

Newfoundland  
and Labrador  
Refinery Project



**Environmental Impact Assessment  
Component Study**

**SOCIO-ECONOMIC COMPONENT STUDY**

Prepared For:

**Newfoundland and Labrador Refining Corporation**

87 Water St

Harvey Building, 2<sup>nd</sup> Floor

St. John's, NL

A1C 1A5

Prepared By:

**AMEC Earth and Environmental Ltd.**



**July 2007**



**SOCIO-ECONOMIC COMPONENT STUDY  
NEWFOUNDLAND AND LABRADOR REFINERY PROJECT**

Submitted To:

**BAE-Newplan Group Limited**

A Division of

**SNC-Lavalin**  
1133 Topsail Road  
Mount Pearl, NL  
A1N 5G2

Submitted By:

**AMEC Earth & Environmental**

A Division of

**AMEC Americas Limited**  
133 Crosbie Road  
P.O Box 13216  
St. John's, NL  
A1B 4A5

**July 2007**



## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ES-1
1.0 INTRODUCTION.....	1-1
1.1 OBJECTIVES.....	1-1
1.2 SOCIO-ECONOMIC SETTING .....	1-1
2.0 METHODOLOGY.....	2-1
2.1 TEMPORAL AND SPATIAL BOUNDARIES .....	2-1
2.1.1 Temporal .....	2-1
2.1.2 Spatial.....	2-1
2.2 DATA SOURCES AND LIMITATIONS.....	2-3
2.2.1 Sources .....	2-3
2.2.2 Data Limitations.....	2-4
2.3 APPROACH: MEASURING QUALITY OF LIFE .....	2-4
2.4 DETERMINATION OF VALUED ECOSYSTEM COMPONENTS.....	2-5
3.0 BASELINE SOCIO-ECONOMIC ENVIRONMENT.....	3-1
3.1 DEMOGRAPHY .....	3-1
3.1.2 Regional Demography.....	3-2
3.2 THE ECONOMY, LABOUR MARKET AND BUSINESS .....	3-4
3.2.1 Economic Sectors.....	3-4
3.2.2 Labour .....	3-13
3.2.3 Business Capacity .....	3-24
3.3 Education and training.....	3-28
3.3.1 Educational Capacity.....	3-28
3.3.2 Educational Attainment.....	3-32
3.4 Physical Infrastructure.....	3-35
3.4.1 Ground Transportation .....	3-36
3.4.2 Marine Transportation .....	3-38
3.4.3 Air Transportation .....	3-40
3.4.4 Waste and Wastewater Management .....	3-40
3.4.5 Public Utilities .....	3-42
3.4.6 Communications.....	3-45
3.5 Social Services Infrastructure.....	3-45
3.5.1 Land Administration and Statutory Plans .....	3-45
3.5.2 Community Knowledge and Capacity.....	3-48
3.5.3 Housing and Accommodation.....	3-49
3.5.4 Public Health and Acute Care Services.....	3-53
3.5.5 Community and Family Social Services .....	3-58
3.5.6 Tourism, Culture and Recreation.....	3-62
3.6 Emergency Services Infrastructure .....	3-65
3.6.1 Policing and Crime Rates .....	3-65
3.6.2 Search and Rescue (SAR) .....	3-67
3.6.3 Fire Safety .....	3-68
3.6.4 Ambulance.....	3-68
3.6.5 Community Response Planning .....	3-69
3.6.6 Mutual Aid.....	3-70
3.6.7 Marine Safety Services.....	3-70

3.7	Land Use .....	3-71
3.7.1	Forestry .....	3-72
3.7.2	Agriculture .....	3-72
3.7.3	Protected Areas .....	3-72
3.7.4	Traditional Use -- Upper Placentia Bay .....	3-73
3.7.5	Aggregates .....	3-74
3.8	CONCLUSION .....	3-74
4.0	REFERENCES AND KEY INFORMANTS .....	4-76

## LIST OF TABLES AND FIGURES

Table 1-1	Small Community Highlights .....	1-3
Table 2-1	Public Concerns and Impact Assessment Integration .....	2-7
Table 3-1	Community Populations .....	3-3
Table 3-2	Flash Sheet Economic Indicators February 2007.....	3-5
Table 3-3	Current Ocean Related Projects for Placentia Bay .....	3-13
Table 3-4	Labour Market Data .....	3-17
Table 3-5	Community Employment, Unemployment and Participation Rates 2001(%) .....	3-18
Table 3-6	Distribution of Workers by Occupation, 2001 .....	3-19
Table 3-7	Community Incomes .....	3-21
Table 3-8	Income Transfers by Source, 2004 (Thousands) .....	3-22
Table 3-9	Number of Businesses by Industrial Classification (NAICS) in Region, December 2005 .....	3-25
Table 3-10	Main Businesses and Employers in Select Communities.....	3-27
Table 3-11	Daycare/preschool Capacity and Enrolment - The Study Area .....	3-30
Table 3-12	Student/Teach Ratio by School Year (1997-2006).....	3-31
Table 3-13	Selected Indicators for Education .....	3-33
Table 3-14	Highest Level of Education, Ages 25-54 Years, by Region.....	3-34
Table 3-15	Highest Level of Education, Total Population, by Select Communities, 2001 .....	3-35
Table 3-16	Placentia Bay Vessel Movements (April 2004 to March 2005).....	3-39
Table 3-17	Waste Management in the Study Area .....	3-41
Table 3-18	Municipal Water Supply Details .....	3-43
Table 3-19	Provision for Residential Development in Primary Study Area Communities .....	3-46
Table 3-20	Occupied Private Dwelling Characteristics .....	3-50
Table 3-21	Health Care Facilities in the Study Area .....	3-54
Table 3-22	Paramedical Services in Primary Study Area .....	3-58
Table 3-23	Community Services, Programs and Capacity in the Study Area .....	3-59
Table 3-24	Some Recreational/Tourism Sites Within the Study Area .....	3-62
Figure 2-1	Socio-Economic Study Area .....	2-2
Figure 3-1	Newfoundland and Labrador's Nine Rural Secretariat Regions .....	3-14
Figure 3-2	Occupancy Rates for Primary Study Area by Month in 2006 .....	3-52
Figure 3-3	Overall Occupancy Rates for Peak Period (2003 - 2006) .....	3-53
Figure 3-4	Reported and Actual Crimes in Placentia, Whitbourne, Clarendville, Bonavista and Burin Peninsula Police Districts (2006) .....	3-67

## LIST OF APPENDICES

APPENDIX A - DEMOGRAPHY
APPENDIX B - ECONOMY
APPENDIX C - EDUCATION
APPENDIX D - INFRASTRUCTURE AND SERVICES (Physical, Social Services and Emergency Services)
APPENDIX E - LAND USE
APPENDIX F – HUMAN HEALTH PROFILE





## List of Acronyms and Abbreviations

<b>AQSG</b>	Air Quality Study Group
<b>AIS</b>	Automatic Identification System
<b>ALERT</b>	Atlantic Emergency Response Team
<b>ALQ</b>	Additional Living Quarters
<b>APA</b>	Atlantic Pilotage Authority
<b>ATV</b>	All Terrain Vehicles
<b>BMI</b>	Body Mass Index
<b>CASARA</b>	Civil Air Search and Rescue Association
<b>CBDCs</b>	Canadian Business Development Corporations
<b>CCG</b>	Canadian Coast Guard
<b>CMHC</b>	Canadian Mortgage and Housing Corporation
<b>CNA</b>	College of the North Atlantic
<b>CNLOPB</b>	The Canada-Newfoundland Offshore Petroleum Board
<b>COPD</b>	Chronic Obstructive Pulmonary Disease
<b>CPI</b>	Consumer Price Index
<b>CYFS</b>	Child, Youth and Family Services
<b>DFO</b>	Federal Department of Fisheries and Oceans
<b>ECRC</b>	East Coast Response Corporation
<b>ECS</b>	Electronic Chart Systems
<b>EHCS</b>	Health and Community Services Eastern Board
<b>EI</b>	Employment Insurance
<b>ENC</b>	Electronic Navigation Charts
<b>ERCO</b>	The Electric Reduction Company of Canada
<b>f</b>	Forecast
<b>FFAW</b>	Fish, Food and Allied Workers Union
<b>FPSO</b>	Floating Production Storage and Offloading Vessel
<b>GBS</b>	Gravity Based Structure
<b>GDP</b>	Gross Domestic Product
<b>HRLE</b>	Department of Human Resources, Labour and Employment
<b>HRU</b>	Health Research Unit
<b>HSEMS</b>	Health, Safety and Environmental Management System
<b>I/O</b>	Input/Output
<b>IALSS</b>	International Adult Literacy and Life Skills Survey
<b>IBA</b>	Impact and Benefits Agreement
<b>IOC</b>	Iron Ore Company of Canada
<b>ISPS</b>	International Ship and Port Security
<b>JSS</b>	Joint Support Ship
<b>kMs</b>	Kilometre
<b>LER</b>	Local Electrical Room
<b>LLT</b>	Lowest Low Tide
<b>LNG</b>	Liquid Natural Gas
<b>m<sup>3</sup>/ha</b>	Cubic Metres per Hectare
<b>M12</b>	Main Electrical Room Module
<b>MUN</b>	Memorial University of Newfoundland
<b>mW</b>	Mega Watts
<b>NAICS</b>	North American Industry Classification System
<b>NEIA</b>	Newfoundland and Labrador Environmental Industry Association

<b>NL</b>	Newfoundland and Labrador
<b>NLDTW</b>	Newfoundland and Labrador Department of Transportation and Works
<b>NLEMO</b>	Newfoundland and Labrador Emergency Measures Organization
<b>NLH</b>	Newfoundland and Labrador Hydro
<b>NLHC</b>	Newfoundland and Labrador Housing Corporation
<b>NLRC</b>	Newfoundland and Labrador Refining Corporation
<b>NOIA</b>	Newfoundland Ocean Industries Association
<b>PBFSC</b>	Placentia Bay Fishers Sub-Committee
<b>PBIMPC</b>	Placentia Bay Integrated Management Planning Committee
<b>PBS</b>	Pilot Boarding Station
<b>PBTC</b>	Placentia Bay Traffic Committee
<b>PPSC</b>	PanAtlantic Petroleum Systems Consortium
<b>PTMS</b>	Point Tupper Marine Services
<b>RACOSR</b>	Regional Advisory Council on Oil Spill Response
<b>RCMP</b>	Royal Canada Mounted Police
<b>RIHA</b>	Regional Intergraded Health Authority
<b>SAR</b>	Search and Rescue
<b>SEIA</b>	Socio-Economic Impact Assessment
<b>STF</b>	Skills Task Force
<b>TCH</b>	Trans Canada Highway
<b>TTO</b>	Trades, Technology and Operations
<b>VBNC</b>	Voisey's Bay Nickel Company
<b>VOC</b>	Volatile Organic Compounds
<b>VSECS</b>	Valued Socio-Economic Components
<b>VTS</b>	Vessel Traffic Services

## Glossary of Terms

**Air Quality Study Group** - A study group to determine and address the air quality concerns of citizens of communities surrounding the Project Area.

