Natural Environment**.

Environmentally Sensitive Areas

The majority of Environmentally Sensitive Areas (“ESA”), delineated in the OP, correspond to PSWs. There are, however, several small areas designated as ESAs within the study area as noted within the OP (**Figure 5.1, Appendix A**). The ESAs correspond to woodlot or wetland areas as illustrated in **Figure 2.1 Natural Environment Features (Appendix A)**.

Cultural Features

The Wolfe Island Canal, located at the north-eastern boundary of the Wolfe Island portion of the study area, is designated as a Cultural Heritage Feature in the OP (**Figure 5.1, Appendix A**). Additional information about the Wolfe Island Canal is provided in **Technical Appendix C7, Natural Environment**.

5.2.2 Township of Kingston

The mainland study area falls within the dissolved Township of Kingston. The OP designations within the mainland study area include General and Light Industrial, Commercial, Low and Medium Density Residential with High Density Residential on the western border of the study area, Institutional, Wetlands, Environmental Protection Areas, and Major Recreational open space. Mapping of land-use designations within the mainland study area is provided in **Figure 5.2 (Appendix A)**. Recreational land-uses are discussed in **Section 7**.

The mainland portion of the study area is subject to Transport Canada's Airport Zoning Regulations. Norman Rogers Airport is located approximately two kilometers to the west of the study area. The zoning regulations provide limits to the height of new buildings and structures within 4,000 m radius of the airport.

The mainland portion of the study area is located within the airport's Outer Surface Boundary, described in the zoning regulations as “an imaginary surface located at a common plane established at a constant elevation of 45 m above the elevation of the airport reference point (91 m above sea level), except that, where that common plane is less than 9 m above the surface of the ground, the outer surface is an imaginary surface located at 9 m above the surface of the ground”. As the mainland transmission line is proposed to be underground, the Project will comply with these zoning regulations (Township of Kingston, 2005). The wind turbine generators are located outside of the 4,000 m radius of the airport

Given the institutional and industrial nature of the mainland study area, changes in population of the surrounding area have affected the land-use very little. Interpretation of aerial photography from 1979, compared to recent photography, indicates that little change has occurred. The major difference is commercial growth in the Bath Road and Gardiners Road areas.

5.2.2.1 Hazard Lands/Unstable Lands

No lands within the study area on the Kingston mainland are designated as Hazard or Unstable lands.

5.2.2.2 Environmental Protection Areas

The lands adjacent to the Little Cataraqui Creek, and the western branch of this creek that runs through and includes the wetland restoration project within the study area are designated as Environmental Protection Area ("EPA") (**Figure 5.2, Appendix A**). This designation includes, but is not limited to, all lands having inherent environmental sensitivity and hazards, such as flood plains, lands susceptible to flooding or eroding, and wetlands (Township of Kingston, 2005).

Permitted uses in EPA designations include: flood, sedimentation, and erosion control facilities; existing agriculture, passive outdoor recreation, public and private parks and conservation uses; new private and/or public utilities such as pipelines, roadways, parking areas, and hydro facilities; and docks and boathouses (Township of Kingston, 2005).

All policies outlined for EPA land-use designations also apply to EPA – Wetland designations. In addition to the policies for EPA land-use, development is not permitted within wetland areas. Development may be permitted on lands within 120 m of EPA – Wetlands, following the completion of an Environmental Impact Study. Lands designated as EPA – Wetlands include the Little Cataraqui Creek PSW in the eastern portion of the mainland study area, and the portion of the western branch of the Little Cataraqui Creek north of Bath Road. The Project is not anticipated to affect these lands.

5.2.2.3 Major Recreational Open Space

The predominant use of lands within the Major Recreational Open Space designation in the OP of the Township of Kingston are for outdoor recreation activities. Other related activities such as, agriculture, forestry, or similar uses, may also be permitted within this land-use designation.

The largest area marked as Major Recreational Open Spaces in the Township's Official Plan correspond with the region on the eastern shoreline of Collins Bay which has been designated *Lemoine Point Conservation Area*, this area is to the west of the mainland study area (City of Kingston, 2006). A small corridor of land, located west of Carruther's Point on the Kingston mainland, and a portion of land north of Front Road and west of Little Cataraqui Creek, are also designated as major recreational open space (**Figure 5.2, Appendix A**).

5.2.2.4 Residential Land-Use

A Residential land-use designation in the dissolved Township of Kingston's Official Plan means that the predominant use of land and buildings will be for residential purposes; however, other uses which are complementary to and serve the principal residential uses, such as elementary schools, and parkettes, are also permitted (Township of Kingston, 2005)

Residential land-use designations on the Kingston mainland are generally limited to the western portion of the study area, and include the area south of Front Road and west of Sunny Acres Road and north of Front Road, south of Bath Road and west of Days Road. A small area in the north-eastern portion of the Kingston mainland study area is also designated as residential (**Figure 5.2, Appendix A**).

The majority of these land-use designations are low density residential. A small area of medium density residential designation is located on the eastern portion of the Kingston mainland study area, and a small area of high-density residential designation is located just south of Bath Road and east of Days Road.

5.2.2.5 Commercial Land-Use

The OP of the Township of Kingston mandates the predominant use of lands in areas designated as Commercial to be used for a wide range of retail, service, entertainment, and office use. Shopping malls, banks, and other commercial properties are found only on the northern portion of the mainland study area (Township of Kingston, 2005) (**Figure 5.2, Appendix A**).

5.2.2.6 Industrial Land-Use

The OP of the Township of Kingston permits a broad range of industrial uses in designated General Industrial areas. These include warehousing, processing, manufacturing, assembling, railway uses, transportation depots, open storage, commercial uses serving the industrial area, and offices. Public and institutional uses which are compatible to the General Industrial uses may be included in a separate zoning category when the uses permitted will not have unacceptable adverse effects on adjoining designated residential areas as the result of the emission of noise and no uses causing air pollution or odours (Township of Kingston, 2005). General Industrial areas on the mainland include the area south of Front Road and east of Sunny Acres Road (**Figure 5.2, Appendix A**).

Light Industrial land-use designations on the Kingston mainland are located in the northern portion of the study area (**Figure 5.2, Appendix A**). The range of industrial uses is restricted to warehousing, manufacturing, assembling, railway uses, transportation depots, concealed storage and non-retail commercial uses compatible with the area (Township of Kingston, 2005).

Industrial facilities south of Front Road consist of the City of Kingston's West Water Treatment and filtration plants and the Invista industrial lands (formerly DuPont). The plant manufactures nylon fabrics and also houses the DuPont Research and Development and Corporate Engineering Centres. This plant employs approximately 1,500 people.

Under the Land Use Policy section in the Township of Kingston's Official Plan, in all designations shown on Schedule 'A' (Major Recreational Open Spaces, all forms of residential, commercial, industrial, and institutional among others) public works, playgrounds, public utilities (including powerlines) and other public uses will be permitted, provided that the uses are necessary in the area, and can be made compatible with surrounding uses, and adequate measures are taken to ensure this compatibility (Township of Kingston, 2005).

5.2.2.7 Institutional Land-Use

Permitted uses of areas that are designated as Institutional lands in the OP of the Township of Kingston include hospitals, cemeteries, community centers, special care facilities, and penitentiary lands, including administrative buildings under Federal jurisdiction (Township of Kingston, 2005).

The CSC's Collins Bay and Frontenac Institution dominate the land-use of the mainland study area (**Figure 5.2, Appendix A**). Collins Bay is a medium security facility occupying 14 ha of a 300 ha Federal Reserve shared with the Frontenac Institution, a minimum-security facility. The Frontenac Institution (46 ha) (initially known as Collins Bay Farm Annex) includes lands that are actively farmed. The Frontenac Farm occupies 240 ha of the reserve and is comprised of cropland with some cattle and is described in more detail in **Technical Appendix C1, Agriculture** (Correctional Services Canada, 2006, Correctional Services Canada, 2006b). Also present on the CSC lands is a Duck Unlimited Canada wetland restoration and enhancement project. This wetland has been evaluated by the Ontario Ministry of Natural Resources and are not considered to be provincially significant (refer to **Figure 4.1 Natural Environment Features in the Study Area in Technical Appendix C7, Natural Environment**).

5.3 WASTE DISPOSAL

The location and classification of active and closed landfill sites in the study area (i.e., Wolfe Island and City of Kingston) was determined through a review of the MOE Waste Disposal Inventory (1991), review of the Official Plans for the Township of Frontenac Islands and the Township of Kingston, and communication with staff at the Township of Frontenac Islands and the City of Kingston.

Landfills are classified by the MOE based on their potential to impact human health or the environment. Class "A" sites are within one kilometre of a dwelling, well, or watercourse used for domestic water. A site may also be categorized as Class "A" if it is in an area that is likely to be developed in the future, if there is a significant aquifer within 10 m of the surface, or if there have been past problems at the site. Landfills that do not meet these criteria are categorized as Class "B." **Tables 5.1 and 5.2 (Appendix B)** lists classification types for active and closed landfills.

There is one active landfill located within the City of Kingston, and one located within the Municipality of Frontenac Islands, specifically in Marysville, Wolfe Island. A total of nine closed landfills are located in Kingston. Of these, no open landfills are located within the mainland study area and one closed landfill is located within the mainland study area (**Table 5.3, Appendix B**). The MOE classifies the open landfill on Wolfe Island as A3, accepting municipal/domestic waste in an urban setting. Landfills classified in the "A" category represent those which have the potential to impact human health due to the close proximity to human development. Information obtained from the MOE indicates that the closed waste disposal site within the mainland portion of the study area includes a landfill, a remediated sewage lagoon, and evaporation or settling ponds. Several Certificates of Approval ("C of A"s) are associated with the area (Nos. A380804, 380803, and 4-0089-85-866). The C of A for the landfill (No.

A380804) was granted on August 14, 1980 for the landfill with a size of 0.1 hectares to accept hauled liquid industrial waste. The landfill was then closed and the C of A revoked on July 15, 1988. The locations of the active and closed landfills are shown on **Figure 5.3 (Appendix A)**.

Waste material produced by Project construction is expected to consist of domestic garbage and construction material. A licensed waste removal contractor will dispose of waste during the construction phase at a site licensed to accept the waste.

It is expected that domestic waste and recyclables will be disposed of on Wolfe Island at the Marysville Landfill (Certificate of Approval number A381601) during the operation phase. The Marysville Landfill is not licensed to accept construction material. Construction waste material produced by ongoing maintenance activities will be removed by a licensed contractor and will be disposed of at a licensed facility. At current use levels, the Marysville Landfill has an estimated remaining capacity of 12 years, based on volume measurements in cubic metres (Township of Frontenac Islands, 2007).

Construction waste is not accepted at the Kingston East Landfill (Certificate of Approval number A381302). The City of Kingston has an agreement with Waste Management to landfill construction material at a surcharge; this waste is accepted at the Waste Management Transfer Station, located at 62 St. Remy Place in Kingston, shown on **Figure 5.3 (Appendix A)** (City of Kingston, 2006). It is possible that the licensed waste removal contractor will use this Transfer Station.

