

5.11 BASELINE SOCIO-ECONOMIC ENVIRONMENT

The purpose of this section is to meet the requirements of the NSEA to provide a compilation of data on the current socio-economic conditions that potentially could be affected by the proposed Project. That area includes the primary study area, the Employment Catchment Area, and a larger study area (Figure 5.11-1). This baseline information will provide a benchmark against which it will be possible to measure future changes in socio-economic conditions that may be related to the Project.

The Primary Study Area is from the immediate proposed project location at Melford, Guysborough County, along Route 344 to Highway 104 at Mulgrave, along with the proposed location of the railroad corridor (Figure 5.11-1). The Employment Catchment Area includes the Primary Study Area and all other communities within a 50 km radius or driving distance of the Project site.

Statistics Canada (in cooperation with local municipalities) groups various small communities into subdivisions for Census evaluations. In the region, these subdivisions are made up of partitions of the Counties of Antigonish, Guysborough, Inverness, and Richmond and the population of each is between 3,500 and 7,800. There are also four towns within the Study Area: Antigonish (4,200), Canso (911), Mulgrave (879), Port Hawkesbury (3,517). Together these all make up the larger Study Area (Figure 5.11-1).

The main service centres for the Study Area are Guysborough, Antigonish, and Port Hawkesbury.

- Guysborough, which is 41 km southwest of Melford, is the location of the nearest acute care hospital and recreation services. Most parts of the Study Area are experiencing negative population growth, but the Municipality of the District of Guysborough (which includes Melford) has experienced a marked decline (-26.9%) in population in the last decade.
- Antigonish, located 69 km northwest of the proposed Project site is located on the Northumberland coast of Nova Scotia. It is the location of St. Francis Xavier (St.FX), the only university in the Study Area. Antigonish also has a strong service sector owing to the presence of the University. St. Martha's, the regional health centre is also located in Antigonish. The nearest education facility for school children is located at Mulgrave which is 13 km from the Melford.
- Port Hawkesbury is approximately 28 km to the Northwest on the Cape Breton side of the Strait of Canso. The Town has diverse services including several hotels and motels and a large centre for conventions, sports events, and cultural activities. It is also proximate to heavy industrial area at Point Tupper. Port Hawkesbury has a small airport and a provincial community college.

The Strait of Canso has considerably more large-scale industries than any other part of the Study Area. These sites are located in the Strait Area due to its deep water, sheltered and ice free harbours (required for large marine traffic) and its proximity to international shipping lanes. However, the setting is still largely rural.

This section provides an overview of demographic trends and related issues, First Nations communities, economy (including labour force, education business), current use of land and resources, supporting physical infrastructure for the project and the communities, social support

services including health and recreation, emergency response capability, and cultural resources. This section outlines the baseline conditions for the socio-economic components of the assessment.

5.11.1 Demography

While Nova Scotia's population had declined in the two previous Censuses, in the 2006 Census it was 913,462, up 5,455 from 2001. Much of the increase is due to smaller losses in its migration exchanges with other Provinces, as the birth rate in the Province is relatively low, averaging 1.6 children per woman since 2001 (www.statcan.ca) with the number of women in the childbearing age range (15-49) continuing to decline. A number of broad trends occurring within the Province create challenges for the population and ultimately, the labour pool. These trends are discussed briefly below.

The most notable trend is the aging of the provincial population. Between 1996 and 2006 all age groups experienced a decline with the exception of the 55-64 and the 65+ age group (see Figure 5.11-2).

This trend is a result of a declining birth rate. Together with increasing levels of out-migration, primarily among the working population drawn to other economies that are experiencing labour shortages, and low levels of immigration, the provincial population continues to realize negative population growth among the 15 to 24 age group and a net population decline in the 25 to 64 age group from 1996-2006.

5.11.1.1 Study Area Demography

The Study Area includes parts of the Counties of Antigonish, Guysborough, Inverness, and Richmond. These Counties face economic and demographic challenges due to decline in resource based industries such as the Atlantic fishery and fish processing industries, out-migration and low birth rates.

Table 5.11-1 and Figure 5.11-3 show the population changes within the Study Area.

Table 5.11-1: Study Area and Provincial Population 1996-2006

Geographic Area	1996	2001	2006	Change
Municipality of the County of Antigonish Subdivision A	7,557	7,702	7,730	2.2%
Municipality of the County of Antigonish Subdivision B	6,854	6,819	6,509	-5.3%
Municipality of the District of Guysborough	5,942	5,165	4,681	-26.9%
Municipality of the County of Inverness Subdivision B	6,132	5,769	5,369	-14.2%
Municipality of the County of Inverness Subdivision C	3,808	3,823	3,668	-3.8%
Municipality of the County of Richmond Subdivision A	4,437	4,082	4,072	-9.0%
Municipality of the County of Richmond Subdivision C	4,161	3,848	3,455	-20.4%
Town of Antigonish	4,860	4,754	4,236	-14.7%
Town of Canso	1,127	992	911	-23.7%
Town of Mulgrave	896	904	879	-1.9%
Town of Port Hawkesbury	3,809	3,701	3,517	-8.3%
Total Study Area	49,583	47,559	45,027	-10.1%
Province of Nova Scotia	909,282	908,007	913,462	0.5%

Source: www.statcan.ca, AMEC Interpretation

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Over the last 10 years, the Study Area experienced a population decline of slightly more than 10 percent (www.statcan.ca). The most notable areas of population decline (greater than 20 percent) are in the Municipality of the District of Guysborough, the Town of Canso, and the Municipality of the County of Richmond Subdivision C. Only the Municipality of the County of Antigonish, Subdivision A showed population growth. This population decline is in sharp contrast to the modest population growth of Nova Scotia as a whole.

5.11.1.2 Age Distribution

As a result of ongoing out-migration (particularly for employment reasons) and low birth rates, the Study Area is losing a significant portion of its current and future working age population (more than 10 percent from 1996 to 2006). See Figure 5.11-4.

The trend is particularly evident in people between the prime working ages of 25-54 years (www.statcan.ca). A declining birth rate and the fact that entire families move to find better economic conditions have also resulted in significant losses in the 0-14 and 15-24 age cohorts. Population stability and/or growth only exists in the 55-64 and 65 plus age cohorts. The end result is that industry may be challenged to find sufficient employees in the local population for current or future demand.

Table 5.11-2 shows current population and projected 2016 population for the four counties that encompass the Study Area.

Table 5.11-2: 2016 Population Projection for Study Area Counties

Geographic Area	2006	2016	Difference	Percentage
Guysborough County	18,280	15113	3,167	-17%
Antigonish County	40,272	37954	2,318	-6%
Inverness County	38,980	36098	2,882	-7%
Richmond County	19,718	16083	3,635	-18%
Total	117,250	105,248	12,002	-10%

Source: Canmec Economics 2006, AMEC Interpretation

Population is expected to decline at a rate of 10 percent in the next decade which is consistent with the actual population decline rate for the Study Area in the last 10 years (see Table 5.11-1). The anticipated rate of decline in Antigonish and Inverness Counties is significant at six and seven percent, respectively. However, predictions for Guysborough (-17 percent) and Richmond (-18 percent) Counties are more than double that of the other two counties. This will mean further decline in the working age population cohorts in the Primary Study Area (Canmec Economics 2006).

5.11.1.3 Demographic Trends

The Province of Nova Scotia's population increased slightly in the last Census after declining between 1996 and 2001 for a total population gain of 0.5 percent over the last 10 years. While the population remains fairly stable, it lacks significant growth. The Study Area, however, is subject to population decline. This is primarily a result of resident out-migration to work in others areas of the Province or Country. Negative population growth is expected to continue in the Study Area, most notably in Guysborough and Richmond Counties.

Lack of industry leads to out-migration of the prime work-aged population and their offspring which contributes to population decline and an aging population. In turn, lower population limits the ability of government to deliver services such as health care on a community basis at the same time that the aging population requires increased services. Also the loss of community schools and the need to bus children to neighbouring towns or counties may encourage families to relocate to larger centres. The result is a decline in the number of people of working age - a challenge for industries in rural areas.

5.11.2 First Nations Communities

There are no First Nations reserves in the Primary Study Area. The nearest is at Pomquet-Afton on the coastal side of the Trans Canada Highway about half way between the Canso Causeway and the Town of Antigonish. Chapel Island, which is outside of the Study Area, is located north of St. Peter's in Richmond County (www.aboriginalcanada.gc.ca).

MITI has commissioned the Confederacy of Mainland Mi'kmaq (CMM), to prepare a Mi'kmaw Knowledge Study (MKS). This report will identify any First Nations land or resource use potentially affected by Project development. The objective of the MKS is to support the integration of Mi'kmaq knowledge of use and occupation of Mi'kma'ki (the Mi'kmaw homeland, including the Atlantic Provinces and Gaspé Peninsula) into development decisions via the environmental assessment process. The MKS includes:

- a study of historic and current Mi'kmaq land and resource use;
- an evaluation of the potential impacts of the Project on Mi'kmaq use and occupation and constitutionally based rights;
- an evaluation of the significance of the potential impacts of the Project on Mi'kmaq use and occupation; and
- recommendations to proponents and regulators that may include recommendations for mitigation measures, further study, or consultation with Mi'kmaq (Confederacy of Mainland Mi'kmaq 2007).

5.11.3 Economy, Labour Force, Education, and Business

5.11.3.1 Provincial Economy

Between 2000 and 2005, the Province of Nova Scotia experienced an economic growth rate of more than six percent. This growth was most evident in administrative, support, and waste management services and is attributed to developments in waste management standards and compliance as well as in call centres. Professional, scientific and technical, along with information and cultural industries also enjoyed significant growth. As well, above average GDP growth was seen in retail trade, health care, social assistance, finance, insurance, real estate and leasing, construction and utilities.

Several industries are noted as experiencing less than two percent real GDP growth in the same five year period. These include arts, entertainment, recreation, accommodations, and food services. The same trend was also seen in transportation, warehousing, manufacturing, and the wholesale trade. This was also evident in public administration and educational services as well as mining and oil and gas extraction.

The Department of Finance used a composite index to evaluate each sector in terms of six economic performance indicators (compound annual GDP growth, employment, labour income, average weekly wages and salaries, capital investment for 2000-2005, and labour productivity for that period). The result of this analysis demonstrates that the strongest performance was in

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health care, social assistance, support, waste management, and retail. The strong growth in health care is attributed to strong economic growth (NS Department of Finance, Economics and Statistics Division 2007, 1).

The aging population will have an effect on economic trends as older people tend to spend more on services and less on goods. There will also be less people of employable age available to work. An increased number of older people in the population plus an increasing number of 15-29 year olds choosing to delay leaving home will result in less housing starts and a corresponding weakness in the Provincial housing market and residential construction sector (Keltic Petrochemicals 2006).

Industrial construction is growing with development of the offshore oil and gas industry and proposed onshore liquefied natural gas facilities, along with gas pipeline projects. The transportation industry is also expected to grow as a result of Port of Halifax expansion (Keltic Petrochemicals 2006).

5.11.3.2 Study Area Economy

For the purpose of economic and labour market analysis, Service Canada groups Cape Breton, Inverness, Richmond, and Victoria Counties as the Cape Breton Region, and describes Antigonish, Guysborough, and Pictou Counties as the Northern Nova Scotia Region. Statistics Canada provides more specific information (by municipality or Census Subdivision) but the most recent data available is for 2001 (that portion of the 2006 Census is not yet released). Therefore, 2006 regional data will be used for the Cape Breton and Northern Regions and it will be compared to Provincial data from the 2006 Labour Market Survey.

Table 5.11-3 shows the number of individuals in the regions employed in various sectors of the economy and compares the data to the Province of Nova Scotia.

Table 5.11-3: Regional and Provincial Employment by Sector 2006

Economic Sector	Northern NS	Cape Breton	Total	% of Total	Nova Scotia	% of Total
Trade (wholesale or retail)	13,600	9,100	22,700	17.8%	78,200	17.7%
Manufacturing	9,800	3,600	13,400	10.5%	39,100	8.9%
Health Care and Social Assistance	8,200	9,700	17,900	14.0%	59,100	13.4%
Educational Services	6,300	4,900	11,200	8.8%	34,700	7.9%
Business, Building & Other Support Services	4,500	5,400	9,900	7.7%	28,800	6.5%
Accommodation and Food Services	4,500	4,200	8,700	6.8%	29,800	6.7%
Other Services	4,300	2,500	6,800	5.3%	20,700	4.7%
Construction	4,100	3,300	7,400	5.8%	27,300	6.2%
Transportation and Warehousing	3,500	2,000	5,500	4.3%	18,700	4.2%
Forestry, Fishing, Mining, Oil and Gas	3,100	2,000	5,100	4.0%	12,700	2.9%
Public Administration	3,000	2,900	5,900	4.6%	29,200	6.6%
Finance, Insurance, Real Estate & Leasing	2,500	1,800	4,300	3.4%	22,300	5.0%
Information, Culture and Recreation	2,200	2,000	4,200	3.3%	16,300	3.7%
Agriculture	1,600	0	1,600	1.3%	4,700	1.1%
Professional, Scientific & Technical Services	1,400	900	2,300	1.8%	18,400	4.2%

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Table 5.11-3: Regional and Provincial Employment by Sector 2006

Economic Sector	Northern NS	Cape Breton	Total	% of Total	Nova Scotia	% of Total
Utilities	0	500	500	0.4%	1,800	0.4%
Total Employment	72,800	55,000	127,800	100.0%	441,800	100.0%
Service-Producing Sector	53,900	45,300	99,200	77.6%	85,700	19.4%
Goods-Producing Sector	18,900	9,700	28,600	22.4%	356,200	80.6%

Source: Service Canada 2007, 1, 2, www.statcan.ca, AMEC Interpretation

While in many sectors there are differences of single percentage points, overall the regional economy is much more strongly focussed on the service producing sectors (nearly 78%) compared to the Provincial economy where fewer than 20 percent of people are employed in services (Service Canada 2007, 1, 2, www.statcan.ca).

Figure 5.11-5 shows the percentages of Study Area people employed in various sectors.

The majority of people (17.8%) employed in the two regions work in the retail or wholesale trade, followed by health care and social assistance (14%), and manufacturing (10.5%). All other sectors employ fewer than 10% each (Service Canada 2007, 1, 2).

5.11.3.2.1 Labour Force

Labour market data are made available by municipality and census subdivision. However, data from the 2006 Census has not yet been released. Therefore for the purposes of this study, regional data will be used and compared to the Province. Table 5.11-4 shows labour force indicators for the Cape Breton and Northern Nova Scotia Regions as well as the Province.

Table 5.11-4: Regional and Provincial Labour Force Indicators 1997-2006

Indicator	Cape Breton and Northern Regions			Nova Scotia		
	1997	2001	2006	1997	2001	2006
Labour Force	137,700	139,600	143,800	435,100	460,000	480,000
Participation Rate	54.00%	55.80%	57.75%	59.70%	61.90%	62.90%
Unemployment Rate	16.70%	14.25%	11.25%	12.20%	9.70%	7.90%
Employment Rate	45.05%	47.90%	51.25%	52.50%	55.90%	57.90%

Sources: NS Finance, Economics & Statistics Division 2007, 2, AMEC Interpretation

The total labour force in the region has grown in the last decade from 137,700 to 143,800 or an increase of four percent as compared to nine percent for the Province as a whole. This has occurred at the same time that the population of the Study Area has decreased by approximately 10 percent and the population of the prime working age group (25-54) has decreased by nearly nine percent.

The regional participation rate has increased by nearly four percentage points indicating that new people who had previously not sought employment are entering the workforce. The provincial participation rate is 63 percent, about five percentage points above the regional rate, indicating that there may be additional regional residents who will be available for new employment opportunities.

The regional employment rate has increased by several percentage points in each of the last two Census periods (see Table 5.11-4). This increase in the number of people employed has

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grown at a similar rate to that of the Province as a whole. The Nova Scotia employment rate is currently just under 58 percent and the regional rate is just above 51 percent (Service Canada 2007, 1, 2).

5.11.3.2.2 Income Support and Employment Insurance

Statistics Canada 2001 data was used to analyse income level and government transfers in the Study Area. Table 5.11-5 shows annual personal income and its sources for people of the Study Area and the Province.