**Apprenticeship Training** – A concentrated and deliberate effort to qualify workers in skilled trades.

**Baseline Study** – The study of all pre-project aspects of a community or area.

**Cumulative Effects** - Impacts that result from the impacts of a proposed development in combination with other past, present or reasonably foreseeable future developments.

**Direct effects** – Specific effects as a direct result of the Project. These include direct jobs with the proponent at the Project site, plus impacts on industries (firms) which expand production to satisfy increased demand by the project proponent.

**Diversified Workforce** – The availability of many workers, with varied skills and training to meet all requirements of a project. Diversity includes alternative lifestyles, age, sex, ethnicity, religion, socio-economic status, and ability.

**Economic Impact Assessment** – Study of the economic impact of the Project on the economy of Newfoundland and Labrador.

**Employment Catchment Area** – The area from which people would travel to work on the proposed project.

**Environmental Impact Assessment** – The study of the likely influence a project may have on the environment. The aim is to eliminate or reduce a project's potential negative impacts and enhance its benefits on the environment before a project begins. The EIA addresses concerns of the biological, physical and human environment.

**Indirect effects** – Indirect jobs with the proponent's contractors, plus the rippled effect throughout the economy as the firms directly affected by the proponent expand production and purchase additional required inputs from other firms.

**Induced effects** – The spending and re-spending of income by workers associated with the Project, which increases demand for other goods and services in the economy and gives rise to additional jobs.

**Input/Output (I/O) Model** – A formula used in economics to predict the changes caused by, in this case, an industry on other industries, the environment and local residents.

**Labradorian** – A native or inhabitant of Labrador.

**Mitigation** – The lessening of potential effects.

**Newfoundland and Labrador (NL)** – The most easterly province in Canada consisting of the island of Newfoundland and the northern mainland area of Labrador. NL is used

when referring to the entire province, Newfoundland when referring to the island portion and Labrador when referring to the mainland portion.

**Newfoundlander** – A native or inhabitant of Newfoundland.

**Outport Newfoundland and Labrador** – Traditionally small communities located on the coastline of Newfoundland and Labrador.

**Placentia Bay Fishers Sub-Committee** - Sub-Committee to deal with issues facing fishers in Placentia Bay.

**Placentia Bay Integrated Management Planning Committee** – A committee with a mandate to help maintain the ocean and coastal waters of Placentia Bay.

**Placentia Bay Traffic Committee** - Provides a forum where all the marine users of Placentia Bay can discuss issues surrounding vessel movements and traffic within Placentia Bay and come to reasonable solutions.

**Primary Study Area** – The area within 50 km of the proposed project as well as Marystown, Placentia and Clarenville. It includes the communities that have the potential to be most affected by the Project.

**Project-Specific Impacts** – Potential affects to the area or the people of the area that are a direct result of the Project.

**Provincial Labour Demand** – The level of need for workers of specific qualifications in the Province.

**Public Consultation** – A process of engaging affected people and other interested parties (stakeholders) in open dialogue through which a range of views and concerns can be expressed in order to inform decision-making and help build consensus.

**Qualitative information** – Information that is based on personal accounts.

**Quantitative information** – Information that is based on numbers.

**Regional Advisory Council on Oil Spill Response** – A council to advise on an adequate level of oil spill preparedness and response in the region.

**Residual Effects** – The remaining / long-term impact of a project.

**Service Centre** – A community or group of communities that supply the surrounding area with services such as grocery stores, gas stations, health care, etc.

**Scoping** - A consultative process for identifying and possibly reducing the number of items (e.g., issues, VECs) to be examined until only the most important items remain for detailed assessment. Focussing ensures that assessment effort will not be expended in the examination of trivial effects.

**Socio-Economic Impact Assessment** – Assessment of the likely influence a project may have on the social and economic well-being of a region.

**Socio-Economic Setting** – The values and economic status of an area, all contributing to their overall Quality of Life.

**Stakeholder** – A person or group who have an interest or investment in a project.

**Sustainable development** – Development that can be sustained over time with little or no effect on natural, financial and mental environments. In other words, the project must be environmentally, economically and culturally sustainable.

**Terms of Reference** – A document which describes the purpose and structure of a project. The Terms of Reference indicate the information that is required in the EIA.

**Valued Ecosystem Component** - Any part of the environment that is considered important by the proponent, public, scientists and government involved in the assessment process. Importance may be determined on the basis of cultural values or scientific concern.

**Valued Socio-Economic Components** – Aspects of community life that are seen as important and valuable to locals.



## EXECUTIVE SUMMARY

The purpose of the Socio-Economic Component Study is to meet the requirements of both the federal (*Canadian Environmental Assessment Act*) and provincial (*Environmental Protection Act*) governments to provide an overview of the current socio-economic conditions in the area that might be affected by the proposed Newfoundland and Labrador Refinery. Baseline information will make it possible to measure changes in socio-economic conditions that may be Project related.

The socio-economic Study Area for this project includes four service centres: Arnold's Cove, Clarenville, Placentia and Marystown. Other smaller communities within the Study Area are: Come By Chance, Garden Cove, Goobies, Little Harbour, North Harbour, Southern Harbour, Sunnyside, and Swift Current.

For this study, the Employment Catchment Area is considered to encompass all communities within a 50 – 100 km commuting distance from the proposed project. This includes the west side of Conception Bay and the east side of Trinity Bay as well as parts of the Avalon, Burin, and Bonavista Peninsulas. It is likely that the Project would also attract many workers from the larger St. John's population base as well as from other parts of the Province and Canada.

Key sources of information for this baseline study include Statistics Canada, Government of Newfoundland and Labrador, the recent 2007 Socio-Economic Component Study for the Long Harbour Commercial Nickel Processing facility, and interviews with key stakeholders and service providers in the Study Area. Detailed data such as that from Statistics Canada was limited for some communities because of their small size.

Past Placentia Bay industrial activity (e.g. ERCO phosphorus plant as well as the Bull Arm Cow Head fabrication facilities) in the Study Area has contributed to the region's economic growth. However, recent market volatility (e.g. oil and gas, forestry) and environmental decline (fisheries sectors) has caused employment instability in the area resulting in out-migration of individuals ages 15-25 as well as skilled trades workers. This, coupled with a low birth rate, has resulted in a declining population in all Study Area communities with the exception of Clarenville which, as regional service centre, has enjoyed a population increase.

As a consequence of out-migration, many of those individuals who remain in the Study Area may be unskilled, skilled in non-trades and/or not of employable age. The ability to sustain economic growth and local business opportunities will depend, in part, upon the availability of skilled labour and the ability of industry to attract individuals (back) to the region by offering competitive wages and long-term stable employment. Quality of life factors such as proximity to family, a return to a rural Newfoundland culture, small community living, and lower living expenses will also help drive this change.

Reliance on natural resources for economic activities and outdoor recreational pursuits is an important factor in maintaining quality of life in rural Newfoundland and Labrador. Currently, easy access to the outdoors for snowmobiling, hunting, fishing, and recreational boating in Placentia Bay and its many islands contributes to a high quality of life in the region. The Project will contribute to strengthening the region economically, but residents want to ensure that potential negative effects to air, water, and land can be avoided or mitigated and positive effects can be enhanced.

The Project will depend on well-trained employees for both the construction and operation phases and it will also need to ensure that school capacity exists for its employees and their families. In recent years a steady decline in primary and secondary school enrolments in the Study Area due to fewer births as well as out-migration has led to school closures. Population increases and overall economic stability in the region will help keep schools open and limit the need for children to travel long distances for schooling. On the other hand, the demand for and potential large response to training programs for the Project may challenge in the short-term the current capacity of local training institutions. However, provincial post secondary institutions (e.g. Memorial University, the College of the North Atlantic and private colleges) are aware of the current and future shortage of skilled workers and are actively taking measures to address this issue.

Physical, social services and emergency services infrastructure are all necessary to support a large industrial project. Ground, marine and air transportation all have sufficient capacity to handle increased demand. However, upgrades and planning will be needed to address increased traffic (commuter and freight). While municipal services such as solid waste and wastewater management, drinking water supply, power and communications have sufficient capacity, improvements to some would need to be made in order to address the direct and indirect needs of any large scale industrial project. For example, some communities have experienced boil water orders in past years and not all communities in the Study Area have prepared Emergency Response Plans. Of those that have Plans, not all have addressed responses to the possibility of potential oil refinery-related accidents. Current discussion about a regional waste management system to relieve local landfill capacity and other waste related issues are a positive step in improving these services.

A wide range of social services and infrastructure is provided to residents in the Study Area. Currently, some local service providers have infrastructure capacity, but are challenged to attract retain professionals (e.g. healthcare) while other sectors have capacity, but no demand (e.g. the housing market in the Study Area, with the exception of Clarenville). There is also concern about the ability of the Study Area to provide additional housing for 3,000 workers. Municipalities would enjoy the addition of new families to stimulate economic development in the towns and to enhance enrolment in schools, increase the tax base, and heighten demand for local services. However, many workers in Newfoundland prefer to commute fairly long distances to work rather than relocate their families. In addition, these small communities nearest to the Project site may not currently provide infrastructure and services that would encourage families to relocate.