5.4 WATER USE IN THE LOWER GAP

Commercial and recreational fishing and navigation occur in the Lower Gap as well as sailing regattas and other competitions. A description of the commercial and recreational uses of these waters is provided in **Technical Appendix C10, Cable Crossing**.

Thirteen municipal water and industrial water intake and discharge locations are situated within the study area ranging from approximately 50 m to 7.5 km away from the proposed cable crossing location. These intakes and outfalls are used to provide or receive water for/from water treatment, sewage, and artificial fibres manufacturing plants and are described in more detail in **Technical Appendix C10**.

6.0 Social Services

6.1 WOLFE ISLAND

Wolfe Island has a small population situated in a rural setting, thereby limiting the community services provided. The Township does not have a hospital, but a weekly medical walk-in clinic is held on Wolfe Island (Wolfe Island Business and Tourism Association, 2006). The County of Frontenac also runs a paramedic station on Wolfe Island (County of Frontenac, 2006). All other health services are provided in the neighbouring City of Kingston (see Section 6.2).

There is a volunteer fire department on Wolfe Island. In 2004, the new 9-1-1 Public Emergency Reporting System became fully operational in the Township of Frontenac Islands. In addition, residents of the Island have a seven-digit non-emergency administrative number, and a toll-free phone number for non-emergency police services, provided by the Ontario Provincial Police. There is no permanent police presence on the Island.

Wolfe Island has a branch of the Kingston Frontenac Public Library, an Early Years Drop-In Centre (a resource for parents with young children), two elementary schools (Marysville Public School and Sacred Heart Catholic School), a post office, a waste disposal/recycling centre, and four churches (two Anglican, one Roman Catholic, and one United). There is no secondary school and students must take the ferry to Kingston daily. Other social services are accessed in the City of Kingston. The location of the Island's social services is presented in **Figure 5.3 (Appendix A)**.

Several small businesses operate on the Island, catering to residents, cottagers, and tourists such as mercantile, artisans, repair, restaurant, accommodation, and professional services (Wolfe Island Business and Tourism Association, 2006).

6.2 CITY OF KINGSTON

The mainland study area occupies a small portion of the City of Kingston. Social services are therefore not abundant within the specific study area, but residents may access services available throughout the City. Social services are described for the entire City of Kingston instead of specifically for the mainland study area.

6.2.1 Emergency Services

In 2004, a new 9-1-1 Public Emergency Reporting System (an enhanced version of the previous 9-1-1 system) became fully operational in the City of Kingston. Paramedic services are provided by the County of Frontenac, which has a fleet of approximately 120 full, part time, and volunteer paramedics utilizing 14 vehicles. The County runs three paramedic stations within the City of Kingston.

Police services are provided by the Kingston Police, who have over 200 members. The Kingston Fire and Rescue service is a composite force of 235 employees and volunteers, with ten fire halls within the City. There is a fire hall located within the mainland study area, near the intersection of Front and Bath Road (City of Kingston, 2006).

6.2.2 Health Services

Three main hospitals service the City of Kingston: the Kingston General Hospital, Hotel Dieu, and the Providence Continuing Care Centre.

The Kingston General Hospital provides medical services to the residents of Kingston, as well as provides specialized care for cancer patients, and psychiatric patients across southeastern Ontario. This hospital is a 420-bed facility, and is also utilized as teaching resource associated with Queen's University, providing critical care, trauma care, and in-patient overnight stays. As of March 2006, Kingston General Hospital has admitted 17,286 patients, and received 99,913 ambulatory clinic visits (Kingston General Hospital, 2006).

Hotel Dieu acts as the Ambulatory Outpatient Teaching Hospital for southeastern Ontario, as well as hosts several key departments such as the Emergency Department, Diagnostic and Treatment clinics, and inpatient psychiatry departments. This hospital provides health care services to over 325,000 patients annually. Hotel Dieu offers thirteen ambulatory clinics, and many health care programs including; the regional Child Development Centre, and southeastern Ontario's Day Surgery Program (Hotel Dieu Hospital, 2006).

The Providence Continuing Care Centre ("PCCC") offers non-acute health care in southeastern Ontario and it is also affiliated with Kingston's Queen's University thus providing a centre for a research and teaching. The services provided for by PCCC include: long-term care, complex continuing care, rehabilitation, geriatric programs, palliative care, and specialized mental health services. Two of the sites run by the PCCC include the St. Mary's of the Lake Hospital and Mental Health Services (the former Kingston Psychiatric Hospital) (Providence Continuing Care Centre, 2006). St. Mary's of the Lake Hospital employs 700 staff, and admitted 698 patients between 2005 and 2006, as well as treated 45,000 outpatients over this timeframe. The Mental Health Services centre is an accredited 198 bed facility, and it provides treatment through three clinical program areas – Adult Treatment and Rehabilitation Programs, Geriatric Psychiatry Program, and Regional Forensic Services (Providence Continuing Care Centre, undated).

6.2.3 Employment Assistance

The City of Kingston provides several services for employment assistance. The Ontario Works Program provides individuals in temporary financial need with financial and employment assistance. Kingston, as a major urban centre, provides access to several programs that offer hiring assistance for employers, job placements, job training, etc. Services include the Frontenac Employment Resource Centre, the website www.kingstonjobs.com, and the Frontenac Community Futures Development Corporation (City of Kingston, 2006).

6.2.4 Social Housing Programs

Currently, there are 18 housing groups associated with social housing within the City of Kingston and the County of Frontenac. There are a total of approximately 2,350 units available in the Kingston region. Waiting times for housing varies depending upon the requested housing project location, for some, the wait time is less than one year, whereas for others it can be over five years. There are special circumstances which would allow for someone to obtain housing sooner, this 'special priority' is given to victims of abuse (City of Kingston, 2006).

6.2.5 Childcare Services

The Ministry of Community & Social Services and the Ministry of Children & Youth Services designated the City of Kingston Children's Services as the Service Delivery Agent for childcare services in this area of Ontario. In addition, Children's Services is responsible for the management of subsidized homemaking services under the authority of the *Homemakers and Nurses Services Act*. There are many childcare programs in the region, such as the Fee Subsidy Program, Special Needs Resource Funding, Wage Subsidy Funding, and Homemaking Subsidy, including over 40 centres that have fee subsidies available (City of Kingston, 2006).

6.2.6 Senior Services

There are a wide variety of services for seniors in the City of Kingston. There are a large number of housing options provided exclusively for senior citizens, including long-term care facilities such as the Rideaucrest Home and the Providence Manor. The City of Kingston Culture and Recreation Division offers senior residents of the greater Kingston area a variety of instructional and recreational programs year round, such programs include badminton, Aqua fitness, skating, strength training and golf lessons.

The Ontario Senior Games are held every second year in Kingston, where over 1200 participants, age 55 and older, from across Ontario have the opportunity to enhance their physical and mental well being through sports. These Games also encourage its participants to incorporate recreational activities into their daily lives. The activities at the Senior Games include recreational sports, such as swimming and lawn bowling, in combination with strategic, consideration-based activities such as golf and darts (City of Kingston, 2002).

6.2.7 Other Services

The Kingston Parks and Recreation Division offers special programs for children and youth. Among these programs include, new programs such as Cartooning, Hip hop Dance and Skateboarding as well as established programs such as Pop Vocal Classes, Babysitting Basics, Youth Cooking and the Magic and Yugioh Club.

The Kingston Frontenac Public Library offers educational and recreational services to the citizens of the community. There are six branches of public libraries within Kingston-Frontenac therefore allowing convenient access to the members of the community (City of Kingston, 2006).

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7.0 Recreation and Tourism

7.1 WOLFE ISLAND

The County of Frontenac “Report on the Economy” was prepared in April 2006 and profiled the local economy of the four Townships within the County (the Townships of Frontenac Islands, North Frontenac, South Frontenac, and Central Frontenac). According to this report, there were 482,600 tourist visits in 2005 and the total annual tourist expenditures in 2003 were upwards of \$61 million.

The summer months account for 50% of the annual tourist visits and are mainly comprised of friends and family visiting permanent or seasonal residents. The spring secures 25% of annual visitors and fishing is the main activity within this period. The fall accounts for 20% of annual visitors, whose main activities are based on traditional hunting and fishing. Winter has approximately 10% of the annual visitors (County of Frontenac, 2006).

Of all the Frontenac Islands, the majority of business and tourist operations are located on Wolfe Island (County of Frontenac, 2006). Attractions include the ferry from Kingston, the private ferry to Cape Vincent, New York, cycling trails, golf, charter boat operations, Big Sandy Bay recreational area, hunting, fishing, and a number of weekend events held throughout the summer months. The Island hosts several festivals throughout the year, including the Wolfe Island Classic (an annual 5 and 10 km run), Chili Fest, Art in the Garden Tour, Crime Writers Festival, and Music Fest (Wolfe Island Business and Tourism Association, 2006).

A detailed Tourism Impact Assessment for the Project is provided in **Technical Appendix C12**.

7.1.1 Hunting

Hunting on Wolfe Island is only permitted with the land owner’s permission, as there are no public hunting grounds. A popular game bird to hunt on Wolfe Island is wild turkey. They were first introduced to the Island in 1997; however their population was insufficient to support hunting until 2002 (Wolfe Island Business and Tourism Association, 2006). There are an estimated 50,000 wild turkeys across Ontario, and it continues to grow (Ministry of Natural Resources, 2004). The provincial wild turkey harvest in 2004 was 8,245, and it grew to 9,279 in 2005. The total wild turkey harvest for Wolfe Island is calculated under Wild Life Management Unit (“WMU”) 69A. Included in WMU 69A are also, Howe Island, Amherst Island, Trenton, Belleville, Napanee, North and South Fredericksburgh Townships, Adolphustown Township, Ernestown Township, and Kingston (MNR, 2007A). In 2004, a total of 58 wild turkeys were harvested in WMU 69A, and in 2005, the total reached 67 (MNR, 2007B).

Wolfe Island is famous for its abundance and variety of waterfowl and is a well-known venue for dog trials. All of the waterfowl hunting opportunities are either on leased land, by guided hunt, or with landowner permission, as they involve guns.

White tailed deer are also hunted on Wolfe Island, again, land owner permission is required, and they may only be hunted using bows. Cottontail and jackrabbits are hunted on the island depending on the size of the population as it varies from year to year (Wolfe Island Business and Tourism Association, 2006).

Popular among groups of hunters is 'pay as you go' programs provided at Hunting Lodge Inns. There are commercial hunting opportunities on Wolfe Island through guiding services and Licensed Ontario Game Farms (Wolfe Island Business and Tourism Association, 2006).