Table 5.11-5: Study Area and Provincial Income 2001
(Annual Personal Income for Persons Over 15 Years with Income)

Geographic Area	Median Total Income	Earnings - % of income	Government Transfers - % of Income	Other Money - % of Income
Municipality of the County of Antigonish Subdivision A	\$17,902	75.60%	14.60%	9.90%
Municipality of the County of Antigonish Subdivision B	\$15,650	72.90%	19.20%	7.90%
Municipality of the District of Guysborough	\$13,850	59.80%	31.60%	8.60%
Municipality of the County of Inverness Subdivision B	\$15,762	63.10%	26.00%	10.80%
Municipality of the County of Inverness Subdivision C	\$17,470	69.60%	18.40%	11.90%
Municipality of the County of Richmond Subdivision A	\$14,281	64.10%	24.20%	11.80%
Municipality of the County of Richmond Subdivision C	\$14,736	62.70%	28.50%	8.90%
Town of Antigonish	\$17,976	65.60%	16.40%	18.00%
Town of Canso	\$12,224	63.10%	31.60%	5.30%
Town of Mulgrave	\$14,779	70.70%	23.60%	5.60%
Town of Port Hawkesbury	\$19,799	72.20%	13.00%	14.90%
Study Area	\$15,857	67.22%	22.46%	10.33%
Nova Scotia	\$18,735	71.40%	16.10%	12.50%

Source: www.statcan.ca, AMEC Interpretation

Note: Other money refers to regular cash income received during calendar and not reported in any of the other ten sources listed on the Census questionnaire. It includes severance pay, retirement allowances, alimony, child support, periodic support from other persons not in the household, income from abroad (excluding dividends and interest), non-refundable scholarships, bursaries, fellowships and study grants, and artists' project grants.

The median total income of those living in the Study Area is under \$16,000 while that of provincial residents is close to \$19,000. Over 22 percent of personal income in the Study Area comes from government transfers while the provincial rate is slightly over 16 percent (www.statcan.ca). A less vibrant economy in the Study Area necessitates reliance on government support such as Employment Insurance and social assistance.

5.11.3.2.3 Education

Data from the 2001 Census was used because 2006 data is not yet released. Table 5.11-6 compares educational attainment in the Study Area to that of the Province by age cohort.

Table 5.11-6: Study Area and Provincial Educational Attainment 2001

Education Level	Age 20-34		Age 35-44		Age 45-64	
	Study Area	Nova Scotia	Study Area	Nova Scotia	Study Area	Nova Scotia
Less than High School	13.1%	16.1%	26.3%	23.0%	42.6%	33.7%
High School and some Post Secondary	26.6%	28.3%	16.4%	19.1%	12.9%	16.0%
Trade Certificate or Diploma	23.0%	13.9%	25.4%	18.9%	18.6%	17.0%
College Certificate or Diploma	19.6%	18.9%	17.7%	19.4%	10.8%	15.2%
University Certificate, Diploma, or Degree	18.8%	22.8%	13.3%	19.6%	15.3%	18.1%

Source: www.statcan.ca, AMEC Interpretation

Poor educational attainment is more typical in older age cohorts. In the Study Area, 42.6 percent of people aged 45-64 have less than high school education while the provincial rate is 33.7 percent. This trend is less pronounced in the 35-44 age group. For the youngest age group analysed (20-34), residents of the Study Area are more likely to complete high school than their counterparts in the Province as a whole.

In all age groups shown, it is more likely that the average resident of the Province will have completed high school and attended (if not completed) post secondary level education. However, residents of the Study Area have a higher incidence of completing a trade certificate or diploma, and the youngest age group (20-34) exceeds their provincial counterparts by more than nine percentage points. This age group is also more likely to complete a college certificate or diploma than the average Provincial resident of the same age. However, this is not the case for the two older age cohorts. In these two age groups, the provincial percentage is higher. Provincial residents in all age groups are more likely to complete a university certificate, diploma, or degree than those in the Study Area (www.statcan.ca). In conclusion, residents of the Study Area are prepared for skilled trades work.

Early Childhood Education

In an area where population is limited in the prime working age groups, industry needs to access groups of the population, such as women, that may be underrepresented in the labour force. One of the reasons women have been traditionally underrepresented is that they are more likely to be the caregivers of children and older family members. In order for women to participate in the workforce, childcare capacity is required.

Thirteen licensed early childhood education (daycare) centres operate in five communities within the Study Area. There are eight in the Town of Antigonish, one in Port Hawkesbury, one in the Town of Canso, one in St. Peter's, and one in each of Petit de Grat and D'Escousse (both on Isle Madame). There are no licensed daycare centres in Inverness County and none in the Primary Study Area. In the fall of 2007 daycare centres in the Study Area had a combined capacity of 478 in all age groups and an overall vacancy rate of about 16% (www.cccns.ca, Berthier pers. com., Cormier pers. com., Grace pers. com., Marchand pers. com., Melong-Brow pers. com., Pollard pers. com., Uloth pers. com., Vincent pers. com.). See Appendix 5.11-A for detailed information on daycare centres including capacities.

In addition to the formal daycare centres noted above, there is a local custom of stay-at-home mothers in the Study Area taking in children during working hours. While it is not possible to

quantify this daycare resource, it is also a daycare resource which will contribute to providing this important function.

Primary and Elementary Schooling

Within the Study Area during the 2006-07 school years the Strait Regional School Board operated 25 schools, employing 628 teaching staff and 514 support staff. The School Board projected an enrolment of 7,790 in the current school year (2007-08) – a further reduction of 5 percent. The School Board notes that enrolment has been in steady decline for 30 years (Strait Regional School Board 2007). Figure 5.11-6 shows Study Area enrolment by school from 2000 to 2008 (projected).

There are no Francophone or French Immersion schools in the Primary Study area. There are two Francophone schools (Primary to 12) in the larger Study Area: École acadienne de Pomquet and École Beau-Port in Arichat operated by a Nova Scotia-wide French school board (www.csap.denet.ns.ca). Also, there are 10 schools in the Study Area that offer French Immersion. The nearest are in Port Hawkesbury where students can enroll in programs from Primary to 12 (NS Department of Education).

While some schools have gained small increases from time to time, enrolment in the Area has been in steady decline since 2000. A school in Gabrus (Richmond County) was closed in 2002-03 and one in New Harbour (Guysborough County) in 2004-05, due to low enrolment. Figure 11- 5.5 displays school enrolment from 2000-01 school year to the present.

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Table 5.11-7: Study Area School Enrolment 2000 - 2008

School	Location	Grades	Registered Students							
			2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08*
Strait Personnel and Correspondence Students			2	0	0	0	0	0	0	0
Antigonish Education Centre	Antigonish	P-4	634	624	588	534	572	548	562	524
Felix Marchand Education Centre	Louisdale	P-4	196	161	159	157	178	180	165	161
H.M. Macdonald Elementary School	Maryvale	P-6	131	96	91	85	79	86	92	89
Pleasant Bay School	Pleasant Bay	P-6	12	13	11	12	12	8	12	12
Rev. H.J. MacDonald School	Heatherton	P-6	160	165	150	135	120	106	83	91
St. Andrew's Consolidated School	St. Andrew's	P-6	285	270	263	244	216	224	213	213
St. Mary's Education Centre	Sherbrooke	P-7	289	261	248	238	229	215	209	200
Bayview Education Centre	Port Hood	P-8	495	453	438	431	403	405	423	394
East Richmond Education Centre	St. Peter's	P-8	518	408	389	404	395	368	352	330
Fanning Education Centre	Hazel Hill	P-8	406	189	179	186	175	165	152	139
Whycocomagh Education Centre	Whycocomagh	P-8	203	191	181	186	195	192	191	182
Mulgrave Memorial Education Centre	Mulgrave	P-8	129	137	128	116	119	124	117	126
Tamarac Education Centre	Port Hawkesbury	P-8	758	739	727	693	681	644	627	620
West Richmond Education Centre	Evanston	5-8	364	191	178	171	157	133	138	134
St. Andrew Junior High School	Antigonish	5-8	811	797	792	768	717	696	643	584
St. Mary's Academy	Sherbrooke	8-12	263	255	253	242	227	200	188	147
Dalbrae Academy	Mabou	9-12	418	413	391	375	384	354	311	307
Richmond Academy	Louisdale	9-12	566	550	503	483	487	493	481	441
Canso Academy	Canso	9-12	142	134	116	99	85	72	77	83
Dr. John Hugh Gillis Regional High School	Antigonish	9-12	1,130	1,161	1,119	1,082	1,077	1,048	1,018	971
Strait Area Education-Recreation Centre (SAERC)	Port Hawkesbury	9-12	446	437	437	458	447	426	420	361
Cape Breton Highlands Education Centre/Academy	Terre Noire	P-8 / 9-12	547	562	550	519	524	504	482	453
East Antigonish Education Centre/Academy	Monastery	P-8 / 9-12	266	725	694	663	607	582	557	535
Chedabucto Education Centre/Guysborough Academy	Guysborough	P-8 / 9-12	514	504	479	474	446	431	385	363

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Table 5.11-7: Study Area School Enrolment 2000 - 2008

School	Location	Grades	Registered Students							
			2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08*
Inverness Education Centre/Academy	Inverness	P-8 / 9-12	474	454	444	422	394	380	349	330
Framboise School	Gabarus	P-5	9	7	5					
Riverview Consolidated School	New Harbour	P-6	60	55	43	15	14			
Total			10,228	9,952	9,556	9,192	8,940	8,584	8,247	7,790

* Forecasted

Sources: Nova Scotia Department of Education 2007, Strait Regional School Board, AMEC Interpretation

There were 8,230 students enrolled in Study Area schools, as compared to 12,430 in 1996. This means a decline in enrolment of 34 percent in 10 years. Population decline and infrastructure renewal has resulted in reorganization of the school system with some school closures and amalgamations (Hiscock pers. com.).

Post Secondary Education and Training

St. Francis Xavier University

St. Francis Xavier University (St. FX) in Antigonish is the only university within the Study Area. St. FX has 4,200 fulltime and 500 part-time students. The University has 200 full-time and 64 part-time faculty members. St. Francis Xavier offers programs in more than 30 areas of study including humanities, liberal arts, business, education, science, engineering, and information systems (www.stfx.ca).

St. FX does not offer tailored programs at industry's request. However, the school offers several courses (Human Resources and Labour Economics, Regional Economics and Maritime Economy) that may be of interest to industry (MacGregor pers. com.).

With a current enrolment of 4,200, St. FX feels that it is at capacity. To accept additional students would compromise the small class sizes that the University likes to offer (MacGregor pers. com.).

Cape Breton University

Cape Breton University (CBU) is located in Sydney near the Study Area. This university offers programs in liberal arts, business, health, education, science and technology. CBU has an annual enrolment of 3,300 and could handle up to 4,000 students. CBU has industry partnerships and has offered programs in nursing, public health, and environmental science. A current partnership delivers petroleum engineering for Exxon Mobil (www.cbu.ca, Rose pers. com.).

Nova Scotia Community College, Strait Area Campus

Nova Scotia Community College's Strait Area Campus is located in Port Hawkesbury. There are 550 full-time and 300 part-time students enrolled at the campus. The Strait Area Campus offers programs in trades and technology among other areas (www.nsccl.ca). The Campus can expand to include many more students if they can attend on alternative schedules. For instance, welding courses offer classes from 7:00 am to 11:30 pm to accommodate the demand for this program (Lewis pers. com.).

The Campus is located in an area of heavy industry and has offered customized training from general programs such as safety certification to liquefied natural gas awareness training for a particular company (Lewis pers. com.). The Strait Area Campus does not currently offer programs in rebar and iron work, though iron work is offered in Pictou to the west and in Sydney, Cape Breton. If industry requests programming, the Strait Campus would replicate curriculum from within the Nova Scotia Community College system, or develop the program if it is not available (Lewis pers. com.).

The Nautical Institute, affiliated with the Strait Area Campus, offers year round programs in specialized marine programs including navigation, marine propulsion, and dockside survival. The Nautical Institute also offers mobile units for offsite training (www.nsccl.ca).

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5.11.3.2.4 Business

The Strait of Canso where the Primary Study Area is located is characterized by heavy industry. It is home to a number of industrial sites and significant employers. Other major employers in the study area include the district health authority, the Strait Regional School Board, and St. Francis Xavier University. See Table 5.11-8 for major employers in the Study Area.

Table 5.11-8: Major Employers in the Study Area

Employer	Location	Business	Employees
Strait Regional School Board	Throughout the Study Area	Grades Primary to Senior High School education	1,142
St. FX University	Antigonish	Post Secondary Education	848
Guysborough Antigonish Strait Health Authority	Throughout the Study Area	Health Care	700
Stora Enso	Point Tupper	Paper mill manufacturing and exporting	550
Ocean Nutrition	Mulgrave	Nutritional supplement manufacturing and exporting	137
Georgia-Pacific Canada	Sugar Camp, Melford, Point Tupper	Gypsum mining and exporting	131
Premium Seafoods	Arichat	Seafood brokering, seafood processing, vessel offloading	120
Martin Marietta Materials	Auld's Cove	Aggregate mining and exporting	100
Little Narrows Gypsum Company	Little Narrows	Gypsum and anhydrite mining	99
Statia Terminals	Point Tupper	Petroleum products distribution	75
Nova Scotia Power	Point Tupper	Power generation	60
Federal Gypsum	Point Tupper	Wall board manufacturing and exporting	40

Sources: Strait Regional School Board 2007, www.targetnovascotia.com, www.strait-highlands.ns.ca, www.straitsuperport.com, AMEC Interpretation

Industrial Parks and Reserves

Within the Study Area there are several areas of land allocated for industrial use. Table 5.11-9 shows the capacity and vacancy rates for Study Area industrial parks.

Table 5.11-9: Study Area Industrial Parks

Located in or Near	Name	Area (Acres)	Area Occupied or Reserved (Acres)	Area Available (Acres)	Vacancy Rate
Port Hawkesbury	Point Tupper / Bear Head Industrial Park	4,808	4,039	769	16.0%
Port Hawkesbury	Port Hawkesbury / Richmond County Joint Industrial Park	95	10	85	89.5%
Port Hawkesbury	Richmond County Industrial Park	145	133	12	8.4%
Canso	Canso Industrial Park	72	68	4	5.8%
Mulgrave	Mulgrave Marine Industrial park	54	49	5	9.6%
Antigonish	Antigonish County Business Park	101	96	5	5.4%
Port Hawkesbury	Port Hawkesbury Business Park	139	137	2	1.3%
Melford	Melford Industrial Reserve	14,000	490	13,510	96.5%
Total		19,414	5,021	14,393	74.1%

Source: Target Nova Scotia, AMEC Interpretation

The majority of these industrial parks have low vacancy rates with the exception of Port Hawkesbury / Richmond County Joint Industrial Park at nearly 90 percent vacancy with 85

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acres available (see Figure 5.11-7). Melford Industrial Reserve has a current vacancy rate of more than 95 percent with 13,510 acres available (www.targetnovascotia.com).

Together Study Area industrial parks have 74 percent of total space available. There is a high vacancy rate in the Melford Industrial Reserve and the Port Hawkesbury / Richmond County Joint Industrial Park (www.targetnovascotia.com).

Conclusions

While the Nova Scotia economy is growing at a healthy rate, the regional economy is not. The Study Area economy also differs from the provincial economy in that employment is strongly dominated by retail and wholesale jobs. Like the Province, the local labour force, participation rate, and employment rates have all increased.

Average annual personal income of residents of the Study Area is lower than that of their provincial counterparts. The amount of personal income that is derived from government transfers such as employment insurance and social assistance is higher than the average resident of the Province. This is to be expected of a slower economy and particularly one that has a stronger presence of seasonal natural resource based industries such as forestry and fisheries.

Older Study Area residents tend to have a lower education level than younger groups. In all age groups from 25-64 years, residents of the Study Area have a higher rate of education in skilled trades when compared to their peers in the Province as a whole. Those in the youngest age sets have higher rates of university education than their provincial peers.

The Study Area has some capacity in early childhood education centres. However, there are no facilities in Inverness County or the Primary Study Area. The nearest centres are in Canso, Port Hawkesbury and St. Peter's. The school aged population of the Study Area is in consistent decline. This has resulted in school closures and amalgamations.

The decline in school enrolment has resulted in school closures. This may result in increased school capacity in the short term as well as additional school amalgamations and closures in the long term.

There are two post secondary educational institutions in the Study Area. St. Francis Xavier, which does not offer specialized industry courses or programs, is at full capacity. In contrast, the Strait Area campus of the Nova Scotia Community College has student capacity, would expand to meet need, and offers trades and technical programming in response to industry requests. Cape Breton University in Sydney, Cape Breton has capacity to accept new students and to offer specialized programming.

The Strait of Canso is an industrialized area. Therefore a number of the major employers are involved in mining, manufacturing, and shipping. There is also significant employment in health care, social programming, and education. There are eight industrial parks in the Study Area. Most are full but Port Hawkesbury Richmond County Joint Industrial Park and Melford Industrial Reserve have a large portion of capacity available.