As a result of this and other projects, economic growth will stimulate employment in the Placentia Bay area. Due to slowdowns in traditional industries, many educated and skilled people of employable age have relocated to find jobs elsewhere in Canada. The challenge will be to ensure that labour, business, education institutions, and training facilities are focussed on managing long-term economic growth in the Study Area and the Employment Catchment Area. In addition, the physical, social and emergency service infrastructure must be successfully managed. If this can be achieved, economic growth along with the quality of life in the region can be maintained and enhanced.



## 1.0 INTRODUCTION

### 1.1 OBJECTIVES

The purpose of this volume is to meet the requirements of both the federal (under the *Canadian Environmental Assessment Act*) and provincial (under the *Environmental Protection Act*) Terms of Reference to provide a compilation of data on the current socio-economic conditions in the area that potentially could be affected by the proposed Newfoundland and Labrador Refinery Project (the Project). That area includes both the Primary and Employment Study Areas.<sup>1</sup> The baseline information will provide a benchmark against which it will be possible to measure, in the future, changes in socio-economic conditions that may be related to the Project.

The first section of this chapter provides an overview of the Primary Study Area (Study Area). Section 2 provides an overview of the baseline data collection methodology including the temporal and spatial boundaries, the main data sources and limitations, the sustainability considerations in our approach, issues scoping and the determination of the Valued Ecosystem Components (VECs). Section 3 documents the baseline conditions for the socio-economic components of the assessment. Information on commercial fisheries and aquaculture, health and well-being and historic attractions are found in other project-related documents.

### 1.2 SOCIO-ECONOMIC SETTING

Placentia Bay has considerably more large-scale industries (e.g. Newfoundland Transshipment Terminal, North Atlantic Oil Refinery, Kiewit Offshore Services, Marystown and the industrial cluster at Argentia) than any other area of the Island of Newfoundland. These sites are located in Placentia Bay due to its deep water, sheltered and ice free harbours (needed for large marine tanker traffic) and its proximity to offshore oil and gas production and exploration activities.

Both the Kiewit Offshore Services, Marystown and the Bull Arm Fabrication Site in Trinity Bay are currently experiencing a slowdown, but if any of the proposed Placentia Bay projects proceed (e.g. Voisey's Bay Nickel Processing Plant at Long Harbour, the nearby Liquid Natural Gas (LNG) plant at Grassy Point, Arnold's Cove; the potential of increased activity at the Kiewit Offshore Services Marystown Shipyard and the proposed Newfoundland and Labrador Refinery at Southern Head) a positive economic industrial mix will occur within the Placentia Bay region. Growth in the production of Newfoundland's offshore oil fields is currently stalled as a result of the Hebron field being put on hold. However, if the political climate changes and exploration results continue to

---

<sup>1</sup> Primary Study Area includes: Come by Chance, Garden Cove, Goobies, Little Harbour, North Harbour, Southern Harbour, Sunnyside, Swift Current, Arnold's Cove, Clarenville, Marystown and Placentia.

Employment Catchment Area includes: all communities within a 50 km commuting distance from the project site and for purposes of meeting union agreements communities that are 50 km to 100 km commuting distance from the Project site.

be positive causing the development of the Hebron Field to proceed, the Newfoundland Transshipment Facility and other Placentia Bay offshore related services should increase production.

Many of the communities in the Employment Catchment Area, particularly along the west side and bottom of Conception Bay and the east side of the Isthmus of Avalon, are known for skilled labourers that have traditionally worked away in such places as New York City and the Great Lakes. After Confederation when Newfoundland experienced a small infrastructure “boom”, many of these skilled workers and their children stayed home and found employment as tradesmen working on federal and provincial buildings, the Trans-Canada Highway, and several industries within the Study Area such as ERCO and the North Atlantic Refinery. When the oil and gas industry began in earnest in the 1980’s, many of these same workers helped build components of the Hibernia platform at Bull Arm and other oil related components for the Terra Nova and White Rose production modules.

In recent times, opportunities to build and operate some of these large industrial projects have evaporated resulting in thousands of skilled and unskilled labourers migrating to Alberta and other better economies for high paying jobs. This has raised concerns regarding the availability of skilled labour to meet anticipated future project demands. This concern is being addressed by the Province through two initiatives: “*The Strengthening Partnerships Project*” which provides information on regional labour markets in the Province and “*The Identifying Skills Gaps in the Labour Market*” initiative which identifies labour supply and demand imbalances and provides information about current and future job opportunities (website: [www.gov.nl.ca](http://www.gov.nl.ca) accessed on Mar 20, 2007).

On the west side of the Isthmus are small fishing communities whose residents fish year-round in the ice free waters of Placentia Bay. Following the moratorium of the Atlantic Cod fishery in 1992, these and many other communities in the Province experienced a large decline in population as younger individuals who traditionally would have gone into the fishery migrated westward, often with their families. Population decline, particularly in the rural areas of the Province, continues to this day.

The main service centres for the Study Area are Arnold’s Cove, Clarenville, Placentia and Marystown. Arnold’s Cove is located on the west side of the Isthmus of Avalon, southeast of the proposed project site. Most town residents are employed at the North Atlantic Refinery or the Iceswater Seafoods Fish Plant. The Newfoundland Transshipment Terminal is located nearby.

Clarenville is located approximately 55 kMs north of the proposed Project site and is the only town in the Study Area that has experienced a population increase (3.3%) from 5,104 in 2001 to 5,274 in 2006. Clarenville is the main service centre for the Study Area and provides many services consistent with a being central hub. Current construction in the community includes a new long-term care facility with a capital cost of \$46.6 million

over five years. The town is also planning to build an events centre featuring an ice rink and indoor walking track scheduled to open in fall 2008.

Located on the east side of Placentia Bay is Placentia, an area originally inhabited in the 1600's by the French, that still retains many traits of this heritage. The amalgamated town of Placentia consists of the former municipalities of Placentia, Jersey side, Freshwater, Dunville and the incorporated area of Argentia that now services Marine Atlantic's ferry route from Newfoundland to Nova Scotia and supports a large industrial park on the site of the former US Naval Base.

On the west side of Placentia Bay on the Burin Peninsula is Marystown which is best known for its shipbuilding and fabrication facilities (operated by Kiewit Offshore Services since 2002). Marystown, a service centre for the Burin Peninsula, also caters to hunting, fishing, camping and ATV enthusiasts. Nearby is Burin, known for its fish plant and College of the North Atlantic (CNA) campus. Traditionally, the residents of the Burin Peninsula, if not working at the fish plant or the shipyard, have been involved in some aspect of the fishery.

With the exceptions of Clarenville, Placentia and Marystown, the communities in the Study Area are small (less than 1,000 persons) with basic community services. Like most communities in the Province, as a result of geography and the need to be close to the ocean for participation in traditional fishing activities, the majority of the Study Area communities are located on ocean bays. The exception is Goobies which, due to its history as a railway siding and its location at the intersection of the Burin Peninsula Highway and the Trans-Canada Highway, is located inland.

Table 1-1 shows selected highlights of the smaller Study Area communities:

**Table 1-1 Small Community Highlights**

Community	Highlights
Arnold's Cove	Arnold's Cove, the commercial and service centre of the Isthmus' communities, is home to a large fish plant and the Regional High School as well as an industrial park, hotel, doctor's clinic, pharmacy and firefighting services and the Isthmus' Chamber of Commerce. It has won awards for its beauty, has cultivated hiking trails and view points through Placentia Bay, and is the home to the Regional High School.
Come By Chance	Come By Chance is the 2 <sup>nd</sup> busiest port in Canada because of the activities of North Atlantic Refining Ltd. and the Newfoundland Transhipment Terminal. This community has invested in its youth by offering a \$500/year scholarship for attending post secondary education and boasts a wide range of recreational facilities including walking trails, sliding hill, fitness centre and games room.
Garden Cove	This community is well known as the departure location for the highly popular Woody Island Resort and an entrance for kayakers and other boaters to Placentia Bay and the islands.

Goobies	Residents of Goobies believe the best salmon rivers in Eastern Newfoundland flow from the nearby Come By Chance and North Harbour rivers. Located at the junction of the Burin and Trans-Canada highways with a newly redesigned Burin Peninsula tourism chalet and several service stations at the junction, Goobies is in a good position to serve the traveling tourist market.
Little Harbour East	A quiet community of fishers and retirees.
North Harbour	North Harbour, a sheltered community, has often provided refuge for ships during storms. Slightly removed from the fishing grounds of Placentia Bay, the area is known for its woodlands, good hunting and access to several Salmon Rivers. One of the largest fox farms in North America is located on the outskirts of the community.
Southern Harbour	Located on the eastern side of the head of Placentia Bay, Southern Harbour was a major “receptor” community in the mid-1960s for residents of Placentia Bay’s many islands. The community is still focused on the fishery, and boasts the second largest value of fish landings in the Province. It is also home to the largest trucking/heavy equipment company in the area, Parson’s Trucking.
Sunnyside	This community is currently preparing an emergency plan and has an active and well-trained volunteer firefighting department with approximately 20 members. The community has experienced air emissions from the nearby refinery operations and as a result, a community liaison committee is in place and environmental concerns and issues are being monitored and improved upon. The popular Centre Hill hiking trail, a two hour hiking trip to the highest point in the area, is located in the town.
Swift Current	A small community located on a calm inlet on the west side of the head of Placentia Bay, Swift Current is well known for its natural beauty with the many birch trees creating a colourful background in the fall of the year. As a result of the natural beauty, tourists come to the area often staying at the well known Kilmory Lodge, and it is the entrance to the Bay du Nord Wilderness area. Swift Current is also home to the all grade school that serves the surrounding communities.

## 2.0 METHODOLOGY

### 2.1 TEMPORAL AND SPATIAL BOUNDARIES

Temporal and spatial boundaries are required to ensure that the effects assessment is completed within an appropriate geographic context and time duration.