7.1.2 Bird Watching

Wolfe Island is recognized as an Important Bird Area ("IBA") under Canada's Important Bird Area Program and as such, offers excellent opportunities for bird watching enthusiasts year-round. The area is designated for the presence of globally and continentally significant numbers of wintering hawks and owls and the presence of continentally significant concentrations of migratory waterfowl. As well, the interior of Wolfe Island supports large numbers of landbirds, including a high diversity of breeding grassland birds in the summer.

Large numbers of waterfowl species congregate around Wolfe Island during spring and fall migration. According to IBA Canada, one-day peak counts of as many as 15,000 Greater Scaup were recorded in 1996, and 7,500 Canvasbacks were recorded in 1995. Over 10,000 Canadian Geese were recorded in the area during Spring migration in 1997. Other notable one day counts include: 5,000 Ring-necked Ducks, 4,000 Common Goldeneye, 3,700 Redheads, 1,222 American Black Ducks, 350 Snow Geese, 50 Tundra Swans, and 46 American Golden Plovers (Bird Studies Canada, 2006).

Wolfe and Amherst Islands are known internationally for high winter concentrations of hawks and owls, particularly the Short-eared Owl, Snowy Owl and Rough-legged Hawk. Regular bird walks are held and informal reports and postings are published on a website (Wolfe Island Business and Tourism Association, 2006). In addition, walking trails are present in the Big Sandy Bay PSW. For further information on the birds of Wolfe Island please refer to **Technical Appendix C5, Birds**.

7.1.3 Bicycling

There are three bicycle routes that span across the entire Island (**Figure 5.3, Appendix A**). These routes all start at the Wolfe Island Tourist Information Centre in the Village of Marysville, and range from approximately 18 – 58 km in distance. The Kingston Velo Club organizes Tuesday evening weekly rides that explore the Island. Cycle Kingston also organizes biking events on Wolfe Island (Wolfe Island Business and Tourism Association, 2006). All routes occur on existing municipal roads; there are no designated cycling lanes on the Island.

7.1.4 Golfing

There are two golf courses on Wolfe Island (**Figure 5.3, Appendix A**). Amenities at these facilities may include practice greens, driving ranges, waterfront docking facilities, cart and club rentals, private lessons, golf clinics, and par 35 courses. The Wolfe Island Riverfront Golf Course and the Alston Moor Golf Links are both 9-hole golf courses.

The Riverfront Golf Course, located on 9th Line, has wide fairways and overlooks the St. Lawrence Seaway. The Alston Moor Golf Links, located at Hwy 96 and 4th Line (three kilometres west of Marysville), offers a “links” layout with tough roughs, greenside bunkers, and regulation length holes (Wolfe Island Business and Tourism Association, 2006).

7.2 CITY OF KINGSTON

The mainland study area occupies a small portion of the City of Kingston. Recreation and Tourism may therefore not be abundant within the specific study area, but is significant to the entire City of Kingston. Tourism and Recreation are described for the entire City of Kingston instead of specifically for the mainland study area. For a list of Socio-economic attractions within the study area, refer to **Figure 5.3**.

The tourism industry in Kingston generates approximately \$250 million annually. In 1999, visitor spending supported 5,600 jobs and \$91 million in wages and salaries, and attracted a total of 3.1 million visits (Kingston Economic Development Corporation, 2001).

The most popular activities among visitors to Kingston include shopping, sightseeing, and participating in outdoor recreational or sporting activities including swimming, boating, and fishing.

The City hosts several festivals during the year, including the Limestone City Blues Festival, the Kingston Canadian Film Festival, Fanfayr, Kingston Busker's Rendezvous, Kingston Sheep Dog Trials, Kingston Jazz Festival, Kingston Dragon Boat Festival, Canada DanceSport, the Festival of Trees, Feb Fest, and the Limestone Classic (Kingston Economic Development Corporation, 2001).

Major socio-economic features, including key tourist attractions, for the City of Kingston are shown on **Figure 5.3**. These include Centre 70 Arena, Lake Ontario Park, Bellevue House, Kingston City Hall, and Cataraqui Golf and Country Club, among others. A detailed map of socio-economic features within the mainland study area is shown on **Figure 5.4**. A detailed Tourism Impact Assessment for the Project is provided in **Technical Appendix C12, Assessment of Potential Effects of a Wind Plant on Tourism on Wolfe Island**.

7.2.1 Trails

There are several trails in the City of Kingston, which are popular among outdoor enthusiasts. Among these include the Cataraqui Trail, the Lake Ontario Waterfront Trail, and the Kingston-Pembroke ("KP") Trail. The Rideau Trail extends from Kingston to Ottawa, and is a total of 387 kilometres in length. The trail is intended only for walking (hiking), snowshoeing, and cross-country skiing, and consists of both public and privately owned land (Rideau Trail Association, 2006).

The Lake Ontario Waterfront Trail spans 740 km, starting from Niagara-on-the-Lake and ending at Brockville. The Waterfront Regeneration Trust established a trail in 2006 through Kingston's waterfront which connects to the Lake Ontario Waterfront Trail. This trail cross connects to Wolfe Island and can be picked up again by taking the ferry to Cape Vincent's Finger Lake Trail.

The Waterfront Trust has also established a walking trail along the Kingston waterfront, which spans 2.3 km and will in the future connect to the KP Trail, the Cataraqui Trail, and eventually the Trans Canada Trail (City of Kingston, pers. comm.).

7.2.2 Waterfront Attractions

The downtown core of the City is located near the waterfront and the nightlife consists of a variety of bars, pubs, comedy clubs, and other entertainment venues.

7.2.3 National Historic Sites

There are 20 National Historic Sites within Kingston. Among them, seven are located in close proximity to the study area, although none are located within the mainland portion of the study area. These National Historic Sites include Bellevue House, the Rideau Canal, Fort Henry, Fort Frederick, Murney Tower, and Shoal Tower, and Kingston's historic City Hall, (**Figure 5.3, Appendix A**).

Murney Tower and Shoal Tower are mid 19th century British Imperial Masonry Fortifications, they are also known as martello towers (Parks Canada, 2006). Murney Tower has been operating as a museum since 1925, and can be toured by visitors. Among the structural architecture, the tower has displays of mid 19th century artefacts which can be viewed on its three levels

After the war of 1812, Britain built Fort Henry and a series of distinctive Martello towers to guard the entrance to the Rideau Canal. Fort Henry still stands and is a popular tourist destination. It is a museum that offers guided tours, scenic views, and musical performances from a military base and marching demonstrations by the Fort Henry Guard (Parks of the St. Lawrence, undated).

7.2.4 Parks and Recreational Areas

7.2.4.1 Located within the City of Kingston

Lake Ontario Park is located just east of the Kingston mainland study area (**Figure 5.3, Appendix A**). This Park was once an amusement park, but the rides were removed and transferred to Kingston Family Funworld. This waterfront park offers a beach for swimming, fishing, a picnic area, and beach volleyball, among other amenities. The Cataraqui Golf and Country Club is located north of Lake Ontario Park (City of Kingston, 2006).

The Cataraqui Creek Conservation Area, north of Highway 401, is a 394-hectare site with marsh, field, and forest habitats, along with excellent outdoor activity facilities. It offers lengthy trails for cross-country skiing, hiking, and snowshoeing. The reservoir is maintained in the winter as an outdoor skating rink and in the summer provides opportunities for canoeing and fishing. Other facilities in this conservation area include picnicking and an outdoor centre from which the Cataraqui Region Conservation Authority offers seasonal programs.

Nature and environmental programs are offered on weekends during the fall, winter, and spring. Winter is the most popular season at this Conservation Area with Kingston's largest natural skating rink and 13 km of cross-country ski and snowshoe trails. The summer months offer a summer day camp focused on nature and outdoor skills for children 6 and older. The outdoor centre located within the Conservation Area also rents canoes, kayaks, and paddleboats. In early spring "Maple Madness" starts and visitors can learn about the process of making syrup from sap. Fall activities include a Fall Colours Weekend each Thanksgiving and other outdoor recreation programs (City of Kingston, 2006).

7.2.4.2 Located within the Study Area

The Kingston Division of the Girl Guides of Canada has owned and operated a camp on the west shore of Carruthers Point for nearly eighty years. Evening meetings and day camps are held regularly at the camp and both Queen's University and Carleton University use the site for outdoor biology classes.

Paterson Park is located at the end of Sunny Acres Road on the mainland study area. This park is known for its rural setting, which retains evidence of the remains of a formal garden of the Loyalist period. The Peter Wartman House, the surviving structure of an early Loyalist farmstead, is also found in Paterson Park. This park also has access to the beach for swimming.

The City of Kingston has numerous community centres, and meeting halls which are available for use by individuals, groups, as well as organizations. Eleven of these centres are located across the City, each offering a variety of amenities to cater to the needs of the public. The facilities are available for rent and can provide audio/visual support, overhead projectors, flip charts, and sound systems (City of Kingston, 2006). One community centre, the Centre 70 arena, is located in the study area at the corner of Front Road and Days Road (**Figure 5.3, Appendix A**).

The Royal Kingston Curling Club is located on Days Road and is the second oldest curling club in Canada. The Club includes a new six sheet facility. The ice can be rented per hour, and the bar and lounge area can also be used at no extra cost. Curling instruction is also offered for beginners (Royal Canadian Curling Club, 2005).

7.3 LOWER GAP

Recreational activities within the Lower Gap include sailing, windsurfing, diving, and fishing. These activities are further discussed in **Technical Appendix C10, Cable Crossing**. The City owns two marinas, these include Flora MacDonald Confederation Basin and Portsmouth Olympic Harbour. Flora MacDonald Confederation Basin offers seasonal and off seasonal docking, as well as many amenities for overnight visitors including showers and laundromats. Portsmouth Olympic Harbour has hosted many regattas and special events, and also has meeting rooms for community groups and functions. The Portsmouth Olympic Harbour Restaurant provides guests and visitors with a convenient dining location. The Harbour also provides shower and gas facilities for the convenience of its guests (City of Kingston, 2007)

The Collins Bay Marina is privately owned and west of the study area.

8.0 Aboriginal Interests

First Nations peoples represent not only a unique culture, but their empowerment as self-autonomous governments is reflected in the types of planning and social policies they have developed. Furthermore, many land claims are still in dispute today that may involve both social and legal impacts for members of the First Nations and all communities in Canada and Ontario..

Within the study area, there are no First Nation Reserves. An extensive consultation program developed to meet the requirements of the Environmental Screening Process for the Project identified the Mohawks of the Bay of Quinte (“MBQ”) as a First Nation that might have traditional land use in the vicinity of Wolfe Island. There have been no land claims identified in the study area.

The MBQ belong to the Six Nations Confederacy, along with the Oneida, Onondaga, Cayuga, Seneca, and Tuscarora Nations. The Tyendinaga Mohawk Territory is situated approximately 80 kilometres west of Kingston (Mohawks of the Bay of Quinte, undated). The name “Tyendinaga” came from distinguished Mohawk Chief, Joseph Brant, whose native name was Thayendinagea (Tyendinaga, 2005).