5.11.4 Land and Resources

5.11.4.1 Traditional Land Use

The Primary Study Area landscape is made up of coastal barrens, along with mixed coniferous and deciduous forests. The seacoast is windswept and rugged, while mixed softwood and hardwood forests dominate further inland. Settlers, who have inhabited this area since the early 16th century, have participated in fishing and forestry. These activities still dominate local resource use (Municipality of the District of Guysborough). Those who live in the area likely use the land and sea for sustenance activities such as wood cutting for domestic use, fishing and hunting, as well as gathering edible plants such as berries and mushrooms. No specific data is currently available.

The ongoing Confederacy of Mainland Mi'kmaq (CMM) study area (defined as a five kilometre radius surrounding the proposed Project site) is in the Mi'kmaq district of Eskikewa'kik which encompasses the area of Guysborough County, and its river system, particularly the Strait of Canso and the Chedabucto Bay, and the surrounding lands.

For purposes of researching historic land and resource use, the Mi'kmaq Knowledge Study (MKS) is utilizing internal CMM sources including index sheets, historical documents, church records, and cemetery records. External sources include the Nova Scotia Public Archives and Records Management, the Archdiocese, Nova Scotia Museum, local archives, the UCB Mi'kmaq Resource Centre, and local historical societies. This information will be used to establish the status of historical and current (present or within living memory) Mi'kmaq land and resource use (Confederacy of Mainland Mi'kmaq 2008).

Mi'kmaq Knowledge on current land and resource sites is being gathered through a review of information collected through oral interviews with Mi'kmaq knowledge holders. The study includes a review of Mi'kmaq communities in the surrounding area (Confederacy of Mainland Mi'kmaq 2008).

CMM is conducting field surveys of the immediate Project area to identify the presence of plants of significance to Mi'kmaq. A system of stratified random sampling was employed in the fall of 2007 and will be repeated in the spring of 2008. Plants of significance to Mi'kmaq are divided into three categories, medicinal, food and beverage, and craft and art. The fall 2007 survey indicates that there are 28, 15 and 10 plants in these respective categories within the five km radial study area (Confederacy of Mainland Mi'kmaq 2008).

The interim report states that a fall 2007 survey did not discover any issues of concern at the proposed Project site. However, current and historical use of the five km radius around the Project site includes commercial and food fisheries. The study continues and will be complete in May 2008 (Confederacy of Mainland Mi'kmaq 2008). When it is completed, the results of this study will be reviewed and incorporated into Project design and implementation, if required.

5.11.4.2 Planned Land Use of the Primary Study Area

The Primary Study Area around Melford sits along the west side of the Strait of Canso, a heavily industrialized area. It is included in the Municipality of the District of Guysborough, Northeastern Guysborough Planning Area, is zoned for industrial development, and owned by the Province (Municipality of the District of Guysborough).

Responding to a 1973 oil refinery proposal, the Provincial government expropriated approximately 14,000 acres of land and a buffer at Melford. It was proposed that the

Guysborough County side of Strait of Canso would be occupied by heavy industry and related developments similar to the Cape Breton side of the Strait. The Federal government participated in developing a large water reservoir to supply the anticipated industrial needs (Municipality of the District of Guysborough).

The oil refinery project was cancelled and the Provincial government still maintains ownership of the Melford Industrial Reserve (Municipality of the District of Guysborough). The reservoir is currently used by Black River Hydro Ltd. a 220 kilowatt hydro-electric plant. Black River Hydro was the first private company to sell electricity to the Nova Scotia Power grid (www.blackriver.ns.ca).

Within the Industrial Resource Zone, marine/container terminals, including wharves and storage facilities are acceptable land uses. Several privately owned parcels of land (with occupied and unoccupied homes), contained within the Industrial Resource Zone, are currently being acquired by the Municipality of the District of Guysborough (Torrey pers. com.).

5.11.4.3 Agriculture

In Nova Scotia, the Federation of Agriculture compiles statistics by County or geographic region. The most relevant data for the Study Area is found in a combined agricultural profile for Guysborough and Antigonish Counties and a profile of Cape Breton Island (NS Federation of Agriculture, 1, 2). See Table 5.11-10.

Table 5.11-10: Regional Agriculture Industry

County	Total Farms			Total Receipts		
	1996	2001	Change	1995	2000	Change
Antigonish and Guysborough	290	277	-4.48%	\$21,410,176	\$26,518,409	23.90%
Inverness and Richmond	236	244	3.39%	\$9,723,820	\$11,194,868	14.15%
Total	526	521	-0.95%	\$31,133,996	\$37,713,277	21.13%

Source: Nova Scotia Federation of Agriculture, 1, 2, AMEC Interpretation

Note: Only farms reporting gross receipts over \$2,499 are included.

There are no farms in the Primary Study Area.

The total number of farms decreased in Antigonish and Guysborough Counties between 1996 and 2001 and increased in Inverness and Richmond Counties. Combined this resulted in a no growth situation in the Study Area. Agriculture in these areas is a significant industry with total receipts of more than \$37 million in 2000. While the number of farms remained stable, Study Area agricultural receipts increased by 21 percent in five years (NS Federation of Agriculture, 1, 2). This means that the value of production at individual farms has increased.

Figure 5.11-8 shows the agricultural mix in the Study Area.

The local industry is diverse, with the highest percentages of farms characterized as dairy, beef, fruit, and miscellaneous speciality. This is similar to the Province as a whole with several exceptions. The Study Area has a higher percentage of dairy, cattle, and miscellaneous speciality farms. The Province exceeds the Study Area in percentage of farms involved in fruit production as well as a number of other areas (NS Federation of Agriculture, 1, 2). The soils and climate of the region make the area more suitable for raising animals than growing fruit.

5.11.4.4 Forestry

North eastern Nova Scotia, which somewhat coincides with the Study Area, produces 50 percent of the Province's pulpwood and 41 percent of its lumber. In Guysborough County, 70 percent of the land is forested with more than half being softwood. Hardwood and other mixed woods make up the remainder of types harvested. There are about 250-300 full-time forest-related jobs in Guysborough County in harvesting, trucking, road building, and silvaculture. The area supplies about 30 percent of the wood received by Nova Scotia's pulp and paper mills, or around 625,000 cubic metres per year (www.gcrda.ns.ca).

NewPage Corporation (formerly Stora Enso Port Hawkesbury), the new owner of a pulp and paper mill in Port Hawkesbury, holds Crown Licences for cutting for a large portion of the Primary Study Area (Stora Enso, 2007).

5.11.4.5 Mining

Within the Study Area five operators extract gypsum, anhydrite, limestone, and red marble (www.gov.ns.ca/natr/meb). They include:

- Ridge Brokers Limited limestone mine in Southside Antigonish Harbour;
- Georgia-Pacific Canada Inc. gypsum mines at Melford and Sugar Camp;
- MacLeod Resources Ltd. red marble mine at Kennedy's Big Brook; and
- Little Narrows Gypsum Company gypsum and anhydrite mine at Little Narrows.

Within the Study Area there is also one major aggregate operation. Martin Marietta Materials Canada Limited operates a crushed stone quarry in Auld's Cove (Gardner Pinfold, 2006). The company extracts up to two million tonnes of fine aggregates, coarse aggregates, granular materials, and drainage materials per year. The docking facility located at Auld's Cove in the Strait of Canso, can accommodate vessels up to 70,000 tonne capacity (www.atyp.com/martinmarietta).

5.11.4.6 Protected Areas

Within the Study Area, three Wilderness Areas protect typical examples of Nova Scotia's natural landscapes, biological diversity, and wilderness recreation opportunities. There are also four Nature Reserves that protect unique, rare, or outstanding natural ecosystems, and the habitats of rare or endangered species. Two of these Nature Reserves were recently designated in 2006: River Inhabitants in Inverness County and Roman Valley, Guysborough County (www.gov.ns.ca/enla/protectedareas).

Canso Coastal Barrens Wilderness Area

The 8,026 hectare Canso Coastal Barrens, representative of the Canso Coastal Granite Barrens landscape, is located southwest of the Town of Canso in Guysborough County. The exposed coastline provides opportunities for hiking, boating, or kayaking (www.gov.ns.ca/enla/protectedareas).

Bonnet Lake Barrens Wilderness Area

Bonnet Lake Barrens is also representative of the Canso Coastal Granite Barrens. This 10,380 hectares of protected land is also located southwest of the Town of Canso, just west of the Canso Coastal Barrens. This wilderness area provides for hiking and nature exploration along old footpaths and cart tracks that once joined coastal communities.

Ogden Round Lake Wilderness Area

The Mulgrave Hills landscape representation is exhibited in the Ogden Round Lake Wilderness Area, 5,490 hectares also located in Guysborough County, northwest of Chedabucto Bay. Old-growth deciduous forests in the wilderness area are considered to be regionally significant, protecting valuable habitat for local species and providing wilderness recreation opportunities such as hiking, canoeing, and fishing.

MacFarlane Woods Nature Reserve

MacFarlane Woods Nature Reserve - about 50 hectares of old-growth hardwoods - is within the Skye River Hills and Valleys Natural Landscape located in Inverness County just southeast of Mabou. Despite extensive clearing, the hardwood hilltop has been left untouched, and remains as a fine example of climax hardwood forest.

Bornish Hill Nature Reserve

Bornish Hill Nature Reserve, Inverness County, also protects a representative example (960 hectares of old-growth hardwoods) of the Skye River Hills and Valleys Natural Landscape. Bornish Hill Nature Reserve is the least-disturbed area of climax hardwood forest remaining in the Creignish Hills region, and represents the dominant landscape ecosystem type.

Under Nova Scotia's *Wilderness Areas Protection Act*, activities are limited in designated protected areas. Mining, forestry, road building and other commercial resource development are prohibited. Other activities such as using a vehicle, building structures or trails, and damaging or removing plants are also prohibited.

Conclusions

The Primary Study Area is characterized by residential areas along with some commercial activity. The Melford Industrial Reserve has been slated for industrial development since the 1970's. The municipality has zoned the land for use as an Industrial Resource which allows development of marine / container terminals, including wharves and storage facilities.

The Study Area as a whole has agriculture, forestry, and mining. These activities are limited in the Primary Study Area. There are several protected areas in the Study Area but none are in the Primary Study Area.

5.11.5 Fishing Industry

The Study Area has active commercial fisheries for a variety of species. Fishers in the Strait of Canso are involved in lobster, mackerel, shrimp, and snow crab fishing. Scallop dragging has been limited as local fishers recognize that this damages lobster bottom – habitat for the most lucrative fishery in the area. There is also fisheries research such as larval tows in the area (Boudreau pers. com.).

5.11.5.1 Current Commercial Fisheries

Fisheries and Oceans Canada collects annual data on commercial fisheries by port. These include number of fishers, buyers, and vessels along with live weight and value of catch. To protect confidentiality, in cases where there are less than three fishers, the Department groups the related data together as "Other Ports" (Walker pers com.).

For the purposes of this review, data have been assembled for communities in the Strait of Canso – District 9 around Isle Madame and St. Peters in Richmond County; District 14 from Mulgrave to Guysborough; and District 15 from the Canso southwest to Torbay. The Primary

Study Area (Melford and Middle Melford) is included in “Other Ports” in 2002 and 2003 but not from 2004-2006 indicating that a small number of fishers operated in communities near the proposed project site but are no longer participating in the fishery (FOC 2002-2006). A representative of the Guysborough County Inshore Fishermen’s Association indicates that several lobster fishers place traps near Melford (Boudreau pers. com.). A submission by the same group states that more than 30 fishers and crewmembers currently operate in the area (Guysborough County Inshore Fishermen’s Association indicates, 2008).

While commercial fisheries in Districts 9 and 15 are highly diversified, the fishing industry in District 14 (Mulgrave to Guysborough), the Primary Study Area, is limited to under 10 species. These include mackerel, soft shell clams, propeller clams, clams (unspecified), sea scallops, lobster, snow crab, and other unspecified species (Walker pers. com.).

See Table 5.11-11 for the number of fishers registered in Strait of Canso ports between 2002 and 2006.

Table 5.11-11: Strait of Canso Fishers 2002-2006

District	Community	Total Fishers				
		2002	2003	2004	2005	2006
9	Arichat	21	21	19	22	22
	Bear Island	0	0	5	0	0
	Martinique	0	10	14	11	10
	Petit de Grat	23	27	21	21	19
	Poirierville	3	3	*	3	0
	River Bourgeois	4	4	*	3	3
	St. Peters	7	6	10	12	9
	West Arichat	3	3	*	*	*
	Other Ports (5 in Dist. 9)	6	8	15	7	13
9 Total		67	82	84	79	76
14	Guysborough	0	*	5	4	3
	Mulgrave	6	5	*	4	8
	Sand Point	6	6	7	7	7
	Other Ports (8 in Dist. 14)	9	12	12	6	6
14 Total		21	23	24	21	24
15	Canso	82	53	44	62	112
	Half Island Cove	*	*	3	3	*
	Larry's River	12	9	11	9	9
	Little Dover	21	23	20	26	25
	Port Felix	5	6	4	4	3
	Queensport	4	3	*	5	4
	Torbay	3	4	*	*	*
	Whitehead	10	14	15	12	12
	Other Ports (4 in Dist. 15)	5	8	9	10	8
15 Total		142	120	106	131	173

Table 5.11-11: Strait of Canso Fishers 2002-2006

District	Community	Total Fishers				
		2002	2003	2004	2005	2006
Grand Total		230	225	214	231	273

Source: Fisheries and Oceans Canada 2007, AMEC Interpretation

Notes: * indicates that data on this community have been included in Other Ports for confidentiality reasons. 2006 data are based on preliminary landings and associated estimated value.

The number of fishers in the Strait of Canso area decreased slightly between 2002 and 2004. However, participation has increased in the last two years (Fisheries and Oceans Canada 2007).

Table 5.11-12 shows the number of registered fishing vessels in the Strait of Canso.

Table 5.11-12: Strait of Canso Fishing Vessels 2002-2006

District	Community	Total Vessels				
		2002	2003	2004	2005	2006
9	Arichat	22	27	24	30	28
	Bear Island	0	0	0	0	0
	Martinique	0	0	0	0	0
	Petit de Grat	29	32	29	27	27
	Poirierville	3	3	*	4	*
	River Bourgeois	4	4	*	3	3
	St. Peters	7	6	9	11	8
	West Arichat	3	3	*	*	*
	Other Ports (5 in Dist. 9)	7	8	14	8	13
9 Total		75	83	76	83	79
14	Guysborough	0	*	5	4	3
	Mulgrave	6	10	*	4	6
	Sand Point	7	6	8	7	8
	Other Ports (8 in Dist. 14)	9	10	6	3	5
14 Total		22	26	19	18	22
15	Canso	81	55	45	69	112
	Half Island Cove	*	*	3	3	*
	Larry's River	9	8	10	9	9
	Little Dover	23	24	22	27	27
	Port Felix	5	6	4	4	3
	Queensport	5	4	*	8	4
	Torbay	3	4	*	*	*
	Whitehead	11	16	17	12	14
	Other Ports (4 in Dist. 15)	5	5	9	6	8

Table 5.11-12: Strait of Canso Fishing Vessels 2002-2006

District	Community	Total Vessels				
		2002	2003	2004	2005	2006
15 Total		142	122	110	138	177
Grand Total		239	231	205	239	278

Source: Fisheries and Oceans Canada 2007, AMEC Interpretation

Notes: * indicates that data on this community have been included in Other Ports for confidentiality reasons. 2006 data are based on preliminary landings and associated estimated value.

The number of registered vessels is consistent with the trends in participants. Registered vessels decreased between 2002 and 2004 and have increased in the last two years (Fisheries and Oceans Canada 2007).

See Table 5.11-13 for fishing industry value from 2002 to 2006.