#### 2.1.1 Temporal

The temporal boundaries for the assessment are defined on the basis of project phases: construction, operations and decommissioning. The temporal boundaries for this Project are as follows:

- Construction – 2008-2011
- Operations – Approximately 25 years (2012 – 2037)
- Decommissioning – Approximately two years (2038-2040)

#### 2.1.2 Spatial

To guide the socio-economic baseline data collection and analyses, four geographic areas were selected (Figure 2-1):

- **Primary Study Area:** Come By Chance, Sunnyside, Goobies, Clarenville, Arnold's Cove, Southern Harbour, Little Harbour, North Harbour, Garden Cove, Swift Current, Placentia/Argentia and Marystown. These communities are the focus of the local area investigations because they are closest to the proposed project site and/or have the potential to provide a greater number of services to the Project when compared with other communities in the region.
- **Employment Catchment Area:** includes the Primary Study Area, all other communities within a 50-100 km commuting distance from the Project site including those communities located on the west side of Conception Bay and East side of Trinity Bay as well as on parts of the Avalon, Bonavista and Burin Peninsulas. A relatively large number of skilled workers live within these catchment areas, some of whom are working elsewhere. It is anticipated that workers from this area will be attracted to work at the Refinery. In addition, because of its large population, workers from the St. John's Census Metropolitan Area are likely to be employed at the Project site as well as individuals throughout the Province.
- The **Avalon and Burin Peninsulas and the Clarenville-Bonavista region** for regional economic analysis
- The Province of **Newfoundland and Labrador** for regional economic analysis.



Figure 2-1 Socio-Economic Study Area



## 2.2 DATA SOURCES AND LIMITATIONS

### 2.2.1 Sources

Information on socio-economic conditions was gathered from a broad selection of recent and reliable sources, both published and unpublished. Data not already held by the study team were requested by telephone and e-mail.

Several socio-economic studies have been completed in the region as a result of the high level of construction activity during the past 15 years in both Placentia and Trinity Bays. Unfortunately, given the fast pace of political, economic and social change, and the fact that most of these studies are now more than five years old, they could not be used as a reliable source of information, although they do provide a good context for a comparative analysis. The exception is the recently released (March 2007) Socio-Economic Component Study for the Voisey's Bay Nickel Company which is referenced in this document (See Section 4.0 for a complete list of references).

Key sources used are:

- Results of Statistics Canada 1996, 2001 and 2006 Census;
- Government of Newfoundland and Labrador Community Accounts;
- Long Harbour Commercial Nickel Processing Plant 2007 Socio-economic Component Study, Feb, 2007; and
- Interviews with key stakeholder organizations and service providers including municipalities, health and school boards, RCMP, regional economic developmental boards, Canada Mortgage and Housing Corporation, Provincial Government Departments (Transportation and Works, Municipal Affairs, Human Resources, Labour and Employment, Environment and Conservation).

In early 2007, the study team conducted a series of personal interviews with knowledgeable individuals, primarily service providers and municipal leaders, based in the Study Area, to gain a better understanding of the available quantitative data. This information was augmented by attendance at numerous open houses held in the Study Area to discuss the Project. Information was sought on the limitations of specific datasets, on the interpretation of key trends and the interpretation of the positive or negative effects of a new refinery. Where possible, conclusions were built on both quantitative and qualitative information that was corroborated from multiple sources. (See Section 4.0 for a complete list of references).

## 2.2.2 Data Limitations

Due to the small population of many of the communities in the Study Area, Statistics Canada grouped various communities into subdivisions for the 2006 Census. As a result, specific populations for Goobies, Swift Current, North Harbour, Garden Cove, Sunnyside, Little Harbour East and Southern Harbour are unavailable. In Newfoundland, Division #1 includes all communities east of Goobies, while Subdivision A includes all communities on the Isthmus excluding Come By Chance, Sunnyside, Arnold's Cove, Southern Harbour and Norman's Cove/Long Cove. Division #2 includes Goobies and communities located on the Burin Peninsula. Division #2 Subdivision K includes the communities of Swift Current, Garden Cove and part of North Harbour. For place maps of subdivisions see Appendix A.

Accommodation occupancy data limitations are stated with their data in Appendix D, D-5.

## 2.3 APPROACH: MEASURING QUALITY OF LIFE

The approach used to develop the baseline study was to:

- identify the factors associated with quality of life and valued by the Study Area communities and stakeholders; and
- document them with the best accessible quantitative and qualitative data.

The concept of quality of life has become increasingly important to communities and governments and ways of measuring it have been attempted by both the provincial and federal governments. As an example, the province of Newfoundland and Labrador has created Community Accounts which compiles a number of statistics that provide indicators (e.g. level of education, income, demographics, health) as to the well being or quality of life of every incorporated community within the Province (Community Accounts, 2007). The federal Department of Natural Resources has recently developed a series of Canadian quality of life maps that also measures community well-being across Canada. To assess quality of life, the Department used indicators to represent the most important aspects of a person's life including, for example, housing, education, employment and household finances. The individual indicators were categorized into three broad groups called the social environment, economic environment and physical environment (Natural Resources Canada, 2007).

Quality of life including those indicators identified with the environmental, cultural and social aspects of community life is most often associated with sustainable development. Increasingly sustainable development is becoming one of the most highly valued characteristic of community life that can either be enhanced by Project benefits or diminished by adverse Project effects. In other words, sustainable development is integral to the concept of quality of life.

Recognizing the importance of quality of life and sustainability to communities and governments, the approach taken to this component study was to use factors contributing to quality of life and sustainable development as the valued ecosystem components (VECs).

To determine these quality of life VECs, a review was conducted of public concerns about the Project, particularly during open house meetings in the communities closest to the proposed site. VECs were further refined by employing professional judgement regarding potential interactions between the Project and socio-economic conditions, and by responding to socio-economic requirements in the Guidelines for the Environmental Impact Statement.

## **2.4 DETERMINATION OF VALUED ECOSYSTEM COMPONENTS**

Stakeholder and public perspectives have an important role to play in confirming a vision for the future, and a rationale for selection of VECs, related indicators, and monitoring and mitigation initiatives. Residents of the area are very much interested in maintaining their current quality of life. They feel that it is exceptionally high, while at the same time increasing long-term stable employment opportunities is a priority. Thus, generally they would not object to a second large scale refinery established in their area to provide employment opportunities, but not at the expense of their quality of life. If their environmental, social and economic concerns (see Public Consultation – Volume 5) can be addressed, residents generally feel that their current standard of living can be maintained or enhanced. Several concerns with the Project that residents feel could negatively affect their quality of life relate to human health, safety of marine vessel traffic, potential for negative environmental impacts, lack of worker accommodations, the need for local job opportunities, and preservation of traditional recreation activities. These issues are discussed in the following sections.

Historically, air emissions from the nearby North Atlantic Refinery (previously the Come By Chance Refinery, built in 1973 and bought by North Atlantic Refining Ltd. in 1994 after 10 years of dormancy and eight years of another owner) have been a major environmental issue for the residents of the Study Area, particularly in Sunnyside. Over the last ten years, North Atlantic Refining Ltd. has spent more than \$550 million to upgrade its facility and reduce air emissions (<http://www.neia.org>, 2007). Area residents seem satisfied with the current air quality and the efforts of the company. As one economic development leader said, “Because of the existing refinery people know the positive and negatives that a refinery brings to the region. We have already experienced the negative environmental issues including bad air quality and know what the worst things that can happen are. We also know that a refinery can be cleaned up.” (Discovery Zonal Board Corporation, pers. comm.).

With tanker traffic expected to triple in a bay known for its fog, residents, fishers and cabin owners worry that an oil spill will occur. Adequacy of emergency response measures for such events has been questioned by residents; they feel insufficient response equipment is stored in the area. Residents expressed concern about tanker accidents, which would negatively affect existing industries in the Bay (e.g. fisheries,

aquaculture and tourism). A major incident at the Project site could also negatively affect one of the largest fox farms in North America which is located near the refinery.

Waste dumping into the Bay by tankers is a common concern according to residents. Many state that current pollution problems in the Bay are due to tankers emptying their wastewater, and they do not want to see this problem escalate as a result of increased tanker traffic.

The ability of the area to house 3,000 workers is also a concern. Town leaders would like to maximize local housing, while many workers would prefer a work camp. Area schools are currently below capacity, therefore a moderate increase in student population can be accommodated. The only hospital within 50 km of the proposed site is in Clarenville and, with current staff levels, is operating near 100 percent capacity at all times. The staff, therefore, would have difficulty meeting any additional demands for their services.

While many residents are pleased with the level of industrial activity proposed for Placentia Bay (e.g. construction projects planned for the Kiewit Offshore Services Marystown Shipyard (JSS Project), Long Harbour (VBNC Smelter) and Arnold's Cove (LNG Terminal)), there is heightened interest and scepticism regarding labour issues around this and other industrial projects due to past experience. Many local residents feel that they were overlooked during the Hibernia Platform Construction. Their issue was with unions bringing in labourers from other areas of the Province and Canada, while locals were left unemployed. Similar labour issues were also experienced in the area when North Atlantic Refining reopened in the early 1980s.

Many of the younger residents in the Study Area are keen to remain in the region if possible. They understand that in the short-term they may need to move away for training or work; however, many wish to return. Many former residents currently working outside of the Province have also indicated a willingness to return to the area if stable employment opportunities at a competitive wage rate could be found.

Residents in the Study Area have a strong connection to the outdoors. Winter activities include snowmobiling, skating and sliding. Summer activities consist of fishing, boating, and swimming. Residents want to preserve natural habitats for their traditional recreational and food harvesting activities including berry picking, particularly blueberries and partridge berries, plant harvesting, hunting and fishing. They also want to ensure that the many bald eagle nesting sites in the area remain undisturbed.

Because of the importance of quality of life to the residents of the Study Area, VECs have been designed to provide information on these expressed concerns.