The Territory was settled after prominent Mohawk, Captain John Deserontyon, a member of the British army during the American Revolution, lead approximately 20 families to the shores of the Bay of Quinte on May 22, 1784.

This land came to belong to the MBQ after being offered by the British Crown in compensation for their losses and for their allegiance to the British army during the American Revolution. Captain John Deserontyon selected this land, which is now known as the Tyendinaga Mohawk Territory. The Lieutenant-Governor of Upper Canada, John Graves Simcoe, on April 1st, 1793, granted the Mohawks a piece of land, approximately 37,514 ha in size, in the Simcoe Deed. Today, the MBQ land is 7,284 ha in size and it is occupied by approximately 2,000 members of the Mohawks of the Bay of Quinte (Mohawks of the Bay of Quinte, undated).

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9.0 Archaeological Resources

In comparison to the Kingston mainland, both Wolfe and Simcoe Islands, have a higher potential for the recovery of both precontact and Euro-Canadian archaeological sites.

The Archaeologists Inc. conducted Stage I and Stage II Archaeological Assessments under Archaeological Consulting Licence #P052, issued by the Ontario Ministry of Culture. The assessments consisted of background research to identify known archaeological sites or areas with archaeological potential within the study area.

A variety of sources were consulted in the course of this work and included a thorough review of published and unpublished reports on past archaeological surveys in the area, including two Stage I Archaeological Assessments completed for select sites within the study area as part of previous efforts by CREC during earlier versions of the Wolfe Island Wind Project.

The Stage I Archaeological Assessment for the lands and underwater areas for the Project indicates that the study area does have the potential to contain precontact and European archaeological material based upon the information collected and reviewed as part of the assessment. This is due to the apparent original richness of wildlife on Wolfe Island and Simcoe Island, which would have provided a food source for the people inhabiting the Islands. The 1851 census indicated an abundant Euro-Canadian population at that time, and therefore would also indicate the presence of early to mid-nineteenth century Euro-Canadian sites within the Wolfe Island landscape. Since these Islands have not been subjected to major industrial or commercial developments, they have a higher probability to possess intact precontact and Euro-Canadian deposits (The Archaeologists Inc. 2006).

As per the Ministry of Culture guidelines (1993), a Stage II Assessment was conducted on lands to be disturbed during construction activities on Wolfe Island (e.g., tower foundations and access roads). In addition, the area planned for placement of the submarine cable was investigated with a geotechnical survey using side-scan sonar and a sub-bottom profiler, which would identify any archaeological resources along the submarine cable route. A Stage II Archaeological Assessment will be conducted on the Kingston mainland prior to construction. The archaeological report is provided in **Technical Appendix C3, Archaeology**.

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10.0 Summary

Canadian Hydro Developers, Inc., through its wholly owned subsidiary CREC, is proposing to develop a 197.8 MW wind plant in Frontenac County, Ontario. The proposal consists of eighty-six 2.3 MW wind turbines to be located on the western portion of Wolfe Island along with ancillary facilities and infrastructure. To assist in the development of this renewable energy facility, this Socio-Economic Profile has been prepared to assist in supporting the Project response to the MOE's Screening Criteria noted under section 6.0 "socio-economic".

10.1 WOLFE ISLAND

Wolfe Island is the largest of the Thousand Islands and is located at the outlet of Lake Ontario into the St. Lawrence River. Marysville is the main village on the Island and it is located on the northwestern shore.

Wolfe Island is dominated by agricultural and rural land-use designations. While no lands are officially designated as Residential, Commercial, or Institutional, these land-uses are present on the Island. Marysville has been given a Village designation and is dominated by residential land-uses and is considered the main "urban" centre on the Island.

The population of Wolfe Island in 2001 was 1,142. According to the 2001 Statistics Canada Census, the majority of the population identified themselves as following the Christian religion, specifically Protestantism. Religions other than Christianity were not identified on the Island. Furthermore, according to the 2001 Census, Wolfe Island had minimal representation from visible minority groups, in fact, only one visible minority group had been identified on the Island. The majority of the Island population was employed by the agriculture industry, while the primary occupation was related to trades, transport and equipment operators and related occupations. Furthermore, a significant portion of the population identified themselves as having an occupation unique to primary industry. This again reinforces the significance of agriculture to the Island and also the rural nature of the Island.

The main form of transportation to and from Wolfe Island is the Ministry of Transportation operated Wolfe Islander III ferry. There are two other ferry services on the Island which operate seasonally and carry passengers to Simcoe Island and to Cape Vincent, New York. Transportation on Wolfe Island is facilitated with a network of municipal roads.

10.2 CITY OF KINGSTON

The City of Kingston, located halfway between Montreal and Toronto, has a long history as being the military and economic hub of Upper Canada. The mainland portion of the study area is located along a corridor of approximately 1.3 to 2 km wide beginning at Sunny Acres Road running north parallel to Days Road across CSC lands to the Hydro One Gardiner Transformer Station. Transportation to the Kingston area is facilitated by provincial highways, rail, the Norman Rogers Airport (municipally operated), and many marinas and ports.

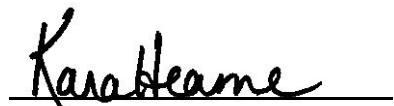
The mainland study area is comprised of many land-use designations, but is dominated by institutional lands owned by CSC and industrial lands owned by Invista and DuPont. The CSC lands are a mix of institutional and agricultural uses. The west side of the mainland study area is comprised mostly of Residential designations, with Industrial lands dominating the southern portion of the study area, and the Little Cataraqui Creek Wetland, designated as Environmental Protection Area, forming the eastern boundary of the mainland study area.

The population of the Township of Kingston was approximately 46,000 in the year 2001 according to the 2001 Statistics Canada Census. Similar to Wolfe Island, the majority of the population identified themselves as Protestant; however, unlike Wolfe Island, the Township of Kingston has representation from a variety of religions other than Christianity, for example; Hinduism, Buddhism, Judaism, and Muslim among others. The population of the former Township was also comprised of a variety of visible minority groups. This diversity could be explained in part due to the urban nature of the mainland portion of the study area. The health and education industries employ the greatest percentage of the labour force in the former Township of Kingston, while sales and service occupations were the most prominent in the Township of Kingston.

Social services, such as health care, emergency services, schools, etc., are plentiful in the City of Kingston. While some social services are available on Wolfe Island, including a paramedic station, medical clinic, volunteer fire department, library, and schools, the majority of services are accessed in the City of Kingston.

Tourism is an important industry for both the City of Kingston and Wolfe Island. The main forms of recreation on Wolfe Island are cycling trails, bird watching, golf, charter boat operations, Bed and Breakfasts, hunting, cottaging, and fishing, with many events and tours available for tourists to the Island. The City of Kingston offers a variety of tourist sites and facilities, including historical sites, museums, waterfront trails, and festivals.

STANTEC CONSULTING LTD



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11.0 References

- Bessert, Christopher J. 2006. Ontario Highways. Reviewed December 21, 2006. Available online at: <http://www.ontariohighways.org>
- Bird Studies Canada. 2006. Reviewed June 19-22, 2006. Available online at: <http://www.bsc-eoc.org/iba/site.jsp?siteID=ON037>
- City of Kingston. Personal communication. Hugh Gale, Special Projects Planner, City of Kingston Planning Department. December 22, 2006.
- City of Kingston. 1991. Official Plan of the City of Kingston Planning Area.
- City of Kingston. 2002. Ontario Senior Games Attract 1,200 Participants. Reviewed February 13, 2007. Available online at: <http://www.cityofkingston.ca/cityhall/press/release.asp?mode=show&id=624>
- City of Kingston. 2006. Reviewed periodically between March 17-December 22, 2006. Available online at: <http://www.cityofkingston.ca/>
- Clark Consulting Services. 2003. Official Plan - Township of Frontenac Islands.
- Correctional Services Canada. 2006. Institutional Profiles: Ontario Region: Frontenac Institution. Reviewed February 9 and December 22, 2006. Available online at: http://www.csc-scc.gc.ca/text/region/institutional_profiles_e.shtml#ontario.
- Correctional Services Canada. 2006b. Personal Communication with Akrum Matuk. March 2, 2007.
- County of Frontenac. 2006. "Report on the Economy: Proposed Goals, Objectives and Actions." Reviewed June 19-22 and December 21, 2006. Available online at: <http://www.frontenacounty.ca/files/Reportontheeconomy.pdf>
- Hotel Dieu Hospital. 2006. Reviewed March 18, 2006. Available online at: <http://www.hoteldieu.com/>
- Kingston Economic Development Corporation. 2001. "An Overview of Tourism in the Kingston Area." Reviewed June 19-22, 2006. Available online at: <http://tourism.kingstoncanada.com/aboutus/resources/tourismOverview.pdf>
- Kingston General Hospital. 2006. Reviewed March 18, 2006. Available online at: <http://www.kgh.on.ca/>

Ministry of Natural Resources. 2004. Wild Turkey Seasons and Other Regulations. Reviewed February 15, 2007. Available online at:
http://www.mnr.gov.on.ca/MNR/pubs/hunting/huntRegs/2004/hr_2004_wild_turkey.pdf

Ministry of Natural Resources. 2007A. Personal Communication. Monique Charette. March 13, 2007.

Ministry of Natural Resources. 2007B. Personal Communication. Patrick Hubert. Avian Biologist - Policy Advisor. March 14, 2007.

Ministry of Transportation. 2005. Ontario Provincial Highways Traffic Volumes on Demand. Reviewed February 15, 2007. Available online at:
<http://www.raqsb.mto.gov.on.ca/techpubs/TrafficVolumes.nsf/tvweb?OpenForm&Seq=2>

Mohawks of the Bay of Quinte. undated. Reviewed January 3, 2007. Available online at:
<http://www.mbq-tmt.org/index.php>

Ontario Ministry of Environment. 1991. Inventory of Waste Disposal Sites. Queen's Printer: Toronto.

Parks Canada, 2006. National Historic Sites of Canada. Reviewed December 22, 2006. Available online at: http://www.pc.gc.ca/progs/lhn-nhs/index_E.asp

Parks of the St. Lawrence. Undated. Reviewed December 22, 2006. Available online at: www.forthenry.com

Providence Continuing Care Centre. 2006. Reviewed March 18, 2006. Available online at: <http://www.pccchealth.org/Default.aspx?tabid=1>

Providence Continuing Care Centre. Undated. St. Mary's of the Lake Hospital Site. Reviewed February 6, 2007. Available online at: <http://www.pccchealth.org/Default.aspx?tabid=110>

Rideau Trail Association. 2006. Rideau Trail. Reviewed February 15, 2007. Available online at: <http://www.rideautrail.org/>

Royal Canadian Curling Club. 2005. Official Website. Reviewed February 15, 2007. Available online at: http://www.phe.queensu.ca/royalkingston/ice_rentals.html

Statistics Canada. 2002. 2001 Community Profiles. Released June 27, 2002. Last modified: 2005-11-30. Statistics Canada Catalogue no. 93F0053XIE. Available online at: <http://www12.statcan.ca/english/Profil01/CP01/Index.cfm?Lang=E> (accessed March 16, 2006).