Table 5.11-13: Strait of Canso Fishing Industry Value 2002-2006

District	Community	Total Value (\$)				
		2002	2003	2004	2005	2006
9	Arichat	1,330,269	2,876,778	2,874,667	2,991,417	4,038,814
	Bear Island	0	0	1,828	0	0
	Martinique	0	56,604	79,758	40,370	79,799
	Petit de Grat	12,256,329	11,611,289	11,922,542	7,451,323	3,923,335
	Poirierville	84,759	639,116	*	713,633	*
	River Bourgeois	91,281	178,008	*	450,719	512,819
	St. Peters	66,076	159,333	342,632	652,334	774,288
	West Arichat	17,535	43,156	*	*	*
	Other Ports (5 in Dist. 9)	90,871	225,094	759,263	580,851	1,160,297
9 Total		13,937,121	15,789,379	15,980,689	12,880,648	10,489,351
14	Guysborough	0	*	115,560	176,075	266,512
	Mulgrave	8,496,687	4,652,190	*	1,009,422	1,856,739
	Sand Point	135,369	172,714	356,167	651,901	919,192
	Other Ports (8 in Dist. 14)	124,925	199,512	182,503	178,922	286,700
14 Total		8,756,981	5,024,416	654,230	2,016,320	3,329,142
15	Canso	6,158,653	9,036,117	6,905,647	7,146,326	7,322,567
	Half Island Cove	*	*	58,949	81,548	*
	Larry's River	2,181,479	2,134,817	1,881,491	1,027,003	1,050,283
	Little Dover	1,571,809	1,588,477	1,761,306	2,622,162	3,163,042
	Port Felix	217,902	348,837	320,362	540,715	575,704
	Queensport	74,906	71,994	*	384,489	383,646
	Torbay	95,533	264,293	*	*	*

Table 5.11-13: Strait of Canso Fishing Industry Value 2002-2006

District	Community	Total Value (\$)				
		2002	2003	2004	2005	2006
	Whitehead	1,869,469	3,128,940	2,903,132	1,293,065	2,098,848
	Other Ports (4 in Dist. 15)	182,351	256,164	498,782	663,836	971,477
15 Total		12,352,101	16,829,638	14,329,669	13,759,146	15,565,565
Grand Total		35,046,202	37,643,433	30,964,588	28,656,113	29,384,058

Source: Fisheries and Oceans Canada 2007, AMEC Interpretation

Notes: * indicates that data on this community have been included in Other Ports for confidentiality reasons. 2006 data are based on preliminary landings and associated estimated value.

The value of commercial catches in the Strait of Canso Area was also decreasing between 2002 and 2005 along with the number of fishers and vessels. Consistent with these other factors, the value of commercial fishing catches increased 2006 (Fisheries and Oceans Canada 2007).

5.11.5.2 Seafood Processing

There are no seafood processing facilities in the Primary Study Area near Melford (V. MacDonald pers. com.). Premium Seafoods is a seafood broker with a fish plant located at Arichat on Isle Madame. Premium Seafoods buys shrimp, crab, and lobsters from Cape Breton County and Richmond County commercial fishers. The company processes crab and groundfish and exports fresh shrimp and live lobsters. Between eighty-five and ninety percent of the seafood arrives by vessel and the rest by truck. All products are shipped out by truck. Premium Seafoods also offloads fishing boats and can handle up to six fishing vessels per day and operates year-round (Woodrow pers. com.)

Seafreez Foods Inc. in Canso is inactive. It used to process shrimp and crab year-round but closed in 2007 due to lack of supply. When the plant was operating 100 percent of shrimp and 85 percent of crab arrived by vessel. The rest came by truck and all products were shipped out by truck (Peitzche pers. com.).

5.11.5.3 Aquaculture

Currently, there are no active aquaculture projects in the Strait of Canso (Bent pers. com.). However, there is one site, located near Sand Point about 6 km east of the project area on Chedabucto Bay, which grows Atlantic salmon and rainbow trout and an inactive aquaculture site off Melford. There are five aquaculture sites on the southwest side of Isle Madame. Four of these produce shellfish such as blue mussels, sea scallops, and American oysters. The remaining farms raise Atlantic salmon and rainbow trout (www.gov.ns.ca/fish/aquaculture).

Conclusions

While there is a significant fishing industry operating out of the Strait of Canso activity is limited in the Primary Study Area - several Lobster fishermen place traps near Melford. Also, there is no fish processing or aquaculture in the Primary Study Area. However, there are 278 registered fishing vessels and an active seafood brokering and processing business in the Strait area. There is one aquaculture site located near Melford in the direction of Chedabucto Bay and several located on the Strait of Canso side of Isle Madame.

5.11.6 Physical Infrastructure

Study Area physical infrastructure is described in the following sections. Ground, marine and air transportation are included, as well as solid waste management, water and wastewater management, public utilities, and communications (Figure 5.11-9).

5.11.6.1 Transportation

The Primary Study area is currently accessed by road and sea. There is an abandoned railway line that connects to the Cape Breton & Central Nova Scotia Railway.

5.11.6.1.1 Ground Transportation

Roads

The principal highway connecting to Melford is Route 344. As a provincial collector, it has two-lanes and unlimited access. Route 344 begins at Boylston south of Guysborough and connects to Provincial Highway 104 at the Canso Causeway (www.targetnovascotia.com).

The Nova Scotia Department of Transportation and Public Works locates counters on highways to record traffic patterns. Table 5.11-14 presents the results of analysis of data collected on Route 344 in 2003 and 2005 (NS Department of Transportation and Public Works 2007).

Table 5.11-14: Traffic Counts on Route 344

Location	Dates	Average Daily Traffic	Weekday Peak	Weekend Peak
Just South of Highway 104	8/28/03 - 9/4/03	1,860	12:00 noon	12-1:00 pm
Mulgrave	5/18/05 - 5/25/05	1,990	4-5:00 pm	10:00 am-5:00 pm
Just South of Melford	5/18/05 - 5/25/05	290	12-5:00 pm	1-2:00 pm
1 km South of Port Shoreham	5/18/05 - 5/25/05	370	3-5:00 pm	12-1:00 pm

Source: NS Department of Transportation and Public Works 2007, AMEC Interpretation

Route 344 is busiest at the intersection of Highway 104 and Mulgrave, both near the Canso Causeway. In addition, peak traffic periods on the Highway are typically mid day to mid afternoon on weekdays and mid day on weekends.

Rail

Melford is approximately 13 km from the Cape Breton & Central Nova Scotia Railway (CB&CNSR). The CB&CNSR is a short-line running from Truro to Sydney and is a feeder line for the CN mainline, servicing Canada and North America (www.targetnovascotia.com).

Transportation Services

Due to the current level of industry in the Strait of Canso area, the Study Area has well developed support services. Courier (~15) and taxi (~10) services are available in major communities in the Study Area (Guysborough, Canso, Port Hawkesbury, and Antigonish). Nearly 20 companies offer trucking services throughout the Study Area (Appendix 5.11-B)

The presence of taxi services is strongest in Antigonish, the single largest community in the Study Area, where there is a significant university student population. Acadian Bus line operates daily service throughout Nova Scotia. Stops in the Study Area include, Antigonish, Auld's Cove, Port Hawkesbury and St. Peter's (www.smtbus.com). There are two companies offering bus

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charter services (www.smtbus.com, www.canada411.com). The only car rental agency in the Study Area is Avis in Antigonish (www.avis.com).

5.11.6.1.2 Marine Transportation

The Canso Causeway prevents ice from entering the Strait of Canso resulting in a large year-round navigable harbour. The Strait is 30 km long, up to 2 km wide, and up to 27 m deep (www.straitsuperport.com). The Melford berthage has water depths of 27m close to shore (www.targetnovascotia.com).

The 570 metre long by 24 metre wide Canso Canal includes a ship lock, which allows the passage of sea-going traffic. A 93 m swing bridge passes over the Canal at the northern end of the causeway, enabling large ships to pass through (www.transcanadahighway.com). Between 22,000 and 27,000 vessels (all under 24 m) use the Canso Canal annually (Benoit pers. com.).

In 2006, there were around 1,300 commercial vessel trips (650 vessels) through the Strait of Canso. These included dry/liquid bulk carriers including super tankers as well as smaller container ships carrying materials such as gravel and gypsum to the Maritimes and Eastern Canada. Also in 2006, the Canadian Coast Guard recorded 637 pleasure crafts in the Strait of Canso. These included small boats of all types along with seven cruise ships (Keltic Petrochemicals 2006).

The port of Mulgrave, located on main land Nova Scotia, has three berthage sections ranging from 80 m to 200 m in length. Point Tupper Terminals is located on the Cape Breton side of the Strait. The port has five terminals ranging from 164 m to 585 m and servicing local industrial facilities (www.targetnovascotia.com). Other terminals in the Strait include;

- Martin Marietta Materials Bulk Terminal used for aggregate and coal;
- Mulgrave Marine Terminal used for salt, fish, forestry and offshore servicing;
- Georgia Pacific Corporation Terminal used for gypsum;
- Federal Gypsum Dock used for gypsum and wallboard;
- NewPage Corp. (formerly Stora Enso Limited) Terminal used for newsprint and other papers;
- Statia Terminals Canada Inc. used for petroleum products;
- The Canso Ship Lock allows vessels under 80 ft to cross to the Gulf of St. Lawrence; and
- Port Hawkesbury Pier which serves small boats, pleasure craft, and cruise ships.

Under the *Canada Shipping Act*, the federal government is responsible for establishing, monitoring, and enforcing marine traffic and vessel regulations and procedures. Associated regulations govern all vessel activities in Vessel Traffic Services Zones.

Vessel traffic in the Strait of Canso is managed by Canadian Coast Guard's Strait of Canso and Eastern Approaches Vessel Traffic Services Zone which is operated by the Marine Communications and Traffic Services (MCTS) Division (known as Canso Traffic) located at the Coast Guard College in Sydney, Nova Scotia. The Canadian Coast Guard College also offers a six-month basic education course in MCTS (www.pac.dfo-mpo.gc.ca).

Canso Traffic tracks, monitors, and regulates commercial traffic in the Strait of Canso. It also monitors fishing vessels that appear on radar or report via VHF radio. Vessels operate within a prescribed traffic zone which includes all waters south of Canso Canal North Lock gate to the eastern approaches of Cape Canso (www.ccg-gcc.gc.ca). International Maritime Organization

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(IMO) has approved extending the controlled vessel traffic lanes inside Chedabucto Bay but Transport Canada has not yet implemented the changes (Ozon pers. com.).

All ships of 500 plus gross tonnes, vessels engaged in pushing or towing another vessel where the combined gross tonnage is 500 tonnes or more, and all ships carrying pollutants or dangerous goods or those engaged in pushing or towing a vessel carrying those substances are subject to the current *Eastern Canada Vessel Traffic Services Zone Regulations*. Also, all ships of 20 metres or more in length, all ships engaged in pushing or towing a vessel or object (other than fishing gear) where the combined length is greater than 45 metres, and where the length of the vessel or object being pushed or towed is more than 20 metres, are subject to the *Vessel Traffic Services Zone Regulations* for the local area. These vessels are required to report to the MCTS centre for traffic clearance prior to entering, departing, conducting certain manoeuvres, or proceeding following a breakdown within a vessel traffic services zone. The Regulations do not apply to pleasure yachts less than 30 metres in length and fishing vessels less than 24 metres in length (www.ccg-gcc.gc.ca).

5.11.6.1.3 Air Transportation

The only commercial airport within the Study Area is located 3 km east of Port Hawkesbury. It has 5,000 ft of all weather runway and can accommodate corporate and commercial aircraft up to a Boeing 737. Given the number of aircraft that are likely to frequent the facility, Port Hawkesbury Airport has excess capacity (www.targetnovascotia.com).

The airport is home to 6-8 privately owned, and one commercially owned, aircraft. It also serves charter services from eastern Canada and the United States, as well as business and government owned aircraft (www.porthawkesbury.straitareaonline.com).

Within the Study Area there are several helipads. Generally used for medical emergencies, the helipads are located at the following sites:

- Antigonish Helipad, located at St. Martha's Regional Hospital;
- Inverness Helipad, located at the Inverness Consolidated Memorial Hospital;
- Cleveland Helipad, located at the Strait-Richmond Hospital;
- Arichat Helipad, located at St. Anne's Community and Nursing Care Centre; and
- Canso Helipad, located at the Eastern Memorial Hospital.

There are also community helipads in Mabou, Port Hood, West Lake Ainslie, and Whycocomagh (www.gov.ns.ca/ehs, Muir pers. com.).

5.11.6.2 Drinking Water, Wastewater, and Solid Waste Management

Drinking Water

Nova Scotia has introduced a new strategy for the management of drinking water. Currently in the Province all municipal water utilities have consistent approval requirements for water treatment and operator certification. In 2003, all municipal utilities were issued the requirements for ensuring that the public receives clean and safe drinking water. The municipalities have until 2008 to meet the new standards contained in their operation approvals.

Since initiation of the new drinking water strategy, about 1,800 small public drinking water supplies have been registered with Environment and Labour. The operators are required to regularly monitor drinking water quality, to immediately report the presence of coliform bacteria or other deviances from the guidelines, and to take corrective action to remediate the problem (NS Department of Environment and Labour, Air, Land and Water Division 2005).

Within the Study Area there have been a number of recent upgrades to drinking water systems including those of St. Peter's, Samsonville, Mulgrave, Orangedale, Canso, and St. Andrew's (www.cnsinfrastructurecne.ca).

There are large scale water supplies in the Melford area. Englands Lake reservoir, constructed in the Melford Industrial Reserve in 1975, produces 9.4 MGPD (US) safe yield of fresh water per day. The privately operated Goose Harbour Lake reservoir produces 21 MGPD (targetnovascotia.com).

The Great and Summer Lakes system supplies water to the nearby Town of Mulgrave. This system has a combined safe yield of 500,000 GPD and is treated by the town water treatment plant. Current usage of the system is an average daily flow of 350,000 GPD indicating sufficient capacity for future water demands (www.targetnovascotia.com).

Wastewater Treatment

Several municipalities have made investments in wastewater collection and treatment systems. These include Mulgrave, Antigonish, Port Hastings, and Port Hawkesbury (www.cnsinfrastructurecne.ca). There are no wastewater collection or treatment systems in the Melford Industrial Reserve, with the responsibility being left to the tenant (www.targetnovascotia.com).

Solid Waste

In 1995 the Province of Nova Scotia introduced new solid waste regulations with a 50 percent reduction target for waste disposal. The Province's Resource Recovery Fund Board (1996) now provides directional and financial support for programs that divert tires, household hazardous waste, paint, derelict vehicles, cardboard, and newsprint as well as beverage containers (www.fffb.com).

Municipalities are required to offer, and enforce compliance with, waste diversion programs in their areas. These programs are supported by RRFB through a results-based waste diversion credit system. Most areas of the Province have aggressively pursued government-supported waste reduction and diversion programs and have exceeded diversion targets (Kenney pers. com.).

To administer the solid waste diversion programs, the Province was divided into seven regions. Region 1, Cape Breton, includes part of the Study Area. Region 2 or Eastern covers the Municipality of the District of Guysborough, the Municipality of the County of Antigonish, and the Town of Antigonish (www.gov.ns.ca/enla/waste).

Some municipalities within the Study Area are the last remaining parts of the Province to implement full waste diversion systems. However, progress is being made. Appendix 5.11-C lists the agencies that are responsible for solid waste diversion and collection in the Study Area and the services that they offer to residential and commercial sectors (Kenney pers. com.). The County of Guysborough has the only 2nd generation landfill in all of south-eastern Nova Scotia.

5.11.6.3 Public Utilities

Nova Scotia Power provides electrical power to the entire Province. High capacity electrical lines service the proposed project site. Target Nova Scotia emphasises that excess electrical power is available in the Study Area. The Point Tupper generation plant, which serves the Melford Industrial Reserve, was designed for greater power generation and could be expanded

to meet needs. Other generation plants that serve other parts of the Study Area also have sufficient capacity to accommodate additional demand and new industrial developments (www.targetnovascotia.com). Within the Melford Industrial Reserve, Black River Hydro operates a 220 kilowatt hydro-electric plant that feeds into the provincial grid (www.blackriver.ns.ca).

5.11.6.4 *Communications*

Many parts of the Study Area are served by high speed internet. Several municipalities and development agencies have partnered with service providers to expand services to rural communities in Inverness, Richmond, Antigonish, and Guysborough Counties (www.gov.ns.ca/econ). High speed internet is available along Highway 344 in the Primary Study Area (www.gcrda.ns.ca). Public internet access is available through at least 35 C@P sites in the Study Area (www.nscap.ca). The Government of Nova Scotia has committed to providing highspeed internet access to every resident of Nova Scotia by the end of 2009 (www.gov.ns.ca/econ).

Local, long distance, and cellular telephone service in the Study Area is provided by Bell Aliant. East Link offers similar telephone services in the Antigonish and Heatherton areas. It will also supply other parts of the Study Area through its recent acquisition of RuSh Communications Ltd., which operates in Port Hawkesbury, Canso, Mulgrave, Port Hood, Richmond County, and along Trunk 19 in Inverness County (www.eastlink.ca).

Cable television is provided by East Link. The company provides digital and premium cable packages (www.eastlink.ca).

Conclusions

The Primary Study Area is served by a road system linking to the nearby Trans Canada Highway. The area is also close to the Cape Breton & Central Nova Scotia Railway which links into the Canadian National Railway at Truro. The area has no public transportation services but is served by private bus, trucking, taxi, and courier services. Vehicle rentals are limited.

The Strait of Canso is busy with 1,300 commercial vessel trips recorded in 2006. Between 22,000 and 27,000 smaller vessels use the Canso lock system each year. There were also more than 600 pleasure crafts using the Strait in 2006. Nearly 700 fishing vessels were registered to harbours in the Strait area. Marine traffic is managed by the Canadian Coast Guard's Marine Communications and Traffic Services in Sydney.