Table 2-1 summarizes socio-economic issues and concerns that arose consistently during the public consultation process and were used in determining VECs. The Table

also identifies which section of the report discusses each issue. More detailed information regarding public consultation process, issues and concerns can be found in Volume 5.

**Table 2-1 Public Concerns and Impact Assessment Integration**

Concern (VSEC)	Description	EIA Section VSEC Addressed:
Fishing industry effects	<p>Project would add further stress to the fishing industry (through increased marine traffic, loss of fishing areas, potential for fish habitat degradation through oil spills.</p> <p>Potential loss of fishing grounds, in particular, if additional anchorages are necessary.                      Garbage ruining boat motors</p>	<p>See EIS Volume 4, Section 5.0: Commercial Fisheries and Aquaculture</p> <p>Section 3.4.4: Waste and Wastewater Management</p>
Marine Tanker Traffic	Increases in marine traffic and subsequent affect on the fishery.	Section 3.4.2: Transportation and Infrastructure
Oil Spill Emergency Response	Potential for oil spills. There is a concern about the required equipment and infrastructure available to effectively deal with oil spills and the need for improved oil spill monitoring.	Section 3.6 Emergency Services Infrastructure
Labour and Employment	<p>Job opportunities will not be given to local (non-union) workers, the number of years to obtain journeyman's papers in trades, and competition for labour force from other Provinces and other local projects. (For detailed union study Refer to Appendix B-1).</p> <p>Availability of workers for the project.</p>	Section 3.2.2: Labour Market
Business Opportunities	Communities in the project area are generally positive about the potential economic benefits of the refinery. Local businesses are interested in having a preferred status for site opportunities.	Section 3.2.3: Business
Housing and Worker Accommodations	<p>Lack of housing in communities to house workers.</p> <p>Some stakeholders would like workers to live and invest in housing in the Study Area rather than in work camps to increase local economic growth but worry about capacity to accommodate housing demand.</p> <p>Increased housing demand will also increase real estate values and thereby increase property taxes.</p>	Section 3.5.3 Housing and Accommodation

Concern (VSEC)	Description	EIA Section VSEC Addressed:
Land Use	<p>Some local residents use Southern Head (location of project) for hunting, fishing and berry picking and although are sad to see this area developed, would like to see the project proceed.</p> <p>Amount of proposed industrial activity in the area and the impact on historical use of land and sea.</p>	Section 3.7.4: Land Use
Effects on human health	There are concerns on the part of local residents, Environment Canada and the Province about the effects of air emissions on human health.	<p>See Air Quality Component Study</p> <p>NLRC worked with Memorial University's Health Research Unit to develop a health profile for communities in the project area (See Appendix F).</p>
Agriculture Industry	There is a concern that noise emissions from the project will affect fox farming business at North Harbour. There is sensitivity to noise during gestation that may lead to kit mortality.	Section 3.7.2 Agriculture
Other	<p>Increased crime</p> <p>Labour competition (wages) for local business</p> <p>Increased costs for people on fixed incomes</p> <p>Overcrowding in schools and hospitals</p> <p>Infrastructure to keep youth in communities</p>	<p>Section 3.6.1 Policing and Emergency Services</p> <p>Section 3.2.2: Labour Market and Section 3.5.2: Housing and Accommodation</p> <p>Section 3.3.1 Education; Section 3.5.4 Health Care</p> <p>Section 3.5.6 Infrastructure and Services</p>

Given these public concerns about the Project, potential interactions between the Project and socio-economic conditions, and socio-economic requirements in the *Guidelines for the Environmental Impact Statement*, the following VECs that contribute to the quality of life in the region will be used in this assessment:

- Economy, Labour Market and Business;
- Education and Training;
- Infrastructure and Services including:
  - Physical Infrastructure including Ground, Marine and Air Transportation; Waste and Wastewater Management; Public Utilities and Communications;

- Social Services Infrastructure including Land Administration and Statuary Plans; Community Knowledge; Housing and Accommodation; Public Health and Acute Care Services; Community and Family Social Services, and Tourism, Culture and Recreation;
- Emergency Services Infrastructure including Policing and Crime Rates, Search and Rescue, Fire Safety, Ambulance, Community Response Planning, Mutual Aid and Marine Safety Services; and
- Land Use including Forestry, Agriculture, Protected Areas, Traditional Use,- Upper Placentia Bay and Aggregates.





## 3.0 BASELINE SOCIO-ECONOMIC ENVIRONMENT

### 3.1 DEMOGRAPHY

#### 3.1.2 Provincial Demography

For Newfoundland and Labrador, the population count in the 2006 Census was 505,469, down 7,461 from 2001. The Province's population has declined in the last three censuses. However, the drop (-1.5%) in this Province was smaller than in the 1996 to 2001 period, when the population decreased by 7.0%. Much of the improvement is due to smaller losses in its migration exchanges with other Provinces, as fertility in the Province remains the lowest in the country, averaging 1.3 children per woman since 2001 (Statistics Canada, 2007). A number of broad trends are occurring within the Province that are creating challenges for the population and ultimately, the labour pool (Refer to Appendix A, Table A-1) These trends are discussed below.

#### *Rural Based*

Almost 47 percent of the provincial population is located in rural areas - the highest rate in Canada. As such, it continues to face systemic problems associated with seasonal employment, low incomes and a high dependency on government transfers. Rural areas are also highly dependent on resource based industries and fluctuations in these industries can cause serious economic challenges.

#### *Declining Population*

The most notable trend is the overall decline and aging of the provincial population. Overall, the population decreased by 11 percent between 1991 and 2004 compared to an 11 percent increase nationally (Newfoundland Statistics Agency, 2005) which makes this Province's population the most rapidly aging population in the country. This loss was concentrated among the 0-19 age group, which saw a decline of 29.4 percent (Government of Newfoundland and Labrador, 2002).

This trend is a result of a declining birth rate which is already the lowest in the country. (Refer to Appendix A, Table A-2). 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 net population declines in recent years. For the first time in its history, the Province realized a net decline of 126 people in 2006 (Refer to Appendix A, Table A-2) which is the number of deaths minus the number of births.

### Out-migration

Out migration has been affecting the population of Newfoundland and Labrador since the mid-1990s and it is expected to create significant pressure on labour supply across a variety of sectors. (Refer to Appendix A, Table A-3). In 2005-06, net migration was -4,368 and overall, the population decreased by 11% between 1991 and 2004, compared to an 11% increase nationally (Newfoundland and Labrador Statistics Agency, 2005). At the same time, the age profile has changed making the Province's population the most rapidly aging population in the country.

There is concern that the vast majority of people choosing to leave the Province are youth aged 15-25, accounting for 88 percent of the net loss of working age people over the last five years (Department of Human Resources, Labour and Employment, 2007). Since 1996, a greater percentage of higher educated workers are leaving the Province: 19.1 percent of out-migrating people from 1996-2001 had a university degree and 37.0 percent had a post-secondary certificate or diploma compared to 33.5 percent for the same periods. The percent of out-migrating people with high school and lower levels of education declined during these same periods.

The Province is experiencing increased immigration of people with higher levels of education, but not in sufficient numbers to overcome out-migration. As a result the Province is realizing a net population loss of people with higher education. Top occupations of out-migrants are: sales and services; secretaries, administration and clerical, processing and manufacturing (other); and equipment operators and labourers (Department of Human Resources, Labour and Employment, 2007).

### **3.1.2 Regional Demography**

The population of the Study Area fell from 19,337 in 2001 to 18,424 in 2006, representing a 4.7 percent decrease. With the populations of Placentia and Marystown removed, the population of the Isthmus communities (including Clarenville) increased by 1.5 percent over the five year period. This increase can be mainly contributed to the 3.3 percent increase in Clarenville.

Table 3-1 provides population data for some of the more significant communities in the Study Area and provides recently released 2006 census data. This provides an accurate account of population changes since 2001 at the community level, as well as the overall rate of migration albeit for 1996-2001.

**Table 3-1 Community Populations**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	By Come Chance (Goobies)	Placentia
Population 2006	477	1,024	671	510	5,274	5,436	474	260	3,898
Population 2001, Total	490	1,060	692	511	5,104	5,908	591	265	4,426
Population Change 2001-06 (%)	-1.5	-2.1	-3.0	-.02	+3.3	-8.0	-19.8	-1.9	-11.9
Migration Rate, 1996-2001 (%)	-0.9	-	8.2	-10.9	+5.8	-10.1	-15.3	-4.0	-

**Notes:**

Swift Current includes Garden Cove

Southern Harbour includes Little Harbour East

Placentia Includes Dunville, Freshwater and Jerseyville

**Source:** Census 2006, Community Profiles, Statistics Canada

The populations of both Marystown and Placentia have decreased significantly since 2001, down 8.0 percent and 11.9 percent respectively as a result of low levels of activity at some of the major industries (e.g. Kiewit Offshore Services). Excluding Clarenville, the population of the nine closest communities to the proposed site had an average population decrease of 2.1 percent between 2001 and 2006. This is comparable to the overall provincial population decline between 2001 and 2006 of 1.5 percent.

Due to its more diversified economy, the Avalon Peninsula has experienced less of a population decline than all other areas of the Province, losing only 3.4 percent of its population between 1996 and 2001. Out-migration from many of the smaller communities within the Study Area has occurred. It is not known with any certainty where these people have gone – some would have gone to Alberta and other Provinces, but also to the St. John's region, thereby minimizing the overall population drop of the Avalon (Refer to Appendix A, Table A-3). Many of those who have out-migrated are skilled workers from the Isthmus area of the Province (Department of Human Resources, Labour and Employment, 2007) who may have worked previously at ERCO or the Bull Arm Fabrication Facility.

## **3.2 THE ECONOMY, LABOUR MARKET AND BUSINESS**

### **3.2.1 Economic Sectors**

#### *3.2.1.1 Historical Background*

Quality of life is dependent, in part, upon having long-term economic stability leading to direct and in-direct employment opportunities. Strong economic conditions create employment which improves self-sufficiency (less government transfer payments), generates greater purchasing power and provides a greater sense of self-worth and purpose, all of which contributes to overall community health and wellness.