Statistics Canada. 2002b. 1996 Community Profiles. Reviewed periodically between December 2006 and February 2007. Available online at: <http://www12.statcan.ca/english/profil/PlaceSearchForm1.cfm>

The Archaeologists Inc. 2006. Stage 1 Archaeological Assessment for Land and Underwater Areas for the Wolfe Island Wind Project, Township of Frontenac Islands and the City of Kingston, Frontenac County, Ontario

Township of Kingston. 2005. Official Plan of the Township of Kingston.

Township of Frontenac Islands. 2003. Official Plan for the Township of Frontenac Islands.

Township of Frontenac Islands. 2005. Official Website. Reviewed periodically between December 2006 and February 2007. Available online at:
http://www.frontenacounty.ca/?q=the_frontenacs

Township of Frontenac Islands. Personal communication. Terry O'Shea, CAO/Clerk. December 8, 2006.

Township of Frontenac Islands. Personal communication. February 28, 2007.

Tyendinaga. 2005. Bay of Quinte County official website. Reviewed January 3, 2007. Available online at: <http://www.quinte.on.ca/tyendinaga/index.html>

Wikipedia. 2006. Frontenac County. Reviewed December 22, 2006. Available online at:
http://en.wikipedia.org/wiki/Frontenac_County,_Ontario

Wikipedia. 2006b. Wolfe Island. Reviewed February 9, 2007. Available online at:
http://en.wikipedia.org/wiki/Wolfe_Island_%28Ontario%29

Wikipedia. 2007a. City of Kingston. Reviewed February 16, 2007. Available online at:
http://en.wikipedia.org/wiki/Kingston,_Ontario#Media

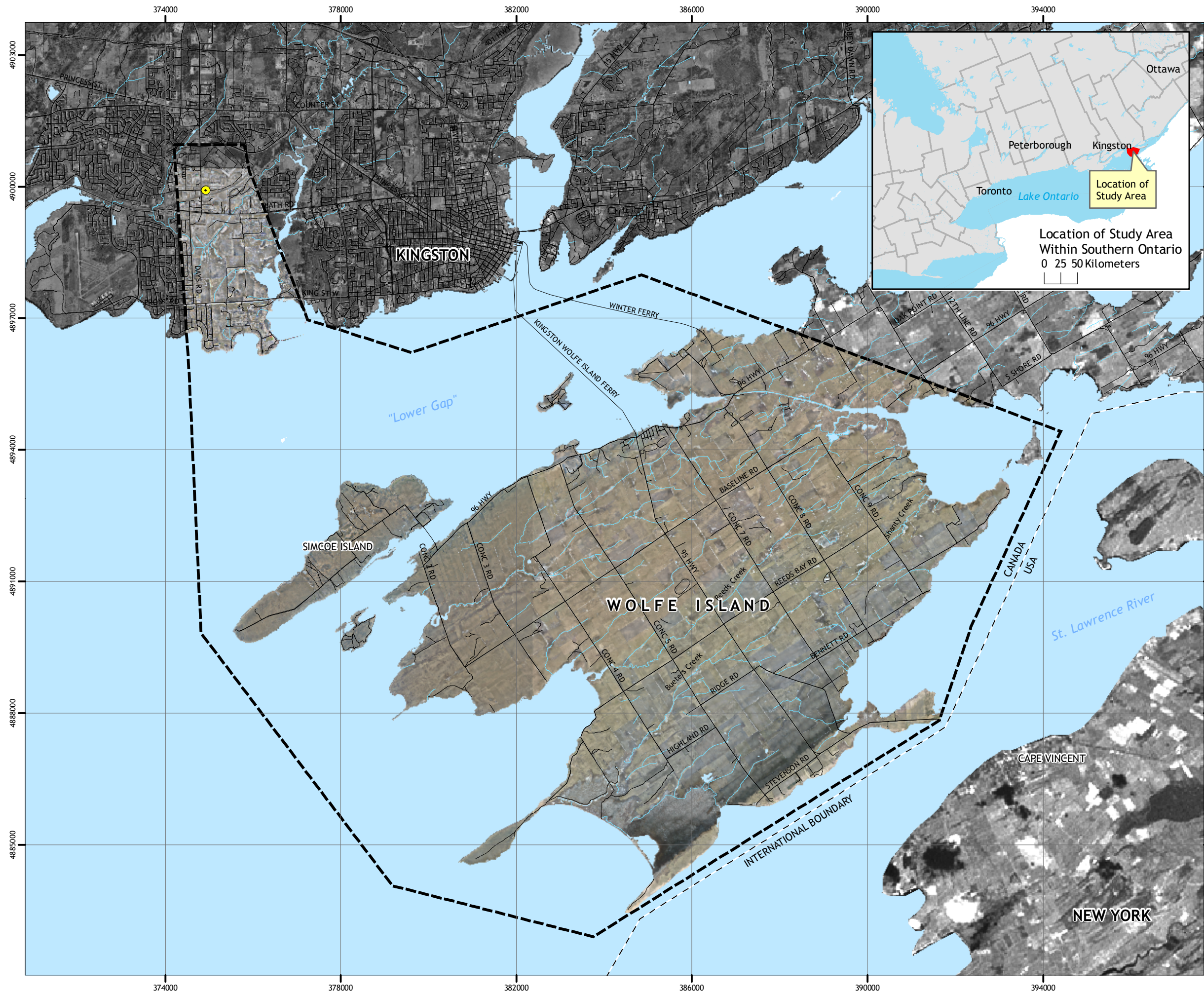
Wikipedia. 2007b. CKWS-TV. Reviewed February 12, 2007. Available online at:
<http://en.wikipedia.org/wiki/CKWS-TV>

Wikipedia. 2007c. Primary Sector of Industry. Reviewed February 9, 2007. Available online at:
http://en.wikipedia.org/wiki/Primary_sector_of_industry

Wolfe Island Business and Tourism Association. 2006. Reviewed periodically between March 17 - December 21, 2006. Available online at: <http://www.wolfeisland.com/>

Appendix A

Figures

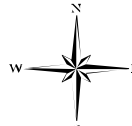




through its wholly owned subsidiary
Canadian Renewable Energy Corporation



0 1 2 Kilometers



Notes:
Base map layers: MNR Land Information Distribution Service (LIDS).
Air Photos: LIDAR (study area coverage), January 2006.
LANDSAT7 (U.S. coverage), 1999.
City of Kingston (city coverage), 2005.

Legend

-  Study Area
-  Gardiners Transformer Station

WOLFE ISLAND WIND PROJECT SOCIO-ECONOMIC PROFILE

FIGURE NO.
1.1

Project Location and Study Area

FILE: 60960056_C6_01_project_location.mxd			PROJECT NUMBER 60960056
REV. NO. 0	SHEET NO. 1 OF 1	SCALE: 1:85,000	DRAWN BY: JLW
September, 2007			

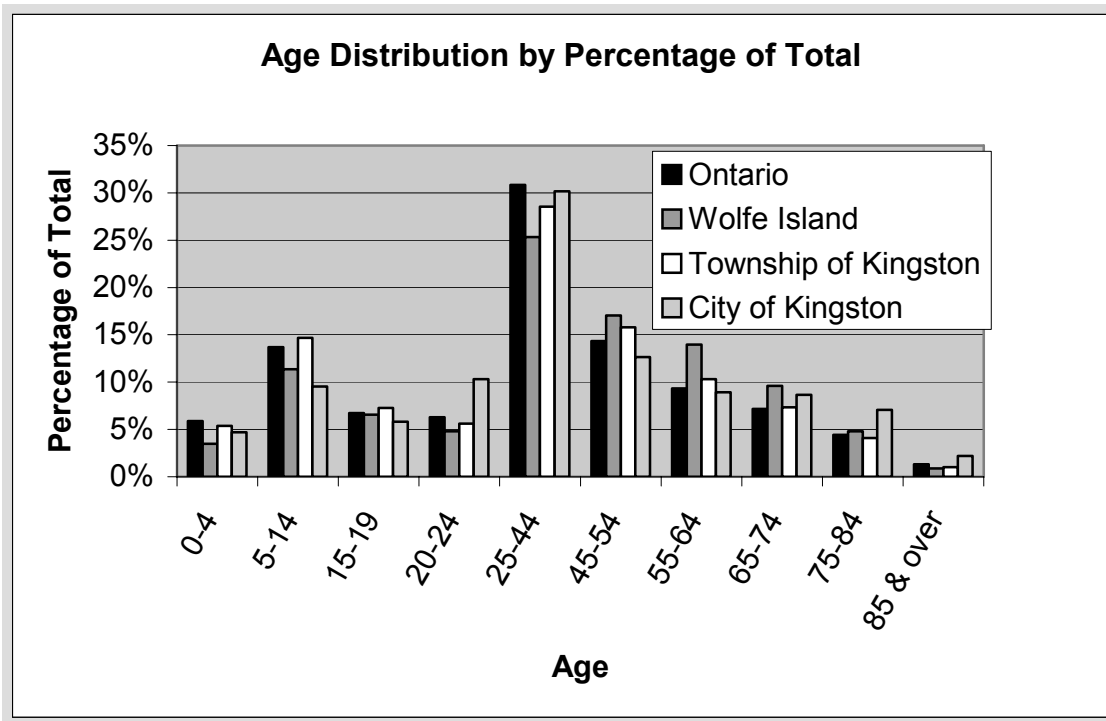


Figure 3.1 Age Distribution by Percentage of Total (Statistics Canada, 2002)