Port Hawkesbury is home to the only commercial airport in the Study Area. There are also nine hospital or community helipads located in the Study Area.

Nova Scotia communities are served by protected and treated drinking water supplies. The Melford Industrial reserve has a large water reservoir. There are no wastewater collection or treatment systems in the Industrial Reserve. Solid waste and recycling systems in the Study Area are not on par with the rest of the Province of Nova Scotia.

Adequate power supply is available as the Point Tupper generating plant has excess capacity. There is also a small scale hydro generating plant located in the Melford Industrial Reserve. Many parts of the Study Area are served by high speed internet services. Cellular phone service is widely available as is cable television.

5.11.7 Municipal and Social Services Infrastructure

Municipal and Provincial Governments provide a variety of support services to residents of the area.

5.11.7.1 Land Administration

The Government of Nova Scotia requires municipalities to plan development in their areas. In the Study Area, development is controlled in all areas except for several small areas of Antigonish County (Bain pers. com.). Table 5.11-15 shows the organizations responsible for land use planning and their areas of jurisdiction.

Table 5.11-15: Study Area Land Use Planning

Planning Authority	Jurisdiction
Municipality of the District of Guysborough	Eastern Guysborough County from Boylston to Auld's Cove excluding the Towns of Canso and Mulgrave
Eastern District Planning Commission	Areas of Antigonish, Inverness, and Richmond Counties, and the Town of Port Hawkesbury
Town of Antigonish	Antigonish Municipal Area
Town of Canso	Canso Municipal Area
Town of Mulgrave	Mulgrave Municipal Area

Source: www.gov.ns.ca/snsmr, AMEC Interpretation

Within the Study Area, land use planning direction is provided by five entities. The proposed project site at Melford is within the Municipality of the District of Guysborough.

5.11.7.2 Housing, Property Value, and Accommodations

The Primary Study Area residential stock is single family housing made up of mainly older two-storey homes, along with bungalows and mobile homes. These homes are serviced by private wells and on-site disposal systems. The only multiple family unit is a six-unit apartment building in Boylston (Municipality of the District of Guysborough).

Statistics Canada's 2006 Census offers current information on housing numbers and occupancy rates for Canadian municipalities and Census Subdivisions (see Table 5.11-16).

Table 5.11-16: Study Area Private Dwellings 2006

Town/Census Subdivision	Total Private Dwellings	Private Dwellings Occupied by Usual Residents	Private Dwellings Not Occupied by Usual Residents	Occupancy Rate
Municipality of the County of Antigonish Subdivision A	3,697	2,894	803	78%
Municipality of the County of Antigonish Subdivision B	2,763	2,393	370	87%
Municipality of the District of Guysborough	2,889	2,042	847	71%
Municipality of the County of Inverness Subdivision B	2,591	2,072	519	80%
Municipality of the County of Inverness Subdivision C	2,068	1,423	645	69%
Municipality of the County of Richmond Subdivision A	2,013	1,682	331	84%

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Table 5.11-16: Study Area Private Dwellings 2006

Town/Census Subdivision	Total Private Dwellings	Private Dwellings Occupied by Usual Residents	Private Dwellings Not Occupied by Usual Residents	Occupancy Rate
Municipality of the County of Richmond Subdivision C	1,590	1,383	207	87%
Town of Antigonish	2,382	1,828	554	77%
Town of Canso	429	377	52	88%
Town of Mulgrave	384	353	31	92%
Town of Port Hawkesbury	1,492	1,391	101	93%
Total	22,298	17,838	4,460	80%

Source: www.statcan.ca, AMEC Interpretation

Statistics Canada Definition: The concept of Household applies to a person or group of person who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada or abroad. The dwelling may be either a collective dwelling or a private dwelling. The household may consist of a family group such as a census family, of two or more families sharing a dwelling, or a group of unrelated persons or of a person living alone. Household members who are temporarily absent reference day (e.g., temporary residents elsewhere) are considered part of their usual household.

The 2006 Census indicates that there were a total of 22,298 private dwellings in the Study Area. Of these, 17,838 were occupied by the usual residents and 4,460 were not occupied by the usual residents (www.statcan.ca). The vacancy rate in the Study Area is 20 percent and almost 30 percent in the Municipality of the District of Guysborough indicating that housing is available.

See Table 5.11-17 for housing value in the Study Area.

Table 5.11-17: Study Area Average Value of Dwellings 2001

Geographic Area	Value
Municipality of the County of Antigonish, Subdivision A	\$99,776
Municipality of the County of Antigonish, Subdivision B	\$76,692
Municipality of the District of Guysborough	\$57,104
Municipality of the County of Inverness, Subdivision B	\$82,401
Municipality of the County of Inverness, Subdivision C	\$86,875
Municipality of the County of Richmond Subdivision A	\$77,030
Municipality of the County of Richmond Subdivision C	\$65,701
Town of Antigonish	\$114,595
Town of Canso	\$42,936
Town of Mulgrave	\$62,663
Town of Port Hawkesbury	\$91,716
Study Area	\$77,954
Nova Scotia	\$101,515

Source: www.statcan.ca, AMEC Interpretation

The 2006 Census data that describes property value has not yet been released. Therefore, 2001 data is used in this report. The average value of a home in the Study Area is almost \$78,000, which is more affordable than an average home in the Province which is valued at more than \$101,500. Within the Study Area, housing value ranges from nearly \$43,000 in the Town of Canso to \$114,500 in the Town of Antigonish. In the part of the Study Area nearest to the proposed project site at Melford, homes sell for the lowest price in the Study Area. The

average value of a dwelling in the Municipality of the District of Guysborough was slightly over \$57,000 (www.statcan.ca).

Temporary Housing

The 2007 Nova Scotia Doers' and Dreamers' Guide lists 139 hotels, motels, cottages, B&B's, RV parks, and camp grounds in the Study Area (Appendix 5.11-D). The total number of rooms is 904, along with 1,063 cabin units, and 654 camping or RV sites. Therefore there are a significant number of temporary housing units within the larger Study Area. However, only 19 of these facilities (with 303 rooms and 27 cottages) are open year-round and within a 50 km driving distance from the proposed project site (www.gov.ns.ca.dtc). Note that these figures do not include rooming houses that may be available.

In Nova Scotia there are no laws against camping along roadways. The Wilderness Areas Protection Act states that cutting and removing vegetation, clearing brush, and levelling ground is prohibited. Signs may be posted in areas forbidding camping (www.gov.ns.ca/enla/protectedareas).

For tourism promotion, the Provincial Government has divided Nova Scotia into seven regions. The Study Area intersects with Marine Drive in Guysborough County, the Sunrise Trail in Antigonish County, and Cape Breton Island. Cape Breton is subdivided into several tourism areas including the Ceilidh Trail in Inverness County and the Fleur-de-lis in Richmond County, both of which are in part located in the Study Area (www.novascotia.com).

For statistical purposes, Nova Scotia reports tourism activity for the following areas that somewhat coincide with the Study Area. These are Cape Breton, Eastern Shore, and Northumberland Shore. Tables 5.11-18, 5.11-19 and 5.11-20 present occupancy rates for fixed roof accommodations and campsites in the Eastern Shore, Cape Breton and Northumberland Shore areas (www.gov.ns.ca.dtc).

Table 5.11-18: Eastern Shore Fixed Roof and Campground Occupancy Rates

Parameter	2000	2001	2002	2003	2004	2005	2006
Room Nights Sold	28,900	26,800	27,000	23,600	23,400	21,700	20,400
Room Occupancy Rate	43%	41%	43%	38%	37%	31%	30%
Seasonal Campsites Nights Sold	10,000	9,600	12,300	10,700	10,300	NA	NA
Short-term Campsite Nights Sold	25,600	25,200	26,700	23,000	17,000	NA	NA
Campsite Occupancy Rate	33%	33%	34%	31%	32%	NA	NA

Source: www.gov.ns.ca.dtc, AMEC Interpretation

Table 5.11-19: Cape Breton Fixed Roof and Campground Occupancy Rates

Parameter	2000	2001	2002	2003	2004	2005	2006
Room Nights Sold	448,000	429,400	446,500	423,000	417,100	410,000	396,600
Room Occupancy Rate	51%	49%	49%	47%	46%	44%	43%
Seasonal Campsite Nights Sold	67,400	72,600	77,000	79,000	77,200	NA	NA
Short-term Campsite Nights Sold	91,100	89,700	91,300	82,600	79,000	NA	NA
Campsite Occupancy Rate	37%	39%	42%	40%	39%	NA	NA

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Source: www.gov.ns.ca.dtc, AMEC Interpretation

Table 5.11-20: Northumberland Shore Fixed Roof and Campground Occupancy Rates

Parameter	2000	2001	2002	2003	2004	2005	2006
Room Nights Sold	143,500	146,100	152,000	149,200	150,900	189,500	182,700
Room Occupancy Rate	53%	48%	48%	44%	43%	42%	42%
Seasonal Campsites Sold	41,700	43,800	45,700	46,100	47,100	NA	NA
Short-term Campsite Nights Sold	36,500	37,300	38,600	35,900	34,800	NA	NA
Campsite Occupancy Rate	34%	36%	36%	37%	37%	NA	NA

Source: www.gov.ns.ca.dtc, AMEC Interpretation

While there appears to be more than 50 percent vacancy in these areas, the pattern is seasonal. During summer, peak tourist season, the vacancy rate will be low and in the off season it will be high. It is also likely that a number of facilities will close in the winter months.

5.11.7.3 Public Health and Acute Care Services

The Guysborough Antigonish Strait Health Authority (GASHA) delivers services to Health District 7, one of nine district health authorities in the Nova Scotia. GASHA serves the Counties of Antigonish, Guysborough, Richmond, and part of Inverness. It covers the Study Area plus the Municipality of the District of St. Mary's (the remainder of Guysborough County outside of the Study Area). In Inverness County, GASHA manages healthcare in communities from the Strait of Canso to Port Hood (www.gasha.nshealth.ca). Therefore, while District 7 does not cover a portion of the Study Area from Mabou to Inverness, data will be appropriate to analyse the existing health care and health status of the region.

Public Health Services

GASHA and Cape Breton District Health Authority together provide public health services to both regions through six delivery offices. Services include communicable disease control, maternal and child health, school health, chronic disease prevention including tobacco cessation, as well as promoting healthy eating and increased physical activity. GASHA also operates youth health centres in Arichat, Antigonish, and Guysborough Village (GASHA 2007).

Addiction services are also offered jointly between the two health authorities through two offices and a 10 bed detoxification unit in the Strait Richmond Hospital. Residents are offered support for prevention and treatment of gambling, along with drug and alcohol abuse. These health care authorities also support a 20 bed recovery house in Antigonish (GASHA 2007). Table 5.11-21 shows the number of full time equivalents of staff delivering public health and addictions services in the GASHA's area.

Table 5.11-21: Regional Public Health and Addictions Staff (Full Time Equivalents)		
Staff	Public Health	Addictions
Nurses	10	1
Nutritionists	3	
LPN's	2	
Health Educators	2	
Clinical Therapists		4
Outreach Workers		6
Prevention Workers		1
Counsellors		1
Management/Administration	5.5	4
Total	22.5	17

Source: GASHA 2007, AMEC Interpretation

There are 22.5 full time equivalents in public health and 17 full time equivalents in addictions. There are currently no wait lists for programs. (GASHA 2007, K. MacDonald pers. com.).

Acute Care Services

Within the GASHA health service district, there are five hospitals: Strait Richmond Hospital in Cleveland near Port Hawkesbury; Eastern Memorial Hospital in Canso; Guysborough Memorial Hospital in Guysborough; St. Martha's Regional Hospital in Antigonish, and St. Mary's Memorial in Sherbrooke. All of these hospitals have 24-hour emergency services. Four of the five hospitals that serve District 7 serve the population of the Study Area (GASHA 2007).

Strait Richmond Hospital

Strait Richmond Hospital provides services in diagnostic imaging, EKG, emergency, laboratory, mental health, nutrition and dietetic counselling, occupational therapy, physiotherapy, social work, general surgery, hospice palliative care, internal medicine, ophthalmology, orthopaedics, paediatrics, rheumatology, and vascular surgery. The facility also offers hearing and speech services.

Eastern Memorial Hospital

Eastern Memorial Hospital offers services in diagnostic imaging, EKG, emergency, hospice palliative care, laboratory, mental health, physiotherapy, and social work. The hospital also houses offices for addictions services and public health.

Guysborough Memorial Hospital

Guysborough Memorial Hospital delivers services in diagnostic imaging, EKG, emergency, hospice palliative care, laboratory, mental health, nutrition and dietetic counselling, physiotherapy, and social work. The facility also houses offices for addiction services and public health.

St. Martha's Regional Hospital

As a regional hospital, St. Martha's offers a wide range of services including cancer and supportive care, cardio-respiratory, diagnostic imaging, emergency, geriatric assessment and rehabilitation, gynaecology, hospice palliative care, internal medicine, laboratory, mental health, mental health outpatient, obstetrics, occupational therapy, ophthalmology, otolaryngology, pathology, physiotherapy, plastic surgery, social work, and spiritual and religious care. The hospital also provides other services such as several clinics and offices for addictions, public health, and hearing and speech therapy. St. Martha's is the only accredited trauma response centre outside of Halifax, the Capital Health Care district (GASHA 2007).

Table 5.11-22 compares the number of acute care hospital care beds with the actual available.

Table 5.11-22 Acute Care Hospital Beds in the Study Area			
Institution	Actual	Requirement	Shortfall
Strait Richmond	20	20	0
St. Martha's	91	107	16
Guysborough Memorial	10	10	0
Eastern Memorial	8	48	0
Totals	129	145	16

Source: GASHA 2007, AMEC Interpretation

In all facilities but one, demand is met. St. Martha's, the regional hospital in Antigonish, has a current shortage of sixteen beds. There have also been challenges in finding enough family physicians to receive new patients in Antigonish County (GASHA 2007).

Within Health District 7, there are also 61 nursing home beds, 40 residential care facility beds and 6 respite beds (NS Department of Health 2005).

Table 5.11-23 shows nursing, technical, and medical requirements and shortfalls in the region,

Table 5.11-23: Regional Nursing, Technical and Medical Staff

Staff	Strait Richmond			St. Martha's			Guysborough Memorial			Eastern Memorial		
	R	A	S	R	A	S	R	A	S	R	A	S
Nursing	30.0	30.1	0	180.5	199.2	0	16.9	16.5	1	12.3	12.3	0
Technical	15.5	14.5	1	61.0	62.5	0	3.1	3.6	0	2.8	2.8	0
Medical	9.0	8.0	1	60.0	56.0	4	3.0	2.0	1	2.0	2.0	0
Total	54.5	52.6	2	301.5	317.7	4	22.97	22.1	2	17.1	17.1	0

Notes: R=Requirement, A=Actual, S=Shortfall.

Source: GASHA 2007, AMEC Interpretation

The greatest staff shortage is for physicians at St. Martha's, Antigonish. Guysborough Memorial is lacking two staff – one nursing and one medical. Strait Richmond has a current need for one staff member in each of technical and medical areas. Eastern Memorial in Canso is fully staffed.

Table 5.11-24 presents regional and provincial health service indicators,

Table 5.11-24: Regional and Provincial Health Service Indicators

Health Service Indicator	DHA 7, 2004	Nova Scotia, 2007
Physicians per 10,000 population	17-18.9	24.00
Registered Nurses per 10,000 population	80-99.9	99.00

Sources: NS Department of Health 2006, www.doctorsns.com, www.crnns.ca, AMEC Interpretation

The area served by the Guysborough Antigonish, Strait Health Authority has fewer physicians than the provincial average. The number of nurses serving the area is between 80 and 99.9 per 10,000 people and compares fairly favourably with the provincial rate of 99 per 10,000 people (NS Department of Health 2006, www.doctorsns.com, www.crnns.ca).

Table 5.11-25 presents data for several inpatient service areas for District 7, GASHA.

Table 5.11-25: Regional Health Service Capacity 2005-06

GASHA Health Care Inpatient Area	Subscription
Mental Health Psychiatric	81%
Addictions Services	81%
Medical/Surgical Intensive Care	85%
Obstetrical Nursing Maternal	83%
Obstetrical Nursing New Born	48%

Source: NS Department of Health 2006, AMEC Interpretation

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As indicated, most services have about 20 percent capacity to handle additional inpatients (NS Department of Health 2006).

Within the Study Area, but located in Inverness County outside of the Health District 7, is Inverness Consolidated Memorial Hospital. The hospital serves Inverness and surrounding areas with 24-hour emergency care, 37 acute care beds, 11 long term beds. Historically, Inverness Consolidated has not had staffing issues. However, it is currently experiencing nursing staff shortages, and several members of its long serving medical staff are reaching retirement age (www.cbdha.nshealth.ca, MacArthur pers. com.).