Unfortunately, the provincial economy has faced a number of systemic challenges. For hundreds of years, Newfoundlanders and Labradorians have relied upon traditional resource sectors, particularly fishing, forestry and mining, for economic survival. This has resulted in a high dependency among communities on primary, if not single, industries. As well, the population is sparse and rural based requiring ongoing social and economy supports. The Province also has experienced limited export opportunities, low-value added production, and seasonal employment, which is, again, rural focused. Unemployment rates have remained relatively high and incomes are low compared to the rest of the country. The dependency on income transfers from federal and provincial governments is also chronically high.

This situation was aggravated in 1991 with the closure of the groundfish fishery resulting in an economic downturn that affected communities throughout the Province for many years and still continues today.

#### *3.2.1.2 The Current Situation*

Today the Province is facing new and increasing levels of competition from global competitors that can operate with lower employment and production costs and demonstrate higher productivity overall. With this increased competition in many resource industries, employers within some communities have closed their operations causing devastating results to the local economy.

The discovery of commercial offshore oil and gas reserves in the late 1970s provided a welcome source of economic relief for the Province. The Hibernia offshore oil field, which resulted in significant construction activity in the early 1990s, provided for substantial capital investments in the Province and generated major levels of employment. Overall the project fuelled economic growth to a level that exceeded the Canadian average. The Hibernia development was followed by the development of the Terra Nova and White Rose oil fields, which again provided for substantial levels of employment, relatively high incomes and economic prosperity. As a result, in 2002 and subsequent years, the Province realized the fastest growing provincial economy in Canada. By 2003 the oil and gas industry accounted for almost 18 percent of provincial

Gross Domestic Product (GDP) and 2.7 percent of total labour income in the Province (Department of Finance, The Economy 2004).

By the early 2000s the development of the Voisey's Bay nickel mine in Labrador, combined with reactivation of previous known mineral sites due to new technologies and increased demand, breathed new life into the mining and minerals sector.

GDP was projected to grow 6.2 percent in 2006/07 (Economic Research and Analysis Division, 2006); however, was only 1.9 percent as a result of a number of considerations including failure to proceed with negotiations to facilitate the progress of new industrial projects, notably the Hebron oil field. Most of GDP growth was supported by a 2.6 percent increase in mineral exports and, to a lesser extent, government expenditures. Total capital investment for 2006 declined by 1.0 percent to reach \$4.5 billion (Department of Finance, The Economy 2007).

Baseline economic data collected for this report demonstrates that the Province has sustained growth in GDP, capital investments and personal incomes since 1997 (Refer to Appendix B, Table B-1). The mining and oil and gas sectors had the greatest contributors to growing the economy between 2002 and 2005. A recent "flash sheet" of the Province's economic health is provided in Table 3-2 below (For the contribution of each industry to GDP and the considerable contribution of oil and gas refer to Appendix B, Table B-2).

**Table 3-2 Flash Sheet Economic Indicators February 2007**

Category	Count
Population, Feb, 2007	509,000
Population, Feb. 2006	513,500
Labour Force, Feb. 2007	241,200
Total Persons Employed (Adjusted)	218,300
Unemployment Rate (Adjusted)	14.3%
Gross Domestic Product (GDP) (millions \$, 2005)	21,486
Consumer Price Index (CPI), All Items, \$ millions	\$129.1
Percent Change Since Feb. 2006	1.6
Gross Value of Manufacturing Shipments, \$ millions, Jan. 2007	\$155.5

**Source:**  
 Newfoundland Statistics Agency, Government of Newfoundland and Labrador

The Province is expected to continue realizing strong growth in 2007 with real GDP increasing by 8.5 percent. This growth will be supported by increased production at the Terra Nova field and higher oil and mineral exports. Newsprint and fish product exports are expected to hold steady at current levels. Personal incomes are expected to grow by 3.4 percent which will support increased retail and car sales. Housing starts are expected to decline due to shifting demographic patterns and a decreasing population. Employment growth will be 1.2 percent with most growth occurring in the service sector (Department of Finance, The Economy 2007). Capital Investment is expected to continue declining into 2007 by 7.6 percent as a result of reduced project expenditures. Beyond 2007 real GDP is projected to slow to 0.8 percent as oil and gas declines slightly and as other industries remain steady production (Refer to Appendix B, Table B-1).

### 3.2.1.3 *Provincial Economic Sectors*

#### Oil and Gas

The oil and gas industry continues to be a vital part of the provincial economy, contributing 15 percent of real GDP to the provincial economy for 2006-2007 with estimated revenues of approximately \$500 million. The industry is also an important source of employment: total direct oil production employment contributed over two percent of total provincial employment in 2006 and provided 4,300 jobs (Department of Finance, The Economy 2007).

Total oil production in 2006 fell by 10.3 percent to 110.9 million barrels which was lower than 2005 levels and much lower than earlier 2006 predictions due to equipment problems at Hibernia. Declines in production are also expected for 2007 as the facility undergoes further repairs and maintenance.

Terra Nova's production of 13.7 million barrels of oil during the 2006 was a substantial decline from the 36.2 million barrels produced in the same period for 2005 due to downtime for a planned FPSO retrofit. Production is expected to jump to approximately 40 million barrels in 2007.

White Rose, which is the third oil field developed on the Grand Banks, achieved first oil on November 12, 2005 and production in 2006 was 32.1 million barrels. The field is expected to increase production by 36 percent in 2007. Husky Energy has also announced two new oil discoveries containing an extra 190 million barrels of recoverable oil resources, which is comparable to the Terra Nova oilfield.

Despite the declines in production, the total value of production for 2006 increased by an estimated 11.7 percent to reach an estimated value of \$8.2 billion. This increase reflects increasing prices for high crude oil prices which reached \$65.16 per barrel compared in 2006 for a 19.4 percent increase over 2005 levels (Average Brent Crude oil – Department of Finance. The Economy 2007).

The potential development of the Hebron field could also provide significant benefits depending on the development option selected and pending successful resolution of the currently stalled negotiations between the provincial government and the operator. The Canada-Newfoundland and Labrador Offshore Petroleum Board (CNLOPB) estimates that the Hebron field contains 731 million barrels of oil reserves which is the second largest field offshore Newfoundland.

Continuing interest exists in exploration of additional oil and gas reserves and \$819 million in commitments for outstanding work remain to be completed by January 2012. This is expected to support the drilling of 2-3 wells each year over the next five years. High energy prices are expected to secure continued exploration activities over the coming years. Overall, provincial oil production for 2007 is expected to grow by 30 percent (Department of Finance, The Economy 2007).

#### Fisheries and Aquaculture

The fishing industry, both harvesting and processing, contributes about \$400 million annually to the provincial GDP and provides jobs to about 26,000 people; in 2005 the industry accounted for 7.5 percent of total provincial employment. In 2005 the value of fish landings was down by more than 20 percent over 2004 levels; however, in 2006 fish landings increased 2.2 percent to total 346,200 tonnes.

Overall the industry faced challenges in 2006 resulting from a late start to the crab season, a soft market for key species such as shrimp and crab, unfavourable exchange rates with primary clients in the US and weak markets generally. By the end of 2006, the total value of fish landings declined by 10.5 percent to a value of \$445.3 million (Department of Finance, The Economy 2007; Refer to Appendix B. Table B-3). As well, the increasing low cost competition from China and Europe continues to be a significant challenge for the provincial industry.

The aquaculture sector has realized moderate growth. Export value for aquaculture products increased from \$22 million in 2004 to \$33.5 million in 2005 (Jacques Whitford, 2007); in 2006 production increased again from 8,164 tonnes to 10,500 tonnes in 2006 with a value of \$52.3 million, reflecting strong markets for aquaculture products. The industry employed 370 people in 2006. Investment in new aquaculture farms is expected to increase in coming years, particularly as a result of the plans by Cooke Aquaculture Inc., a New Brunswick firm, to invest \$135 million in several salmon farms on the Connaigre Peninsula. Together with a supporting investment of \$20.5 million by the federal and provincial governments, it is expected that aquaculture productivity will increase by 17,800 tonnes and create approximately 200 full time year round jobs (Department of Finance, The Economy 2007).

### Mining

The mining industry provides a significant contribution to the provincial economy accounting for 3.2 percent of GDP in 2005. It is predicted to increase its contribution for 2006 (2006 figures unavailable); the industry accounted for 1.6 percent of employment in 2006 which is higher than the Canadian average. In real terms, mineral shipments from the Province in 2006 were the highest recorded since the 1970's (Department of Finance, The Economy 2007).

The iron ore mines in Labrador, shipped 20 million tonnes in 2005 and the total value of shipments was \$1.3 billion, a 3.1 percent increase over 2005 levels. The Iron Ore Company of Canada (IOC) increased production by six percent over 2005 levels while Wabush mines realized a 17.9 percent decline over 2005 levels. Confidence in this industry was confirmed by an investment of \$65 million in retrofit and other infrastructure by IOC in 2005.

Voisey's Bay Nickel Company (VBNC) realized almost full production in 2006 with shipments of metal concentrate totalling 72,000 tonnes and a value of approximately \$1.2 billion. Employment totalled 1,470 people in 2005, including those employed at the Argentia Demonstration Plant (employment levels for 2006 unavailable). The expectations that VBNC will construct either a commercial hydrometallurgical or a commercial matte processing plant will provide incremental employment of 350-400 jobs at either facility at Long harbour, Placentia Bay (Department of Finance, The Economy 2007).

Other mining initiatives include the mine at Duck Pond in central Newfoundland which has reserves of 4.1 million tonnes of copper, zinc, silver and gold concentrate. The life span of the mine is estimated at eight years and it is expected to employ about 192 people annually. Exploration activity also continues with: the Anaconda Gold Corporation intending to mine at the Cove Gold Project; the reopening of the Beaver Brook Antimony mine; and Rambler Metals and Mining Canada operations on the Baie Verte Peninsula. Overall, exploration for 2006 was worth \$98 million which was the highest level ever recorded (Department of Finance, The Economy 2007). Interest in Aurora Energy Resources' uranium property in the central mineral belt of Labrador continues to grow with a planned construction date of 2010 and operations expected to begin in 2013..