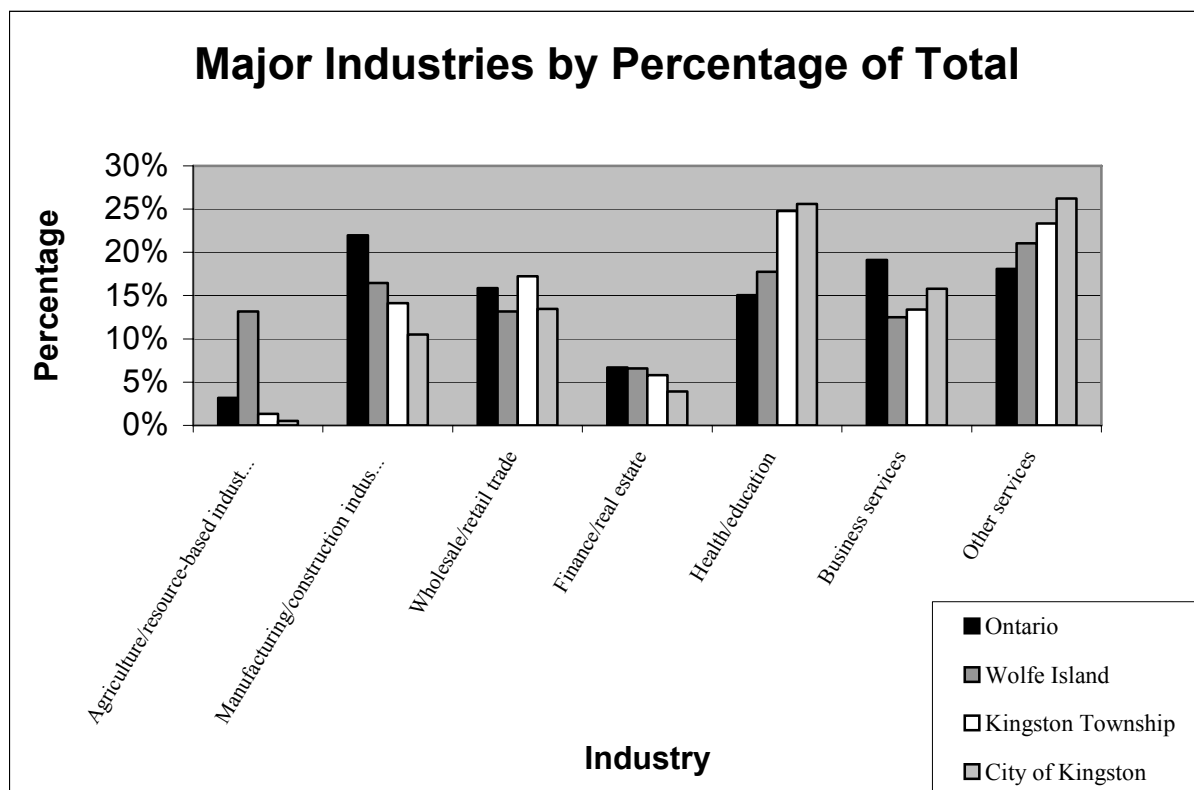
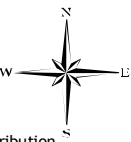
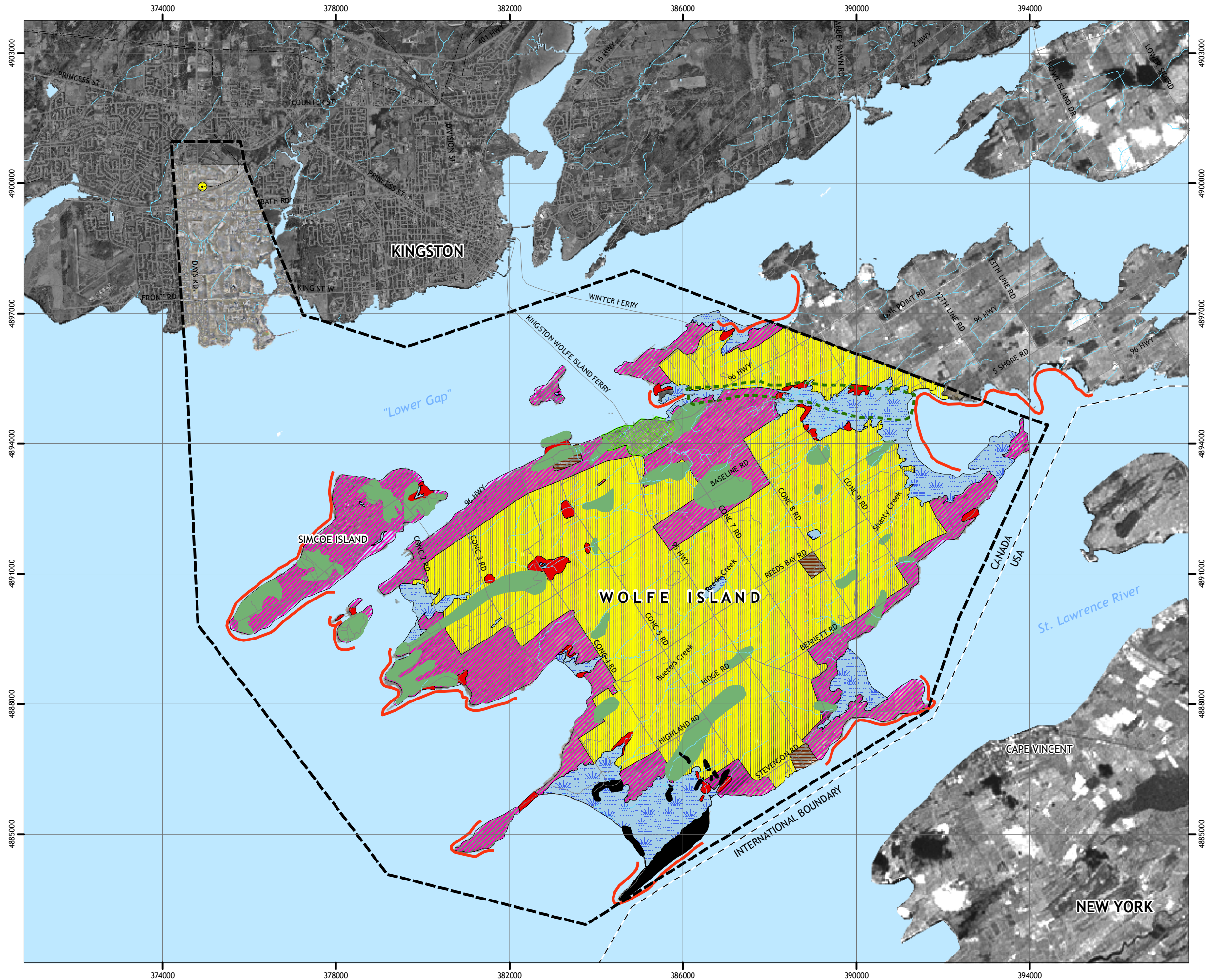


Figure 3.2 Major Industries by Percentage of Total (Statistics Canada, 2002)



Notes:
Base map layers: MNR Land Information Distribution Service (LIDS).

Air photos: LIDAR (Study area coverage), January 2006. LANDSAT (US coverage), 1999. City of Kingston (City coverage), 2005.

Land use designations: Official Plan of the Township of Kingston, 2005. Official Plan of the Township of Frontenac Islands, 2003.

- Legend**
- Study Area
 - Gardiners Transformer Station
 - Wolfe Island - Land Use Designations**
 - Aggregate & Mineral
 - Agriculture
 - ESA
 - Rural
 - Village
 - Wetland
 - Sensitive Shoreline
 - Aggregate Reserve
 - ANSI
 - Cultural Heritage Feature

WOLFE ISLAND WIND PROJECT SOCIO-ECONOMIC PROFILE

FIGURE NO.
5.1

Wolfe Island Land Use Designations

FILE:
60960056_C6_02_land_use.mxd

PROJECT NUMBER
60960056

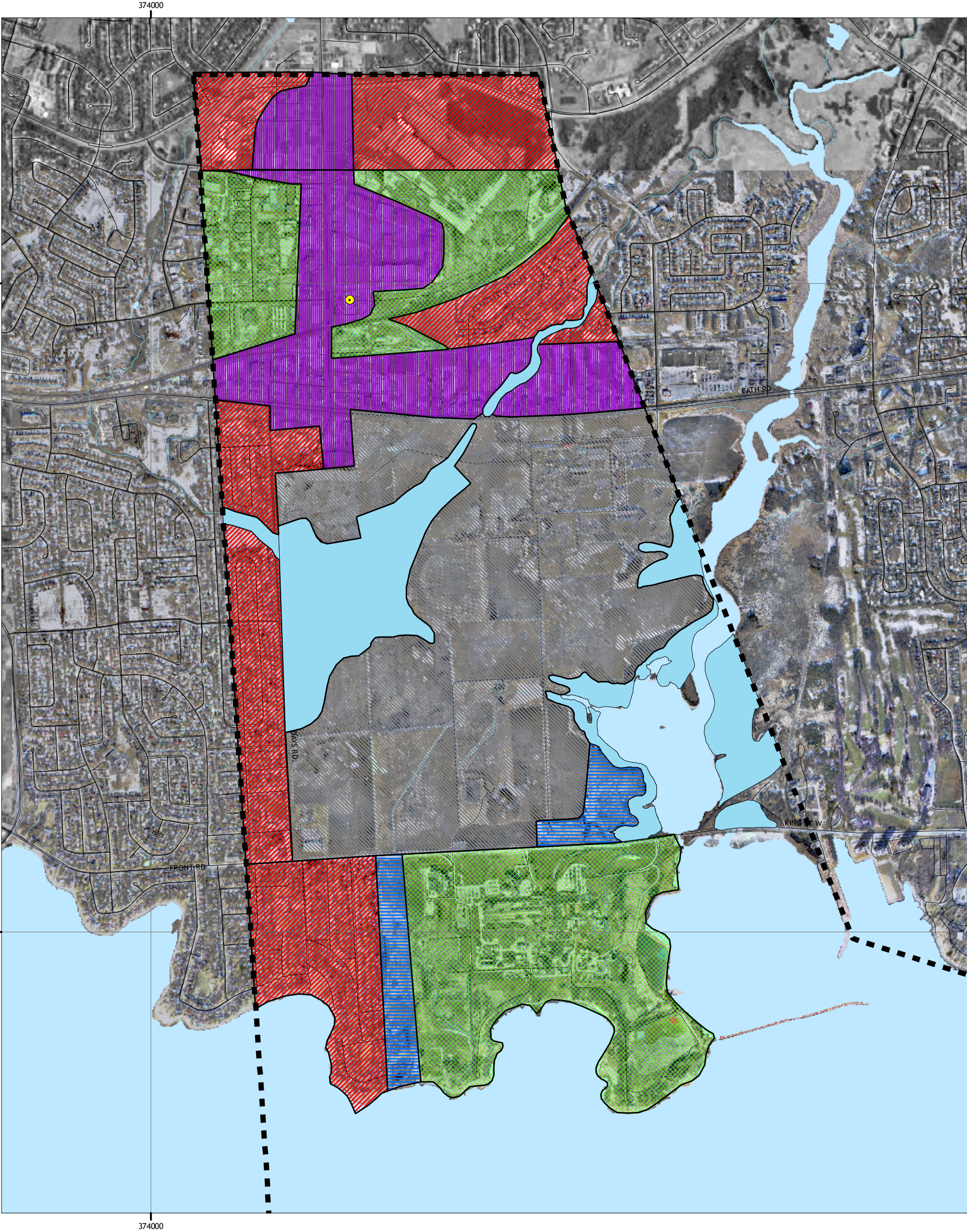
REV. NO.
0

SHEET NO.
1 OF 1

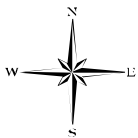
SCALE:
1:85,000

DRAWN BY:
JLW

September, 2007



0 125 250Meters



Notes:
Base map layers: MNR Land Information Distribution Service (LIDS).