5.11.7.4 Community Well-Being and Family Social Services

The health condition of the population of the Province of Nova Scotia and its regional health authorities is documented and compared to other areas by the NS Department of Health in its synthesis of the Canadian Community Health Survey. Several health indicators for Guysborough Antigonish Strait Health Authority (District 7) were chosen from that report for the purposes of documenting current health status (see Table 5.11-26).

Table 5.11-26: Regional Health Indicators

Indicator (2003 unless otherwise stated)	DHA 7	Nova Scotia
Breastfed / tried to breastfeed last child	64.90%	76.10%
Percentage of people physically active	22.20%	24.20%
Percentage of People Smoking	18.80%	23.10%
Incidence of Obesity (Class I, II, and III)	20.60%	20.60%
Incidence of mortality rates for females with cancer 2004	0.16%	0.16%
Incidence of mortality rates for males with cancer 2004	0.27%	0.24%
Prevalence of Diabetes	5.10%	5.50%
Cardiac Catheterizations per 100,000 of population 2004-05	205	274
Coronary Angioplasties per 100,000 of population 2004-05	83	116
Coronary Artery Bypass Graft per 100,000 of population 2004-05	53	62

Source: NS Department of Health 2005, 2006, AMEC Interpretation

Residents served by District 7 health authority exceed the Province in certain areas of health status. For instance, they smoke less and have a slightly lower instance of diabetes. Residents of this area have less cardiac catheterizations, coronary angioplasties, and coronary arterial bypass grafts. According to data collected by Cardiac Health Nova Scotia, District 7 residents not only have the lowest number of cardiac procedures in the province, but also the lowest rates of cardiac incidents, and the lowest cardiac mortality rates based on both in-hospital treatment periods and in the first year following treatment (L. MacDonald pers. com.). They have the same obesity rate, and similar cancer mortality rates as their provincial counterparts. However, residents of this area are less active than the average Nova Scotian and tend to breastfeed less (NS Department of Health 2005, 2006).

The provincial Department of Community Services delivers community and family social services in the Study Area. The Department offers services and information for children, youth and families, persons with disabilities, employment support and financial assistance, housing

and repairs. The Department has offices in Guysborough, Port Hawkesbury, and Antigonish (www.gov.ns.ca/coms).

Antigonish, the largest municipality in the area, provides many services to the Study Area. Within the community there are several homes for special care (nursing homes), senior citizen complexes, home care services and family counselling (www.targetnovascotia.com).

5.11.7.5 *Tourism, Culture, and Recreation*

The Primary Study Area Route 344 is part of Marine Drive which follows the coastline of Chedabucto Bay from Boylston to Auld's Cove at the Canso Causeway. There are several parks along the coast including Port Shoreham Provincial Park, Eddy Point Marine Park, and Venus Cove Marine Park. These facilities offer swimming, picnic areas, and floating docks for small boats (www.novascotia.com).

5.11.7.5.1 *Community and Cultural Events*

The Study Area offers a variety of community events including those that feature traditional and other types of music, local food, and outdoor activities. There is a high concentration of Gaelic, Scottish, and Celtic music events in Inverness County, especially around Mabou, Judique, and Port Hood. The whole of Cape Breton hosts the annual Celtic Colours International Festival each fall. Isle Madame communities hold several festivals mostly with Acadian music but also an Irish festival. The annual Stan Rogers Festival is held in Canso (NS Department of Tourism 2007).

A number of other communities hold music festivals or host summer long series of events. A number of community celebrations focus on local fare such as cod, crab, and lobster. Some events raise funds for local museums. A number of communities hold family fun days in various seasons.

Sailing is popular in the Cape Breton area and several sailing races are hosted in the area each summer. The Port Hawkesbury Civic Centre is large enough to host large sports events like the 2007 World Curling Tour. Antigonish offers variety such as classical music, a farmers market, and the annual Highland Games. The native community of Whycogamah hosts an annual PowWow (NS Department of Tourism 2007).

5.11.7.5.2 *Hunting and Angling*

The Department of Natural Resources manages hunting in Nova Scotia. Hunters are required to obtain a licence through a certified vendor. Open season for big game generally runs from late October to the end of November while the upland game season extends from October through December. Within the Study Area, three public shooting ranges are maintained by the Department. They are in Guysborough, Isle Madame, and Sporting Mountain (www.gov.ns.ca/natr/hunt).

Angling in Nova Scotia is administered by the Department of Fisheries and Aquaculture. Department of Natural Resources and Fisheries and Aquaculture district offices and vendors all over the Province sell fishing licences for one day or a full year. Salmon licenses are sold at Natural Resources offices, licensed outfitters, and several vendors. Residents and non-residents under the age of 16 do not require a licence except for salmon fishing. However, bag and season limits often apply (www.gov.ns.ca/fish/sportfishing).

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In Nova Scotia, speckled (brook) trout is the favoured species and it is found throughout the Province. Other commonly fished species include brown and rainbow trout as well as American Shad in the spring. Fishing for smallmouth bass, chain pickerel, white perch, and yellow perch are popular in summer. In the fall, trout fishing is common (NS Department of Tourism 2007).

5.11.7.5.3 Boating and Sailing

Within the Study Area there are several marinas. These take advantage of the many coves and inlets that make up the natural environment of the area. There are serviced marinas in Ballantyne's Cove, Arichat, D'Ecousse, Sand Point, Canso, Guysborough, Port Hawkesbury and Mulgrave offering docking space with fuel and water supply (NS Department of Tourism 2007).

5.11.7.5.4 Sport and Fitness

There are several sport and physical recreation complexes near the Primary Study Area. Within a short driving distance from the proposed project site, there are a variety of facilities in Mulgrave, Guysborough, and Port Hawkesbury. These include arenas, swimming pools, fitness centres, softball, baseball, football, and soccer fields, outdoor basketball and tennis courts, a gymnasium, racquetball courts, and a running track (www.gcrda.ns.ca, www.porthawkesbury.straitareaonline.com, www.townofcanso.com, www.townofmulgrave.ca).

Appendix 5.11-E provides the location of sports facilities proximate to the Primary Study Area. While no facilities are located in Melford, facilities are located as near as Mulgrave which is 13 km from the industrial site. Port Hawkesbury, located 28 km from Melford, has a wide variety of sport and recreation opportunities.

5.11.7.5.5 Provincial and Community Parks

There are a number of Parks and Protected areas in the Study Area. Boylston Provincial Picnic Park offers picnic and canoe facilities on Guysborough Harbour. The Sailors Rest Park in Canso has a picnic area with interpretive signage. A popular bird watching location exists at Queensport, Chedabucto Bay. There are also many look-out locations overlooking the Strait of Canso and Chedabucto Bay, located in Canso, Queensport, Mulgrave, and Halfway Cove (NS Department of Tourism 2007, 1). Appendix 5.11-F provides a list of Provincial parks and beaches in the Study Area.

None of the Provincial Parks and Beaches are located in the Primary Study Area or on the Strait of Canso. Port Shoreham Beach Park and Boylston Provincial Park are located nearest to Melford.

Table 5.11-27 outlines recreation activities in the Study Area.

Table 5.11-27: Study Area Activities

Activity Type	Name	Location
Diving	Causeway Diver Supply	Auld's Cove
	Easy Dive Canada	St. George's Channel, Richmond County
	Vollmer's Island Paradise	Janvrin Island Peninsula
Flying	Airmac Flight Centre	Port Hastings
Geology	Arisaig Provincial Park	Arisaig, Antigonish County
	Antigonish Golf Club	Antigonish

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Table 5.11-27: Study Area Activities

Activity Type	Name	Location
Golfing Golfing (cont'd)	Fiddlers Green Golf Course	Antigonish
	Osprey Shores Golf Resort	Guysborough
	Dundee Resort and Golf Club	Dundee
Hiking	Antigonish Landing Trail	Antigonish
	Cape George Hiking Trail	Cape George, Antigonish County
	Fairmont Ridge Hiking Trail	Antigonish County
	Cape Mabou Trail	Inverness
	Ceilidh Coastal Trail	Judique to Port Hastings
	Trans Canada Trail	Mabou/Inverness
	Cape Auguet Eco-Trail	Isle Madame
	Chapel Gully Trail	Canso
	Trans Canada Trail	Guysborough
Garden Touring	Tartan Gardens	Judique
Boat Touring	Lila & Mary C.	Inverness
Camping	East Coast Adventure Tours	St. Peter's

Source: NS Department of Tourism 2007, 1, AMEC Interpretation

There are a variety of outdoor activities that can be pursued by people living in the Study Area (NS Department of Tourism 2007).

Conclusions

Except for a small part of Antigonish County, all land use in the Study Area is controlled by Municipalities or the Eastern District Planning Commission.

The vacancy rate for private homes in the Study Area is 20 percent and 30 percent in the Municipality of the District of Guysborough. Homes in the Study Area sell for as little as \$43,000 in Canso and average at \$57,000 in the Municipality of the District of Guysborough. Vacancy rates for temporary accommodations in the region range between 30 and 43 percent. However, only 303 rooms and 27 cabins are open year round and within a 50 km driving distance from the proposed project site.

Public health is available throughout the Study Area with no waitlists for programs. The Study Area is served by four acute care facilities with an estimated shortfall of sixteen beds all at St. Martha's Regional Hospital in Antigonish. There is an estimated shortage of eight nursing, medical, and technical staff combined. Half of these vacancies are at St. Martha's. In this health service district there is 20 percent plus capacity in a variety of inpatient services.

Residents of the region have similar or lower rates of disease, interventions, and mortality than people in the rest of the Province. Residents of this area tend to smoke less than the average Nova Scotian but are reportedly less active. For positive use of leisure time as well as mental and physical health, this area has a variety of cultural, recreation, and fitness opportunities.

5.11.8 Emergency Services Infrastructure

Figure 5.11-10 shows the locations of safety and emergency services for the Study Area.

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Nova Scotia's Emergency Management Office coordinates Emergency Services for the Province. This agency organizes prompt and coordinated provincial government responses to emergencies and also ensures that the federal and municipal governments are engaged in emergency response work in accordance with agreed plans and procedures. The office also administers the province-wide 911 emergency reporting service as well as supporting ground search and rescue teams and providing emergency preparedness training (www.gov.ns.ca/ehs).

The Department of Health also has province-wide Master Emergency Response Plan (MERP) that describes how the Department of Health will coordinate information received from District Health Authorities in instances of emergency (MacDougall pers. com.).

GASHA (District 7) Health Authority has an emergency response plan which it tests at regular intervals. The agency has responded to several emergencies in the last several years – a school bus accident in a storm and an offshore helicopter crash. In the past they have played a role in managing industrial accidents including one at Stora Enso in Port Tupper (K. MacDonald pers. com.).

5.11.8.1 Policing and Crime Rates

Within the Region, the Royal Canadian Mounted Police (RCMP) has detachments in Antigonish, Guysborough, and Inverness, with smaller offices throughout the Study Area (Halliday pers. com.). The proposed project area at Melford is served by the Guysborough detachment (41 km from the site). Port Hawkesbury RCMP office is located 28 km from the Primary Study Area. Table 5.11-28 shows the number of police officers serving the Region.

Table 5.11-28: Study Area Police Services

Detachment	Offices	Officers
Inverness County	Inverness, Port Hawkesbury, Cheticamp, Whycocomagh	11
Guysborough County	Guysborough, Sherbrooke, Canso	11
Antigonish County	Antigonish Town and County Detachment	25.5

Sources: www.rcmp-grc.ca, McNeill pers. com., Halliday pers. com., Shermerhorn pers. com., AMEC Interpretation

Tables 5.11-29 and 5.11-30 show crime rates in the Cape Breton and Northern Nova Scotia regions.

Table 5.11-29: Number of Crimes in Cape Breton and North Central Region 2005

Geographic Area	Population	% of Total	Criminal Code Offences					
			Total Crimes	% of Total	Violent	Property	Other	Offences by Juveniles
Cape Breton Region	149,576	16%	12,447	16%	1,967	4,319	6,161	951
North Central Region	170,770	18%	14,168	18%	1,702	5,388	7,078	1,519
Province of Nova Scotia	940,000	100%	78,000	100%	10,920	33,540	33,540	6,781

Source: NS Department of Justice 2007, AMEC Interpretation

Note: Excludes drug offences.

Table 5.11-30: Crime Rate per 100,000 Population Cape Breton and North Central Region 2005

Geographic Area	Criminal Code Offences			
	Violent Crime Rate	Property Crime Rate	Other Criminal Code Rate	Offences by Juveniles
Cape Breton Region	1,315*	2,887	4,119*	7,600
North Central Region	997	3,155	4,145*	10,800*
Provincial Average	1,138	3,626	3,581	9,100

Source: Nova Scotia Department of Justice 2007, AMEC Interpretation

Note: Excludes drug offences. * indicates higher than Provincial Average

Residents of the Cape Breton Region appear to have higher rates of violent crime than the Provincial average, particularly so for juveniles (NS Department of Justice 2007). However, RCMP detachments in the region feel crime rates are not higher in this area and that the discrepancy may be do to how crime statistics are reported (Halliday pers. com., McNeil pers. com.).

5.11.8.2 Search and Rescue (SAR)

There are two search and rescue organizations within the Study Area. Members of the Strait Area Mutual Aid Ground Search and Rescue organization are experienced in ground and night searches. All members are trained in winter survival and other SAR techniques, with some members trained in search management and advanced first aid. The 200 volunteer member unit located in St. Peter's has a 42-foot mobile command unit, and a bus for debriefing, eating and sleeping (www.nss.gc.ca).

The Inverness Ground Search and Rescue organization, located in Inverness, has 36 volunteer members who are experienced in forest and night searches, as well as other SAR techniques. Some members are also trained in search management (www.nss.gc.ca).

5.11.8.3 Fire Safety

In the event of an emergency, local fire departments would be involved in the response effort. The nearest fire departments are at Mulgrave and Port Hawkesbury. The Mulgrave Volunteer Fire Department provides fire protection and first response emergency services to the Town of Mulgrave and surrounding area (www.targetnovascotia.com). The Port Hawkesbury Volunteer Fire Department has 40 firefighters and 3 pumper trucks. Appendix 5.11-G provides a list of the 32 other volunteer fire departments within the Study Area (www.townofantigonish.ca, www.porthawkesbury.straitareaonline.com www.rcbplan.ns.ca, www.municipality.guysborough.ns.ca).

5.11.8.4 Ambulance

In 1995, in order to provide consistent pre-hospital care to residents, the Nova Scotia Department of Health created Emergency Health Services (EHS) Nova Scotia. This agency replaced over 50 private and public ambulance operator services around the province. EHS also manages a provincial emergency preparedness plan that coordinates responses to extraordinary events (www.gov.ns.ca/ehs).

Within the Province of Nova Scotia, EHS has a fleet of 140 ground ambulances, one helicopter, and one airplane. Both aircrafts are stationed at Halifax Airport. EHS maintains ground ambulance bases in Canso, St. Peter's, Port Hawkesbury, Antigonish, Country Harbour, Inverness, and Baddeck, which service all residents of the Study Area (Maynard pers. com.).

5.11.8.5 Community Response Planning

Under the *Nova Scotia Emergency Management Act* (2005), municipalities are required to have an emergency plan which includes the following:

- 1) *establish and maintain a municipal emergency by-law;*
- 2) *establish and maintain a municipal emergency management organization;*
- 3) *appoint a co-ordinator of the municipal emergency management organization and prescribe the duties of the coordinator which shall include the preparation and coordination of emergency management plans for the municipality;*
- 4) *appoint a committee consisting of members of the municipal council to advise it on the development of emergency management plans; and*
- 5) *prepare and approve emergency management plans.*

5.11.8.6 Mutual Aid

For the purposes of emergency management, the Government of Nova Scotia has divided the Province into three zones and each zone is required to develop and sign a Mutual Aid Agreement. The East Zone, which covers Antigonish County east to Cape Breton County, includes the Study Area plus other areas. The East Zone's "Municipal Peacetime Emergency Management Mutual Aid and Assistance Agreement," which is in draft form, outlines municipalities' obligations and discretion to provide aid to its own citizens before others, procedures for requesting assistance, procedures for confirming assistance, designating supervisors for command and control, duration of assistance, reimbursement, employees rights and privileges, worker's compensation, and liability (Andrews pers. com.).

5.11.8.7 Marine Safety Services

The Strait of Canso has standard range lights and buoys for safe navigation. Atlantic Pilotage Authority provides pilot services to large vessels as required by federal regulations. As per federal regulations, Statia Terminals contracts Atlantic Towing to provide tug boat services exclusively for super tankers that enter and leave its marine terminal at Point Tupper (Benoit pers. com.).