Overall, the value of mining shipments is expected to increase by 35 percent in 2007 with industry employment increasing by 1.6 percent to reach approximately 3,500 jobs (Department of Finance, The Economy 2007).



### Forestry and Newsprint

The forest industry operates primarily in rural parts of the Province and provides a meaningful contribution to rural economies and much needed employment that can bridge the gap between other seasonal employment. With estimated direct and indirect employment ranging up to 12,000 full time and part-time jobs, the forest industry is considered a very important contributor to many local rural economies on the Island.

The industry is facing a number of challenges with wood supply and access, quality of supply, declining and unstable newsprint prices, sawmilling operations and lack of value added processing. The recent closure of the Stephenville plant that affected not only the forestry sector on the Island, but also effectively closed down the Upper Lake Melville wood supply industry, and issues regarding the continued economic viability of the two remaining mills are a concern. In January 2007 Abitibi-Consolidated and Bowater Inc. announced that they would consolidate their operations in an effort to increase their competitive positioning and activities are underway to cut costs at operating facilities. The provincial government has also undertaken an extensive exercise to consider the overall management and operating framework of the forestry industry with a view to supporting the sustained viability of the industry. The project is expected to be concluded by the end of the summer in 2007.

The newsprint industry, which has dominated the forest industry on the Island, realized increased exports of 4.1 percent in 2005. The industry is also facing a number of challenges including high labour costs and the need to absorb increasing wood energy costs while world demand for newsprint is dropping. In 2005 the value of Newfoundland and Labrador's newsprint shipments increased 7.5 percent to a value of \$563 million, but fell in 2006 by 22 percent to 594,800 tonnes, mainly as a result of the closure of the Stephenville mill. Predictions for 2007 see shipment levels holding steady and newsprint prices continuing their decline (Department of Finance, *The Economy* 2007).

### Energy

The development of the Lower Churchill River Hydroelectric resource by Newfoundland and Labrador Hydro continues to present significant opportunities for the development of hydro resources in the Province. The resource is located 225 kMs from the Churchill Falls generating facility and can provide for the development of two sites: Gull Island with a potential to produce 2000 mW annually; and Muskrat Falls with the potential of producing 824 mW of energy per year. In total this resource can effectively service an estimated 1.5 million households annually (Department of Finance, *The Economy* 2007).

Construction is planned for 2009 and potentially first power by 2015. Current activities include feasibility assessments, negotiations with the Innu Nation of Labrador on an Impact and Benefits Agreement (IBA), and environmental studies leading to the filing an Environmental Impact Statement by the fall of 2007. Overall, the annual construction workforce required at the project's peak is estimated at 2,000 (Department of Finance, *The Economy 2007*).

NLH is assessing market access options including monitoring the progress of its application to Hydro-Quebec TransEnergie that will allow power from the Lower Churchill Project to be transmitted from the Labrador/Quebec border to markets in Quebec, Ontario, U.S. northeast and the Maritimes (Press Release, Government of Newfoundland and Labrador, May 8, 2006). Other options include transmitting power to the Island of Newfoundland and through a maritime Provinces' corridor to major Eastern energy consumers.

Wind resources in the Province are rated as "Class 1" which places the Province among the best places in the world for wind energy. Toronto-based wind energy developer Ventus Energy Inc, and Métis Energy Corporation have formed a partnership to develop a \$2.5 billion wind farm near Churchill Falls, Labrador. If completed, the farm will be the largest in Canada with a capacity of 1,000 megawatts. Over 2,000 direct and indirect construction jobs and over 200 direct and indirect long-term operation and maintenance jobs would be created in the area. NLH has also awarded a contract for 25-megawatts of wind power at St. Lawrence and is also considering export opportunities for wind power. (Press Release: Executive Council, Natural Resources, October 13, 2006)

### Tourism

Internationally, tourism has substantially increased while the Canadian tourism industry has declined. In the Province, tourism spending is approximately \$800 million annually, with resident travel within the Province accounting for 60 percent. Resident travel has been declining since 1998 because of high gas prices and the reduced cost of travel outside Canada. Non-resident travel has been increasing and in 2006, 496,400 non-residents visited the Province, spending \$366 million. This is an increase of 8.8 percent in expenditures which exceeded expectations for that year. The majority of growth was realized in urban communities while rural areas experienced some decline. This reflects the increase in air traffic – up 11 percent in 2006 - as travellers shift from car to air as a preferred means of travel. This trend is expected to continue supported by increased travel air options and discount fares (Department of Finance, *The Economy 2007*).

Cruise ship travel declined by five percent in 2006 but increased the ports of call from 97 to 105 in 2006. In the St. John's region, there has been an increase of four percent in conventions and delegates in 2006.

### Construction

In 2006, construction investments rose for the fourth consecutive year, increasing in total by 2.5 percent to a value of \$3.4 billion. Employment also rose by four percent in 2006 for the fourth consecutive year reaching its highest level and translating into an annual average of 12,900 construction related jobs. This growth follows a 23 percent increase in construction employment from 2003 to 2004. The industry has also realized increases in employment wages with weekly earning increasing by 24.4 percent over the last four years (including overtime). Most of the growth in the construction sector has been achieved because of increased residential construction which rose 3.1 percent to a value of \$1.03 billion in 2006. This growth is fuelled in large part by low interest rates and a stable economy. Non-resident construction increased by 2.3 percent in 2006

Overall construction investment is projected to decline in 2007 by as much as 10.3 percent to \$3.0 billion. Non residential construction will see the largest decline – 14.3 percent – as housing starts drop (Department of Finance, The Economy 2007).

### Manufacturing

The provincial manufacturing industry is mainly derived from resource based industries such as fishing and forestry. Other significant activities include crude oil refining and metal product fabrication. With shipments valued at \$2.1 billion in 2006, the manufacturing industry declined by 10.4 percent over the previous year.

This reduction in activity is attributable to several key factors. An 11 percent decrease in the value of seafood products related to lower prices in the US as well as increasing strength of the Canadian dollar. The 2005 closure of the Stephenville paper mill resulted in an approximate 20 percent reduction in the value of newsprint exports. While metal product fabrication remained strong, completion of the construction phase of the White Rose project meant a nearly 40 percent decline in metal project fabrication in the Province.

The manufacturing industry was responsible for 6.6 percent of GDP in 2005 and 7.3 percent of total employment in 2006. Due to the reduction in newsprint manufacturing and financial impacts on seafood processing, total employment in the sector was reduced by 1,100 person years or 6.5 percent. Other than these two sectors, manufacturing employment remained stable in 2006.

#### 3.2.1.4 *Regional Economic Sectors*

Activities associated with the ocean resources are vital to the economy of the Placentia Bay region and its communities, more so than many other areas of the Province. Major industry in the area currently includes the North Atlantic Oil Refinery; Kiewit Offshore Services, Marystown; Newfoundland Transshipment Limited at Whiffen Head, the main terminal at Argentia, and fish plants and independent fisherman throughout the Bay.

Ocean-related activities in the area contribute significantly to GDP, labour income and employment.

Related contributions from ocean-related industries in Placentia Bay to GDP averaged about \$358 million annually from 2001 to 2004 which accounted for 50.3 percent of the area's total GDP. Considering direct, indirect and induced impacts, the total oceans-related GDP in the Placentia Bay region is about \$454 million for the same period which represents 63.9 percent of the area's total GDP compared to 41.3 percent for the Province.<sup>2</sup> Offshore oil (production and development) was the most significant contributor to total GDP accounting for 46.3 percent compared to 11.0 percent for fishery harvesting and processing (Estimating the Value of the Marine, Coastal and Ocean Resources of Newfoundland and Labrador, 2005).

Direct employment<sup>2</sup> associated with ocean-related activity in the Placentia Bay region averaged about 2,900 jobs from 2001 to 2004 or 29.1 percent of total employment in the area. Considering direct, indirect and induced effects, ocean-related employment in the area is estimated to average about 4,500 jobs over this same period. This results in 45.6 percent of the area's total employment being based on ocean-related activities compared to 25 percent for the Province as a whole. In terms of the private sector, the most important industries are the fishery (harvesting and processing) and offshore oil activity (production and development). Fisheries and Oceans Canada accounted for the largest portion of the public sector contribution (Estimating the Value of the Marine, Coastal and Ocean Resources of Newfoundland and Labrador, 2005).

Total direct labour income impact of ocean-related activity in the Placentia Bay region averaged about \$111 million annually from 2001 to 2004 representing 31.4 percent of the area's total labour income. Considering direct, indirect and induced effects, ocean-related labour income in the Placentia Bay region averaged about \$191 million which accounted for 53.8 percent of total labour income compared to 27.2 percent for the Province. The most significant private sector industries, in terms of total labour income impact, were offshore oil (production and development) at 30.4 percent and the fishery (harvesting and processing) at 17.8 percent. Public sector ocean-related activity contributed 1.4 percent of labour income (Estimating the Value of the Marine, Coastal and Ocean Resources of Newfoundland and Labrador, 2005).

---

<sup>2</sup> Direct impacts are labour income and business profits earned by workers and business owners working directly on a given activity or project; Indirect impacts are generated when other firms supply goods and services to the direct activity or project; and Induced impacts are generated when direct and indirect employees and business owners spend their incomes in other areas of the economy which leads to increased retail sales, housing starts and so on

In 2007, a number of ocean-related projects have been identified for the Placentia Bay region which will provide for some economic activity, albeit not significant. Outlined in Table 3-3, these are based on projections developed in early 2006. In addition, as a result of several large-scale projects projected to take place in the Placentia Bay region, numerous consulting studies are currently taking place, many of which are employing people from the Study Area. Future developments proposed for Placentia Bay are discussed in EIS Volume 4 Section 15, Cumulative Effects.