Air Photos: LIDAR (study area coverage), January 2006
LANDSAT7 (U.S. coverage), 1999.
City of Kingston (city coverage), 2005.

Natural environmental features and hydrological data is from the Ministry of Natural Resources Peterborough District NRVIS 2006, the Cataraqui Region Conservation Authority, 2006, and Ducks Unlimited Canada, April 2006.

Legend

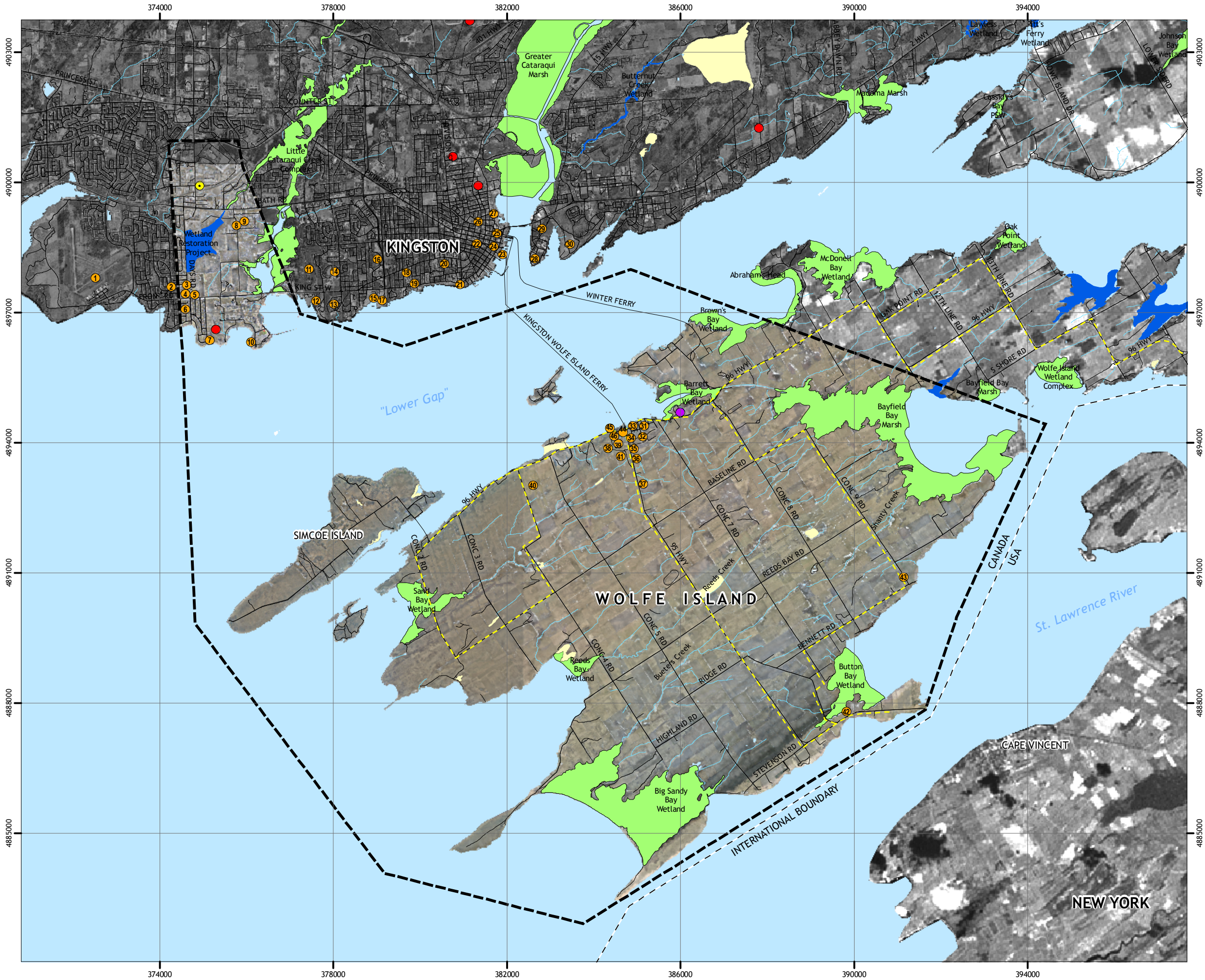
- Gardiners Transformer Station
- Mainland Land Use Designations**
- Commercial
- EPA Wetland
- Industrial
- Institutional
- Recreational
- Residential

WOLFE ISLAND WIND PROJECT SOCIO-ECONOMIC PROFILE

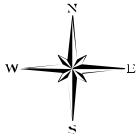
FIGURE NO.
5.2

Kingston Land Use Designations

FILE:	60960056_C6_03_mainland_land_use.mxd	PROJECT NUMBER	60960056
REV. NO.	0	SHEET NO.	1 OF 1
		SCALE:	1:17,500
			DRAWN BY: JLW
			September, 2007



0 1 2 Kilometers



Notes:
Base map layers: MNR Land Information Distribution Service (LIDS).

Air Photos: LIDAR (study area coverage), January 2006.
LANDSAT7 (U.S. coverage), 1999.
City of Kingston (city coverage), 2005.

Socio-Economic Features:
City of Kingston, 2006.
Wolfe Island Business and Tourism Association, 2006.

Legend

○ Socio-Economic Features

▬ Study Area

--- Bike Routes

● Gardiners Transformer Station

Waste Disposal Site

● Active

● Closed

Wetlands

■ Provincially Significant Wetland

■ Non-Provincially Significant Wetland

■ Unevaluated Wetland

- | | |
|---------------------------------------|--|
| 1 Norman Rogers Airport | 23 Shoal Tower* |
| 2 Elementary School / School Facility | 24 Kingston City Hall |
| 3 Royal Kingston Curling Club | 25 Arena |
| 4 Fire Station | 26 Providence Manor |
| 5 Centre 70 Arena | 27 Rideaucrest Home |
| 6 Elementary School / School Facility | 28 Fort Fredrick* |
| 7 Paterson Park | 29 RMC |
| 8 Frontenac Institution | 30 Fort Henry* |
| 9 Collins Bay Penitentiary | 31 Church |
| 10 Girl Guides of Canada Camp | 32 Elementary School / School Facility |
| 11 Cataraqui Golf and Country Club | 33 Post Office |
| 12 Lake Ontario Park | 34 Town Hall* |
| 13 Kingston Psychiatric Hospital | 35 Cemetery |
| 14 St. Lawrence College | 36 Medical Clinic |
| 15 Portsmouth Olympic Harbour | 37 Fire Station |
| 16 Queens University West Campus | 38 Cemetery |
| 17 Kingston Penitentiary | 39 Church |
| 18 St. Mary's of the Lake Hospital | 40 Alston Moore Golf Course |
| 19 Bellevue House* | 41 Elementary School / School Facility |
| 20 Queens University | 42 Cemetery |
| 21 Murney Tower* | 43 Wolfe Island Riverfront Golf Course |
| 22 Hotel Dieu Hospital | 44 Library |
| | 45 Church |
| | 46 Cemetery |

* Denotes a National Historic Site

WOLFE ISLAND WIND PROJECT
SOCIO-ECONOMIC PROFILE

FIGURE NO.

5.3

Socio-Economic
Features

FILE:
60960056_C6_04_socio_ec_features.mxd

PROJECT NUMBER
60960056

REV. NO. SHEET NO. SCALE:
0 1 OF 1 1:85,000

DRAWN BY:
JLW

October, 2007

Appendix B

Tables

Table 3.1 Population

Area	1991 Population	1996 Population	2001 Population	Population Change (1991 – 1996)	Population Change (1996 – 2001)
Ontario	10,084,885	10,753,573	11,410,046	6.6%	6.1%
Wolfe Island (Township, Dissolved)	1,097	1,180	1,142	7.6%	-3.2%
Township of Kingston (Dissolved)	39,791	43,756	45,946	10.0%	5.0%
City of Kingston (Dissolved)	56,597	55,947	54,456	- 1.1%	- 2.7%

Source: Statistics Canada (2002)

Table 3.2 Age and Gender Distribution, 2001

Age Group	Ontario		Wolfe Island (Township/Dissolved)		Township of Kingston (Dissolved)		City of Kingston (Dissolved)	
	males	females	males	females	males	females	males	females
0-4	343,340	327,905	25	15	1,275	1,190	1,315	1,245
5-14	801,355	760,145	70	60	3,475	3,260	2,640	2,545
15-19	394,915	374,500	35	40	1,715	1,630	1,530	1,630
20-24	359,645	358,775	30	25	1,300	1,275	2,620	3,000
25-44	1,724,535	1,793,480	145	145	6,310	6,800	8,170	8,250
45-54	801,540	833,740	100	95	3,510	3,745	3,295	3,600
55-64	520,565	543,430	80	80	2,370	2,375	2,235	2,630
65-74	383,625	434,545	55	55	1,610	1,765	2,040	2,670
75-84	202,265	301,665	25	30	815	1,060	1,365	2,485
85 & over	45,260	104,810	0	10	135	330	330	860
Total	5,577,055	5,832,990	580	565	22,515	23,425	25,540	28,910

Source: Statistics Canada (2002)

Table 3.2.1 Age and Gender Distribution, 1996

Characteristics	Ontario		Wolfe Island		Township of Kingston		City of Kingston	
	Male	Female	Male	Female	Male	Female	Male	Female
Age characteristics of the population								
Total - All persons (3)	5,257,910	5,495,665	590	590	21,815	21,940	25,915	30,030
Age 0-4	376,730	357,440	40	30	1,450	1,380	1,575	1,610
Age 5-14	759,650	720,400	75	75	3,425	3,225	2,685	2,700
Age 15-19	357,765	340,240	50	40	1,645	1,580	1,470	1,500
Age 20-24	351,805	351,665	45	30	1,445	1,275	2,600	2,955
Age 25-54	2,389,390	2,474,590	245	255	9,935	10,205	11,710	12,450
Age 55-64	459,995	479,795	75	60	1,940	1,885	2,215	2,585
Age 65-74	362,500	430,970	50	55	1,330	1,485	2,125	3,135
Age 75 and over	200,070	340,560	15	40	650	900	1,530	3,095
Average age of the population	34.7	36.9	36.5	39.1	34.2	35.5	36.6	40.4
% of the population ages 15 and over	78.3	80.3	80.5	82.2	77.6	79.0	83.5	85.6

Source: Statistics Canada (2002b)