Conclusions

Nova Scotia's provincial government departments, its municipalities, and health authorities have well organized emergency management, community response, search and rescue, and mutual aid systems. There are over 30 volunteer fire departments in the Study Area. The Mulgrave and Port Hawkesbury fire departments are nearest to the proposed project site. Marine safety measures prevent or reduce the incidents in the Strait of Canso.

Policing is provided by the RCMP throughout the Study Area. Crime rates in the Region are similar to that of the average in the Province.

5.11.9 Visual Aesthetics

Melford is located in the Municipality of the District of Guysborough, a rural area in Northern Nova Scotia. The most developed areas of this part of Guysborough County are residential and located along Route 16 and Route 344 (Municipality of the District of Guysborough).

The community is set on the shores of the Strait of Canso which is characterized by heavy industry. On the Cape Breton side, near Port Hawkesbury, is Point Tupper which is home to a

bulk oil storage and shipping terminal, a 150 mw coal-fired generating plant with a coal terminal and storage area, manufacturing and shipping infrastructure for a paper mill as well as a gypsum wall board plant, along with shipping terminals for an anhydrite mine, an aggregate mine, and several gypsum mines (www.straitsuperport.com).

These facilities (along with others in the Strait of Canso) generate approximately 1,300 commercial vessel trips in the Strait annually (Benoit pers. com.). These are in addition to many fishing vessels (278 registered in 2006) and pleasure crafts (637 recorded in 2006) that operate in the Strait each year (Fisheries and Oceans Canada and Benoit pers. com.).

Conclusions

The Strait of Canso, a busy industrial site with a number of stacks and towers, is 30 km long and 2 km across at its widest point. This makes the heavily developed Cape Breton side of the Strait along with associated industrial activities quite visible from Melford and surrounding areas.

5.11.10 Heritage Resources

The Study Area has a number of museums and historic sites located throughout.

There are 16 museums and two National Historic Sites. Only two of these are open year round and all the others operate seasonally, either summer or summer and fall (www.novascotia.com) (Appendix H). None of these are located in the Primary Study Area near Melford. Appendix I provides a list of other attractions in the Study Area.

5.11.10.1 Archaeology

An archaeological resource impact assessment was conducted by Davis Archaeological Consultants Limited from July to November 2007, under Category C Heritage Research Permit A2007NS48 as required under the Special Places Protection Act (*R.S., c. 438, s. 1*). The purpose of the assessment was to determine the potential for extant archaeological resources including historic, First Nations, and marine resources within the development area. The assessment included a historical background study and field survey of the proposed marginal wharf, intermodal rail yard, Logistics Park, and rail route. With the exception of civic address #186 (PID #35016443), private properties along Melford Loop were not accessible at the time of the survey. In addition, much of the current proposed rail and transmission corridor routes were not surveyed due to recent changes in the development plan, and will be surveyed during 2008 when the final alignment of the rail ROW is defined.

5.11.10.1.1 Methodology

Historical maps and manuscripts, aerial photographs, and published literature were consulted at the Public Archives of Nova Scotia and the Department of Natural Resources Library and Crown Land Information Management in Halifax. The Maritime Archaeological Resource Inventory at the Nova Scotia Museum, a provincial database of known archaeological sites, was also consulted as part of the desktop study. The Archaeological Potential Model: Mulgrave Plateau Integrated Management database was implemented to predict the archaeological potential of First Nations sites within the terminal study area. The Model is based on assigned values of stream order within the study area. The evaluation of stream order is based on a watercourse's hierarchical ranking within a network of streams and water bodies. The ranking of these water courses is based on their potential for supplying subsistence resources, both terrestrial and aquatic. The higher the stream order, the higher the potential for First Nations resources as

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higher order watercourses are typically more productive. Due to recent changes in the alignment of the proposed road and transmission corridors, the Mulgrave Model was not implemented for this area. Instead, a determination of First Nations archaeological potential will be made based on a field survey of the corridor development areas.

Data was also extracted from the Nova Scotia Shipwrecks Database at the Department of Tourism, Culture and Heritage to determine if there is any potential threat to heritage wrecks in the marine area. This inventory includes shipwrecks recorded as a result of recreational diving, archaeological assessments, and historic records of lost ships. An area approximately 4 kilometres wide along the shoreline and one kilometre out from the current shoreline was searched in the database.

Finally, archaeological surveys were conducted by Stephen Davis, April MacIntyre, and Heather MacLeod-Leslie in July, August, and November 2007. Several areas of historic cultural activity were noted within the development area and subsurface testing was conducted. Due to recent changes in the alignment of the proposed transmission and rail corridors, much of this portion of the development area was not surveyed.

5.11.10.1.2 Historic Background

The general area around Chedabucto Bay and the Strait of Canso was visited by Portuguese, Basque, Breton, and French fishermen in the seventeenth and eighteenth centuries. The head of Chedabucto Bay was the site of a late seventeenth century French fort and Acadians are believed to have been in the area up until the mid eighteenth century. There is no documented evidence of such land use directly in the development area.

Historical documentation has shown that the study area was occupied in the late eighteenth century by Loyalists refugees who took up farm lots in the development area. Any archaeological evidence of settlement during this period would likely be near the shore and along the roadway. However, by the middle of the nineteenth century, settlement began to expand in all directions and evidence of settlement may exist in the backlands as well. Several old roadways that were built into these backlands in the nineteenth century are still in existence. Therefore, the development area is believed to be of high potential for historic archaeological resources.

The precise location of documented Mi'kmaq settlement and the specific details of the relocation of St. James Anglican cemetery are not known and, therefore, the potential for archaeological resources related to these specific events within the development area is not known. However, predictive modeling for First Nations resources has indicated that there is moderate to high potential for such resources along several watercourses in and near the development area.

5.11.10.1.3 Findings

A number of site of archaeological interest were identified. The sites were evaluated and ranked as being of high, moderate, or low significance according to established standards of the Nova Scotia Heritage Division Special Places program, as applied by professional archaeologists. The sites and their rankings are provided in Table.5.11-31 below. Precise details of locations and full descriptions may be found in the full report (Appendix J).

Table 5.11-31: Identified Sites of Archaeological Interest

Designation	Historic/Archaeological Significance
Historic Ceramics, Area 1.4	Unknown (historic) High (First Nations)
Melford Point 1	Low
Melford Point 2	Low
Melford Point 3	Low
T. Brennan property	Moderate to high
P. Brennan property	High
R. Power property	Low
Historic Property Boundary	Low
J. Howlett property	High
M. Ryan property	Moderate
P. Ryan property	High
C. Stewart Barn	Moderate
C. Stewart House	High
J. Morrison property	High
Culvert	High
Drain	Moderate

Those ranked as moderate or high have been recommended for further investigation as outlined in Section 7 and in the full report (Appendix J).

Records at the Nova Scotia Heritage Division did not include any reported shipwrecks in the coastal vicinity of the development area, although this may be due to incompleteness of records or lack of previous assessments in the area. Review of video footage of the benthic survey did not result in the identification of any underwater resources within the marginal wharf development area.

The complete archaeological report is provided in Appendix J.

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Cape Breton University. www.cbu.ca

Cape Breton District Health Authority. www.cbdha.nshealth.ca

Child Care Connection NS. www.cccns.org

College of Registered Nurses of Nova Scotia. www.crnns.ca

Doctors Nova Scotia. www.doctorsns.com

East Link. www.eastlink.ca

Eastern District Planning Commission. www.rcbplan.ns.ca

Guysborough Antigonish Strait Health Authority. www.gasha.nshealth.ca

Guysborough County Regional Development Association. www.gcrda.ns.ca

Martin Marietta Materials Canada Limited. www.atyp.com/martinmarietta

Municipality of the District of Guysborough. www.municipality.guysborough.ns.ca

National Search and Rescue Secretariat. www.nss.gc.ca

Nova Scotia Community Access Program. www.nscap.ca

Nova Scotia Community College. www.nsccl.ca

Nova Scotia Department of Community Services. www.gov.ns.ca/coms

Nova Scotia Department of Economic Development. www.gov.ns.ca/econ

Nova Scotia Department of Environment and Labour, Air, Land, Water Division, Protected Areas. www.gov.ns.ca/enla/protectedareas

Nova Scotia Department of Environment and Labour, Waste and Recycling Division
www.gov.ns.ca/enla/waste

Nova Scotia Department of Finance, Statistics Division. Economics & Statistics Division
www.gov.ns.ca/finance/stats.div

Nova Scotia Department of Fisheries and Aquaculture. www.gov.ns.ca/fish/aquaculture

Nova Scotia Department of Fisheries and Aquaculture. www.gov.ns.ca/fish/sportfishing

Nova Scotia Department of Health, Emergency Health Services. www.gov.ns.ca/ehs

Nova Scotia Department of Natural Resources. www.gov.ns.ca/natr/hunt

Nova Scotia Department of Natural Resources, Mineral Resources Branch.
www.gov.ns.ca/natr/meb

Nova Scotia Emergency Management Office. www.gov.ns.ca/emo

Nova Scotia Department of Tourism. www.gov.ns.ca/dtc

Nova Scotia's Official Tourism Website. www.novascotia.com

RRFB (Resource Recovery Fund Board). www.rrfb.com

Royal Canadian Mounted Police. www.rcmp-grc.gc.ca

St. Francis Xavier University. www.stfx.ca

Service Nova Scotia and Municipal Relations. www.gov.ns.ca/snsmr

Strait of Canso Superport Corporation. www.straitsuperport.com

Strait - Highlands Regional Development Agency. www.strait-highlands.ns.ca

Statistics Canada. 2006 Census of Canada. www.statcan.ca

Statistics Canada. 2001 Census of Canada. www.statcan.ca

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Target Nova Scotia. www.targetnovascotia.com

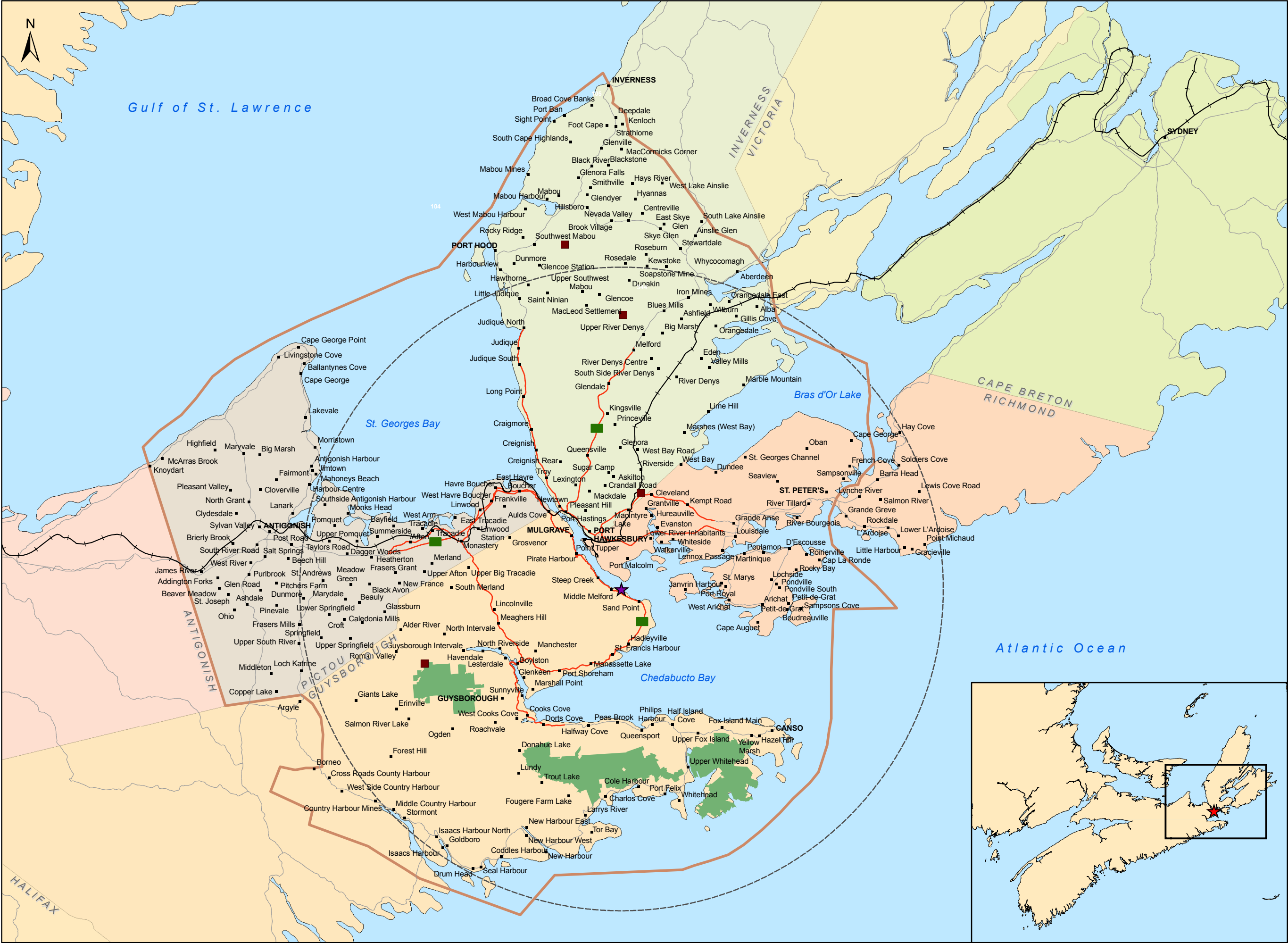
Town of Antigonish. www.townofantigonish.ca

Town of Canso. www.townofcanso.com

Town of Mulgrave. www.townofmulgrave.ca

Town of Port Hawkesbury. www.porthawkesbury.straitareaonline.com.

Trans Canada Highway. www.transcanadahighway.com



NOTES

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9. ROAD NETWORK OBTAINED FROM GEOGRATIS
10. UNIVERSAL TRANSVERSE MERCATOR, NAD83, ZONE 20

Legend

- Proposed Port and Intermodal Terminal
- Nature Reserve
- 50km Driving Distance
- Major Road
- Existing Railroad
- 50km Radius From Proposed Site
- Study Area Boundary as Defined by Census 2006 Subdivisions
- Wilderness Area



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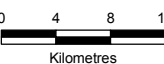
DRAWING TITLE

PROPOSED PORT AND TERMINAL
STUDY AREA

PROJECT NUMBER

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SCALE



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N. Griffin

APPROVED BY

S. Sherk

REVIEWED BY

N.Griffiths

DRAWING NO.