Table 3.3 Visible Minority Status, 2001

Visible Minority Group	Ontario	Wolfe Island	Township of Kingston (Dissolved)	City of Kingston (Dissolved)
	# of people	# of people	# of people	# of people
Total population by visible minority groups	11,285,550	1,140	45,150	52,785
Visible minority population	2,153,045	10	2,105	3,865
Chinese	481,510	0	295	1,140
South Asian	554,870	0	465	860
Black	411,090	10	300	365
Filipino	156,515	0	225	155
Latin American	106,835	0	195	390
Southeast Asian	86,410	0	95	235
Arab	88,545	0	185	110
West Asian	67,100	0	70	165
Korean	53,955	0	110	205
Japanese	24,925	0	60	95
Visible minority, n.i.e.	78,915	0	60	60
Multiple visible minorities	42,375	0	40	95
All others	9,132,500	1135	43,045	48,920

Source: Statistics Canada (2002)

Table 3.3.1 Visible Minority Status, 1996

Characteristics	Ontario	Wolfe Island	Township of Kingston	City of Kingston
	# of people	# of people	# of people	# of people
Immigration characteristics				
Total - All persons (6)	10,642,790	1,160	42,715	54,170
Non-immigrant population (7)	7,844,370	1,050	36,520	45,290
Immigrant population (8)	2,724,490	110	6,110	8,230
Non-permanent residents (9)	73,930	0	80	650
Selected ethno-cultural characteristics				
Aboriginal Population (10)	141,520	0	260	695
Total - Visible minority characteristics - All persons	10,642,795	1,160	42,715	54,170
Visible minority population (11)	1,682,045	0	2,165	3,500
Chinese population	391,090	0	355	955
South Asian population (12)	390,055	0	525	650
Black population (13)	356,215	0	280	545
Arab and West Asian population (14)	118,655	0	175	320
Filipino population	117,365	0	340	135
Southeast Asian population (15)	75,905	0	180	275
Latin American population	85,745	0	160	245
Japanese population	24,275	0	30	120
Korean population	35,400	0	10	175
Visible minorities, not included elsewhere (16)	52,170	0	55	40
Persons belonging to more than one of the above visible minority groups (17)	35,160	0	50	35
All others (18)	8,960,745	1,155	40,555	50,670

Source: Statistics Canada (2002b)

Table 3.4 Religious Affiliation, 2001

Religious Affiliation	Ontario	Wolfe Island	Township of Kingston (Dissolved)	City of Kingston (Dissolved)
	# of people	# of people	# of people	# of people
Catholic	3,911,760	485	16,285	15,460
Protestant	3,935,750	520	20,905	21,945
Christian Orthodox	264,055	10	415	510
Christian (*n.i.e.)	301,935	10	735	900
Muslim	352,525	0	275	505
Jewish	190,800	0	215	540
Buddhist	128,325	0	130	320
Hindu	217,555	0	120	305
Sikh	104,785	0	60	45
Eastern religions	17,785	0	10	35
Other religions	18,985	0	80	175
No religious affiliation	1,841,290	115	5,920	12,045

Source: Statistics Canada (2002)

*n.i.e. – not included elsewhere.

Table 3.5 Education Levels, 2001 (population age 20 - 64 years)

Highest Level of Education Attained	Ontario		Wolfe Island		Township of Kingston (Dissolved)		City of Kingston (Dissolved)	
	# of people	% of total	# of people	% of total	# of people	% of total	# of people	% of total
Less than high school graduation certificate.	1,374,452	19.92	100	14.01	3,466	12.75	6419	19.55
High school graduation certificate and/or some postsecondary	1,876,894	27.21	195	27.26	7,002	25.76	8851	26.95
Trades certificate or diploma	714,506	10.36	90	12.59	3,010	11.07	2771	8.44
College certificate or diploma	1,300,490	18.85	195	27.28	7,124	26.21	5666	17.52
University certificate, diploma or degree	1,632,848	23.67	135	18.86	6,595	24.26	9141	27.83

Source: Statistics Canada (2002)

Table 3.5.1 Education Levels, 1996 (Age 25 and over)

Characteristics	Ontario		Wolfe Island		Township of Kingston		City of Kingston	
	# of people	% of total	# of people	% of total	# of people	% of total	# of people	% of total
% of the population 25 years of age and over with less than grade nine (38)	135,298	11.7	125	10.6	2,363	5.4	5,763	10.3
% of the population 25 years of age and over with a high school certificate or higher (38)	7,462,980	69.4	806	68.3	35,005	80.0	39,107	69.9
% of the population 25 years of age and over with trades or non-university certificate or diploma or higher (38)	4,935,890	45.9	564	47.8	24,416	55.8	27,750	49.6
% of the population 25 years of age and over who have completed university (38)	2,021,671	18.8	169	14.3	9,364	21.4	13,931	24.9

Source: Statistics Canada (2002b)

Table 3.6 Income in 2000

Income in 2000	Ontario	Wolfe Island	Township of Kingston (Dissolved)	City of Kingston (Dissolved)
All persons with earnings (counts)	6,319,535	780	26,090	61,935
Average earnings (All persons with earnings (\$))	\$35,185	\$26,922	\$33,508	\$30,600
Worked full year, full time (counts)	3,527,045	450	14,645	31,875
Average earnings (worked full year, full time (\$))	\$47,299	\$33,242	\$46,090	\$43,601
Persons 15 years of age and over with income	8,598,560	960	34,405	87,575
Median total income (persons 15 years of age and over (\$))	\$24,816	\$25,166	\$28,290	\$22,948

Source: Statistics Canada (2002)

Table 3.6.1 Labour Force, 1996

Characteristics	Ontario	Wolfe Island	Township of Kingston	City of Kingston
Labour force characteristics of the population age 15 years and over				
Average total income of persons reporting income (\$) (20)	27,309	24,769	29,130	23,379
Persons in the employed labour force (21)	5,077,670	670	21,675	23,320
Persons reporting unpaid work (22)	7,601,695	870	30,910	40,930
Persons reporting any hours of unpaid housework (23)	7,467,485	870	30,475	40,315
Persons reporting any hours of unpaid child care (24)	3,191,080	390	14,010	13,445
Persons reporting any hours of unpaid care to seniors (25)	1,364,410	235	5,560	6,565
1996 unemployment rate (%) (26)	9.1	6.2	7.9	13.1
1996 participation rate (%) (27)	66.3	76.5	70.8	58.8
Industry characteristics of the population age 15 years and over who have worked since January 1, 1995				
Total - All industries (28)	5,401,400	710	22,925	25,445
Persons in agriculture and other resource-based industries (primary) (29)	170,430	140	260	150
Persons in manufacturing and construction industries (secondary) (30)	1,212,995	95	3,395	2,840
Persons in service industries (tertiary) (31)	4,017,975	480	19,265	22,450
Source: Statistics Canada (2002b)				

Table 3.7 Industry Employer (population 15 years and over)

Industry	Ontario		Wolfe Island		Township of Kingston (Dissolved)		City of Kingston (Dissolved)	
	# of jobs	% of labour force	# of jobs	% of labour force	# of jobs	% of labour force	# of jobs	% of labour force
Total – Experienced labour force	5,992,765	100%	760	100%	24,185	100%	25,960	100%
Agriculture and other resource-based industries	191,020	3.19%	100	13.16%	325	1.34%	130	0.50%
Manufacturing and construction industries	1,316,580	21.97%	125	16.45%	3,420	14.14%	2,730	10.52%
Wholesale and retail trade	950,730	15.86%	100	13.16%	4,165	17.22%	3,495	13.47%
Finance and real estate	401,445	6.70%	50	6.58%	1,400	5.79%	1,015	3.91%
Health and education	902,990	15.07%	135	17.76%	5,990	24.77%	7,680	25.58%
Business services	1,145,910	19.12%	95	12.50%	3,240	13.40%	4,105	15.81%
Other services	1,084,090	18.09%	160	21.05%	5,645	23.34%	6,810	26.23%

Source: Statistics Canada (2002)

Table 3.8 Occupation (population 15 years and over)

Occupation	Ontario		Wolfe Island		Township of Kingston (Dissolved)		City of Kingston (Dissolved)	
	# of jobs	% of labour force	# of jobs	% of labour force	# of jobs	% of labour force	# of jobs	% of labour force
Total – Experienced labour force	5,992,765	100.00%	760	100.00%	24,185	100.00%	25,960	100%
Management occupations	685,390	11.44%	70	9.21%	2,750	11.37%	2,060	7.94%
Business, finance and administration occupations	1,097,835	18.32%	120	15.79%	4,225	17.47%	3,420	13.17%
Natural and applied sciences and related occupations	422,510	7.05%	45	5.92%	1,525	6.31%	1,600	6.16%
Health occupations	286,305	4.78%	30	3.95%	1,990	8.23%	2,060	7.94%
Social science, education, government service and religion	455,825	7.61%	40	5.26%	2,550	10.54%	3,930	15.14%
Art, culture, recreation and sport	171,840	2.87%	20	2.63%	540	2.23%	910	3.51%
Sales and service occupations	1,371,250	22.88%	160	21.05%	6,775	28.01%	8,095	31.18%
Trades, transport and equipment operators and related occupations	845,130	14.10%	165	21.71%	2,545	10.52%	2,890	11.13%
Occupations unique to primary industry	164,365	2.74%	95	12.50%	385	1.59%	360	1.39%
Occupations unique to manufacturing and utilities	492,320	8.22%	10	1.32%	915	3.78%	630	2.45%

Source: Statistics Canada (2002)

Table 5.1 Classification of Active Landfills

	Industrial Liquid or Hazardous Waste		Municipal or Domestic Waste	
	Urban	Rural	Urban	Rural
Class "A"	A1	A2	A3	A4
Class "B"	B1	B2	B3	B4

Table 5.2 Classification of Closed Landfills

	Industrial Liquid or Hazardous Waste		Municipal or Domestic Waste (Years Closed)					
			Urban			Rural		
	Urban	Rural	<10	10-20	>20	<10	10-20	>20
Class "A"	A1	A2	A3	A5	A7	A4	A6	A8
Class "B"	B1	B2	B3	B5	B7	B4	B6	B8
NP	No potential for impact on humans or the environment							

Table 11.1 – Active and Closed Landfills

Status	Site No.	Municipality	Lot	Concession	Class
N/A	A380104	Kingston	PT 1-2	WGCR	A3
Active	A381302	Kingston			A3
Active	A381601	Frontenac Islands	1432 Road 96		A3

Status	Site No.	Municipality	Lot	Concession	Date Closed	Class
Closed	A380101	Kingston	E. of Montreal St., nr Bell's Island		15 Oct 1974	A1
Closed	A380803	Kingston	10	B.F.	15 Feb 1975	A1
Closed	A380804	Kingston	PT 10	Broken	Unknown	A2
Closed	A380808	Kingston	2	3	31 Dec 1979	B5
Closed	X9090	Kingston	Division St. & Railway Street		Unknown	B5
Closed	X9091	Kingston	Russell St. & Bagot St.		1951	B5
Closed	A380102	Kingston	PT 20		2	B1
Closed	A380801	Kingston	PT 28		4	B2
Closed	A380802	Kingston	PT 30		5	B4