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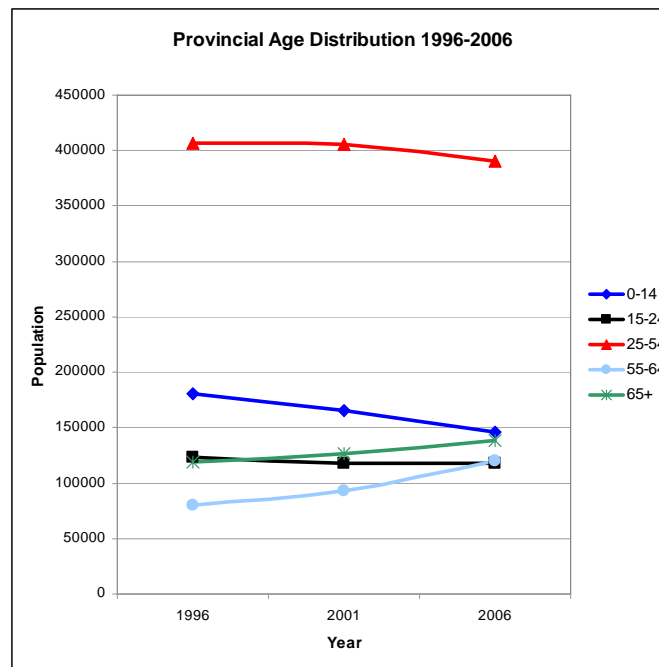
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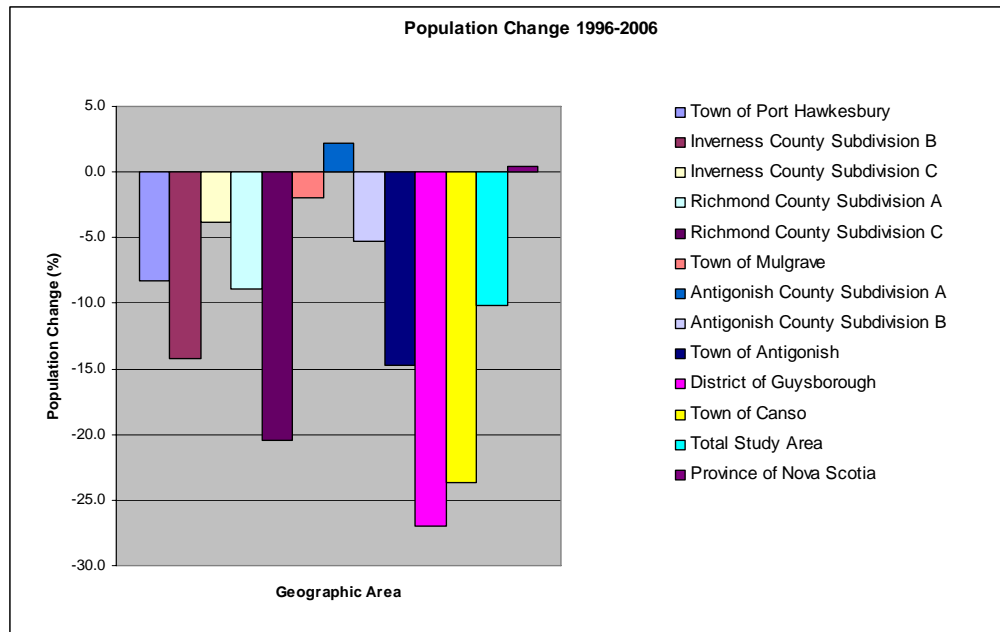
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Figure 5.11-2: Provincial Age Distribution



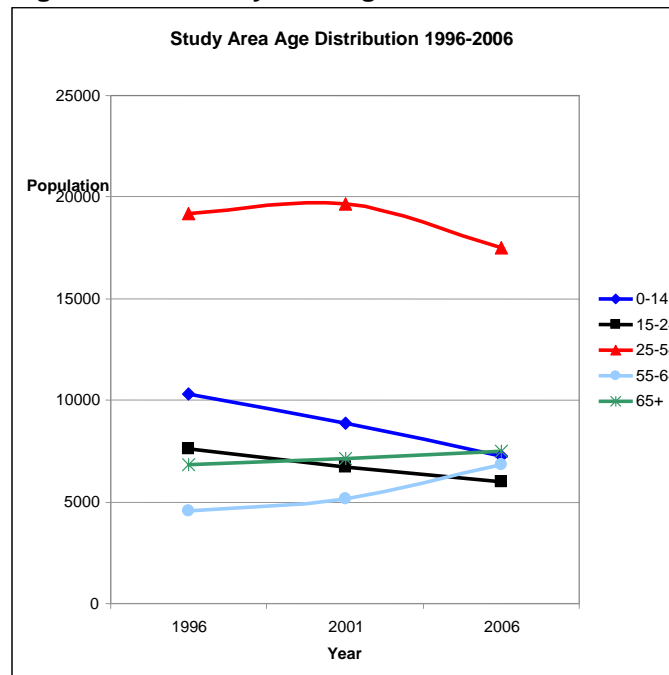
Source: www.statcan.ca, AMEC Interpretation

Figure 5.11-3: Study Area and Provincial Population Change 1996-2006



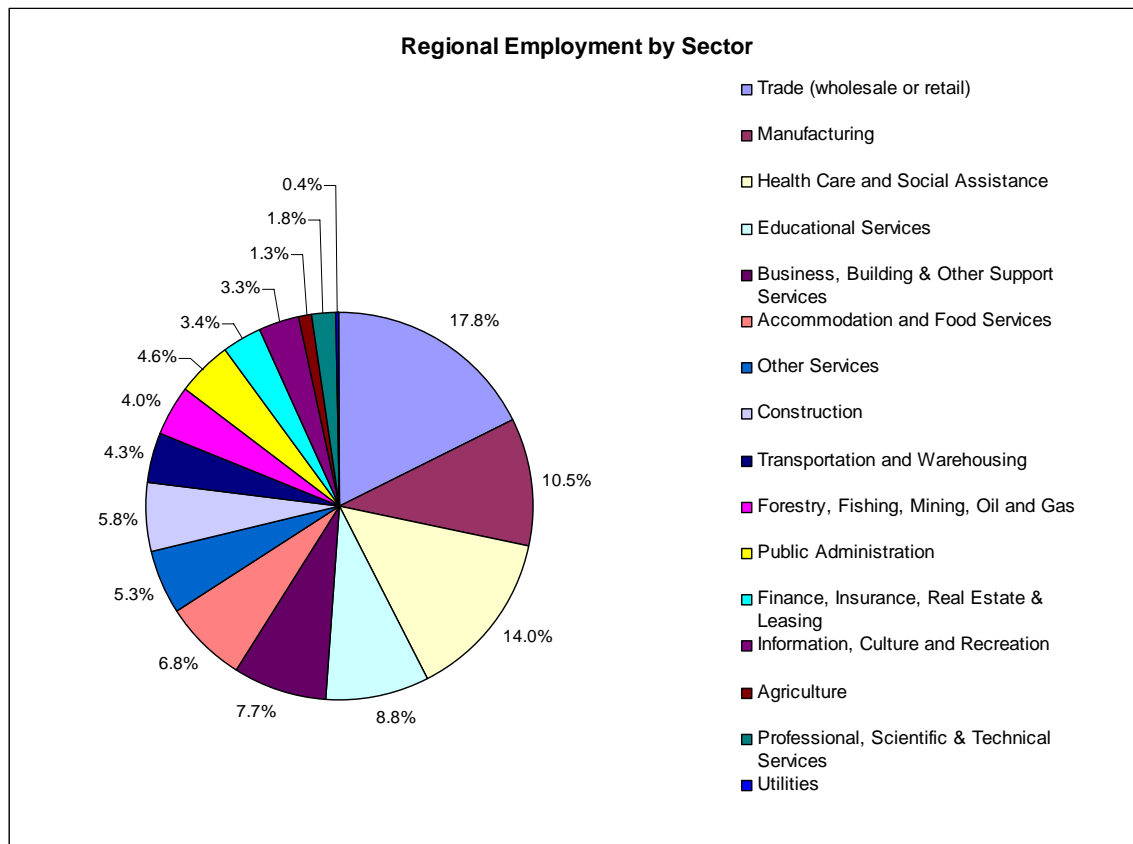
Source: www.statcan.ca, AMEC Interpretation

Figure 5.11-4: Study Area Age Distribution 1996-2006



Source: www.statcan.ca, AMEC Interpretation

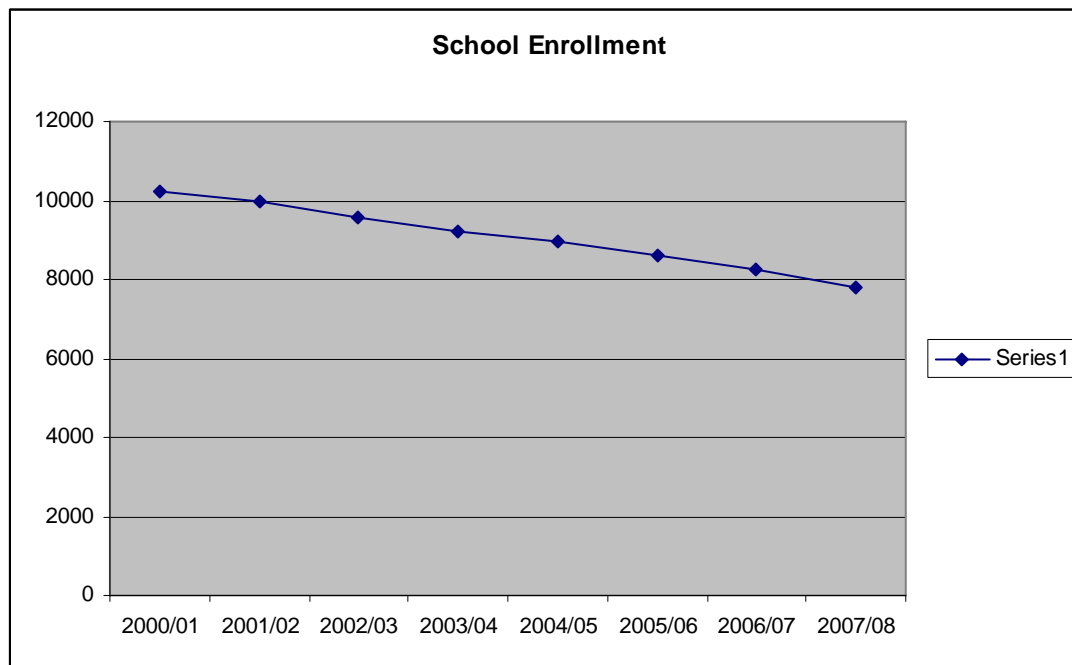
Figure 5.11-5: Regional Employment by Sector 2006



Source: Service Canada 2007, AMEC Interpretation

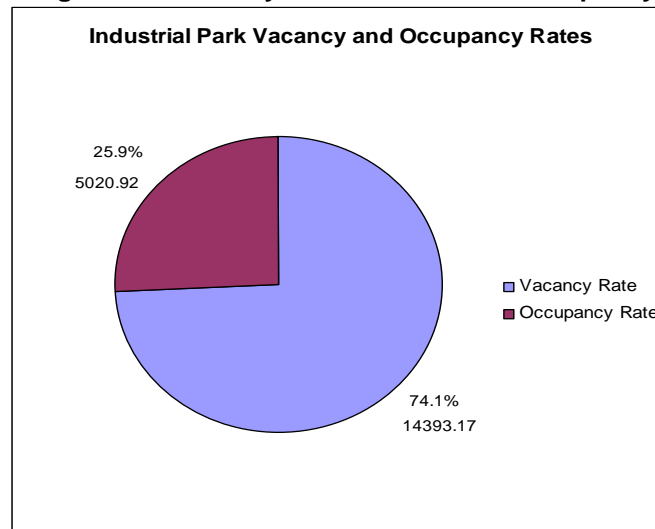
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Figure 5.11-6: Study Area School Enrolment 2000 to 2007



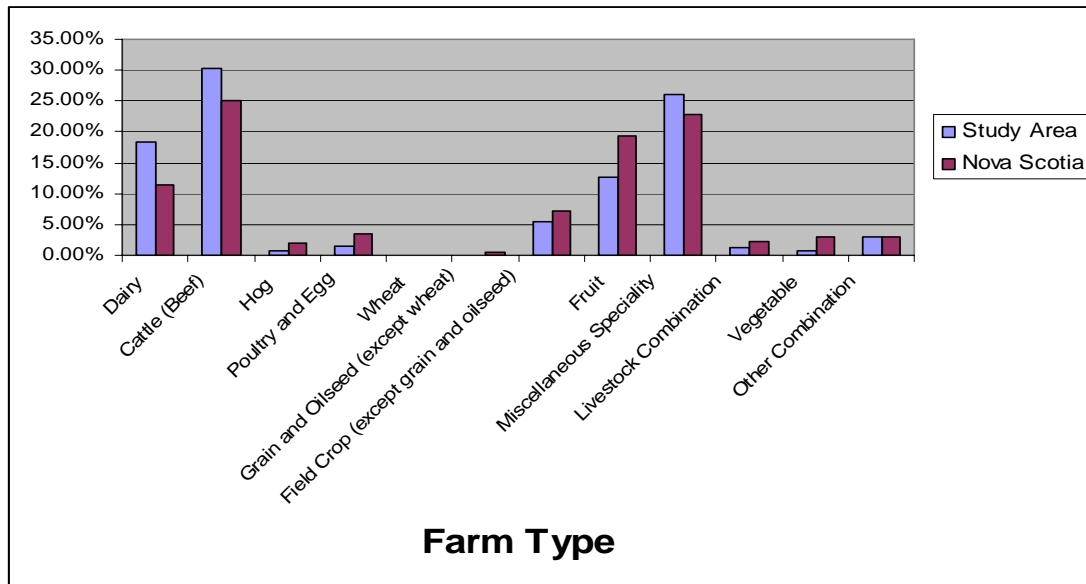
Sources: Nova Scotia Department of Education 2007, Strait Regional School Board, AMEC Interpretation

Figure 5.11-7 Study Area Industrial Park Capacity



Source: www.targetnovascotia.com, AMEC Interpretation

Figure 5.11-8: Regional Farm Type



Source: Nova Scotia Federation of Agriculture 1, 2, AMEC Interpretation

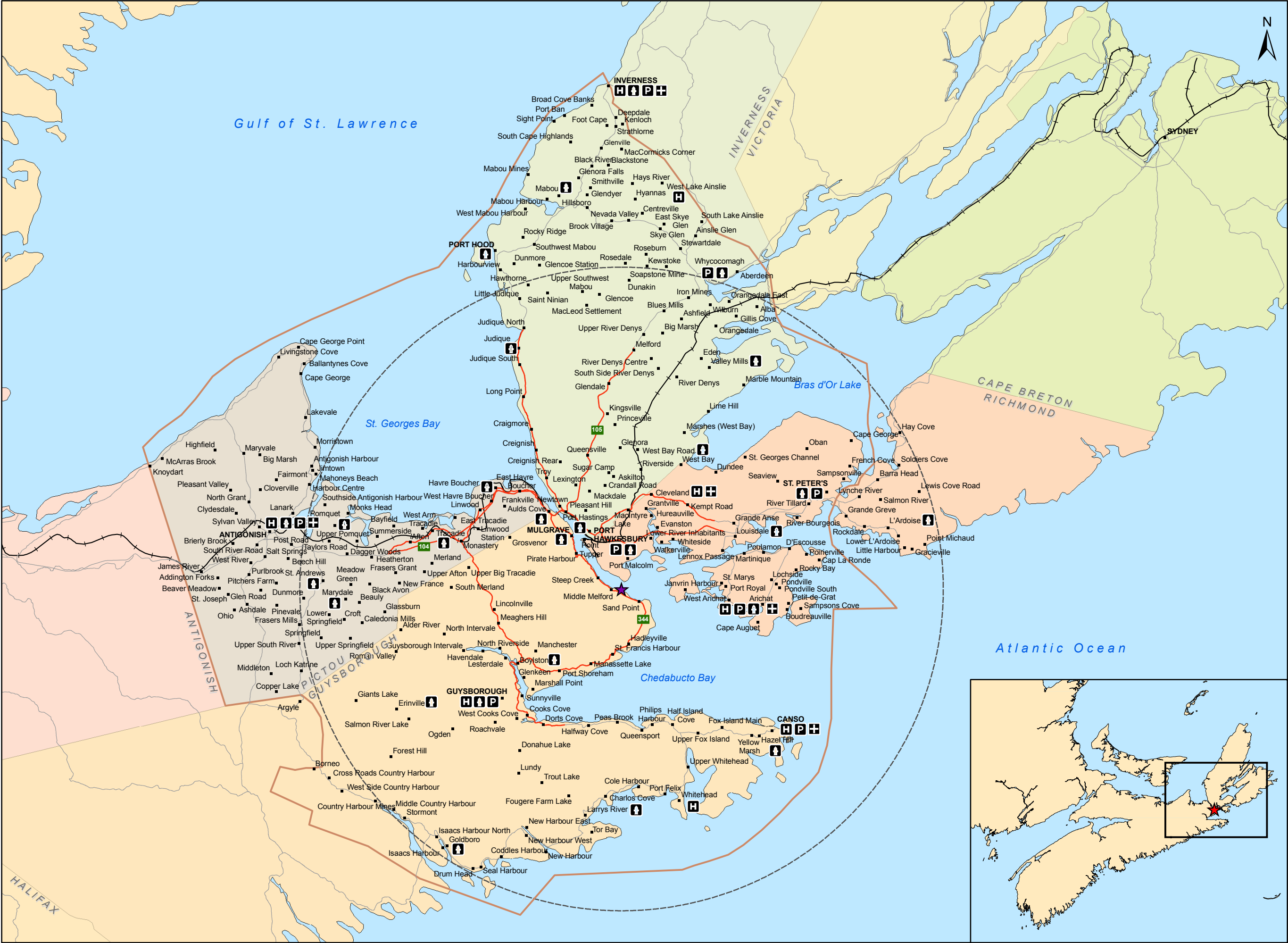


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Legend

- Airport
- Canso Causeway and Lock System
- Industrial Parks
- Major Industries
- Marine Terminal
- Post Secondary Institute
- Proposed Port and Intermodal Terminal
- 50km Driving Distance
- Major Road
- Existing Railroad
- 50km Radius From Proposed Site
- Study Area Boundary as Defined by Census 2006 Subdivisions

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DRAWN BY	APPROVED BY	REVIEWED BY
N. Griffin	S. Sherk	N. Griffiths
DRAWING NO.	DATE	REV
5.11-9	July 2008	0



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8. UNIVERSAL TRANSVERSE MERCATOR, NAD83, ZONE 20

Legend

Fire Service

Heliport

Hospital

Police

Proposed Port and Intermodal Terminal

50km Driving Distance

Road

Existing Railroad

50km Radius From Proposed Site

Study Area Boundary as Defined by Census 2006 Subdivisions

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5.11-10

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