**Table 3-3 Current Ocean Related Projects for Placentia Bay**

<b>Project</b>	<b>Capital Cost</b>	<b>Schedule</b>
Environmental Remediation, Argentia US Navel Site	\$106.0 Million	<b>1996/2007</b>
Refinery Upgrades, North Atlantic Refinery, Come By Chance	\$600.0 Million	<b>1996/2006 (Continuing)</b>
<b>Dock Upgrade in Argentina</b>	<b>\$7.0 Million</b>	<b>2005/06</b>

### 3.2.2 Labour

#### 3.2.2.1 Labour Data Base

Limited labour data was available from the 2006 Census at the time of writing this report; more detailed data will not be available until May 2008. However, in response to industry's need to understand the dynamics of the provincial, regional and municipal labour pools, in 2004 the provincial Department of Human Resources, Labour and Employment (HRLE) undertook an initiative with private and public sector partners to develop a comprehensive database that would define regional labour markets. The resulting data provided currently represents the most reliable and up-to-date information.

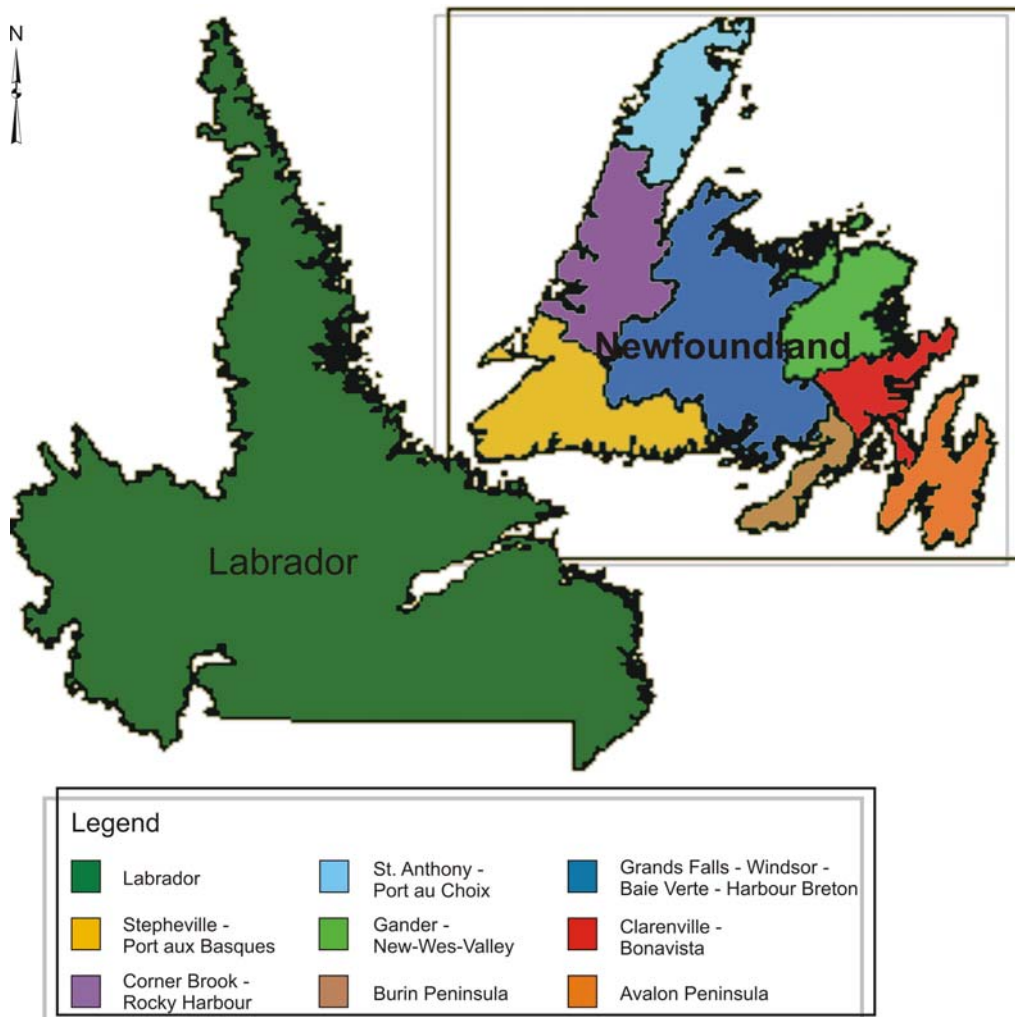
Looking at labour markets from a regional perspective is valuable for large scale industrial projects. The geography of the Province has developed a very mobile workforce and commuting to a place of work outside of one's community, even as much as 160 km per day, is not uncommon. By examining the labour pool from a regional perspective, as opposed to individual communities, project managers can consider the availability of labour on a larger and more comprehensive scale.

The database developed by the HRLE initiative is based on the following nine Rural Secretariat regions:

- Labrador
- St. Anthony-Port aux Choix
- Corner Brook - Rocky Harbour

- Stephenville-Port aux Basques
- Grand Falls- Windsor-Baie Verte-Harbour Breton
- Gander-New We valley
- Clarenville-Bonavista
- Burin Peninsula
- The Avalon Peninsula.

For the purposes of this project, information from three regions is most pertinent: Clarenville-Bonavista, the Burin Peninsula; and the Avalon Peninsula. These areas will be referred to as the “core project regions”. The map provided below outlines the Province according to the nine Rural Secretariat regions depicted in Figure 3-1.



**Figure 3-1 Newfoundland and Labrador's Nine Rural Secretariat Regions**

Source: Government of Newfoundland and Labrador, Rural Secretariat

Data for individual communities in the Study Area will also be presented throughout this document for the communities as follows:

- Arnold's Cove
- Clarenville
- Come By Chance including Goobies
- Garden Cove
- Little Harbour East
- Marystown
- North Harbour
- Placentia
- Southern Harbour
- Sunnyside
- Swift Current

#### 3.2.2.2 *Labour Market Trends*

Labour markets in the Province face continuing challenges associated with rural economies, limited industries, seasonal employment and a high reliance on income transfers. Despite economic growth, overall employment levels remain low relative to other Canadian and Atlantic economies and out-migration effectively erodes the educated workforce. Notwithstanding the size of the provincial workforce, overall employment levels are expected to remain steady in the Province, if not increase marginally, during 2007-2009 based on expectations that some Newfoundlanders will return to the Province to obtain work on some of the proposed large scale projects. (Refer to Appendix B, Table B-4).

The Province has the highest percentage of rural-based labour in Canada. These workers tend to be older and have lower levels of education. Rural labour pools are also more dependent on traditional and seasonal, primary resource-based industries which in turn generate only seasonal employment, low incomes and again, a relatively high reliance on income transfers through employment insurance and social supports.

The aging provincial population is also impacting a host of economic and social issues, notably incremental declines in workforce size as workers retire and the youth population is insufficient to replace retiring workers.

Almost 47 percent of the provincial population is located in rural areas - the highest rate in Canada - and this has a significant impact in characterizing the nature of employment in the Province. Mobility of the provincial workforce is a common characteristic and generally reflects the tide of economic activity. Indeed, it is not unusual for workers to commute upwards of 80 kMs one way each day for work (Refer to Appendix B, Table B-5). As a result of many workers' preference to commute, some trade unions provide (through collective agreement) a subsidy to employees whose daily commute is more than 34 km one way. For this reason, when considering the labour force in any

particular region, it is reasonable to consider the labour pool within a 50 km or more radius.<sup>3</sup>

In the Clarenville-Bonavista region the working age population has declined by more than 10 percent since 1996 and it has declined by 13 percent in the Burin Peninsula. It is estimated that these areas will realize declines of 29.5 percent and 19.7 percent respectively by 2021. Strategies to address the associated challenges are now being considered by government, labour, educational institutions and other stakeholders.

### 3.2.2.3 Labour Market

#### Provincial Labour Market

Table 3-4 provides core statistics regarding the labour market for the Province, and the Employment Catchment Area. The table shows that the working population as a percent of the total population is fairly uniform at approximately 60 percent except for the Avalon which has a lower median age.

#### Regional Labour Market

Both the Clarenville-Bonavista and Burin Peninsula regions have experienced substantial declines in working populations between 1991-2006 (10.4 percent and 13.3 percent respectively). The Avalon realized 7.7 percent growth. Declines forecasted for 2006-2021 are high at a 19.7 percent decline for Clarenville-Bonavista and a decline of 29.5 percent for the Burin region and even the Avalon Peninsula is projected to decline by 8.5 percent. It is not known just how permanent this out-migration may be and what percentage of workers would be inclined to relocate to the Province should work become available. Other findings include:

- Labour participation rates for 2006 are below 2001 levels;
- Participation rates in the Employment Catchment Area fall below the provincial average;
- The average age of the working population is highest in Burin at just under 50 years;
- Employment rates in the Clarenville-Bonavista region exceed the provincial average for both males and females; Burin rates are below the provincial average;
- Unemployment rates in both the Clarenville-Bonavista and Burin core projects regions are higher than the provincial average among both genders reflecting the seasonal nature of work in the area.

As mentioned previously, mobility of the workforce is a common characteristic in this Province. As many as 43.6 percent of workers in Clarenville-Bonavista, 33.2 percent of

---

<sup>3</sup> Considering mobility it is estimated that the working population in Marystown, ages 25-54, within a 50 km radius is 6,550 (Department of Human Resources, Labour and Employment, 2007). Within the 50 km radius of Clarenville the workforce is estimated at 6,590.



workers on the Burin Peninsula and the 43 percent of the Avalon labour pool worked in a different community than where they lived.

**Table 3-4 Labour Market Data**

	Province	Clarenville-Bonavista <sup>4</sup>	Burin Peninsula	Avalon Peninsula
Total Labour Force 2005, Total	253,100 <sup>5</sup>	52,700	17,600	129,700
Working Age Population (Ages 20-64), 2006	-	-	-	-
Number	64.8%	63.8%	65.6%	62.6%
Percentage				
Percent Change in Working Population 1991-2006	-3.1	-10.4	-13.3	+7.7
Projected Change in Working Population, 20-64 Yrs, 2006-2021 (%)	-14.6	-19.7	-29.5	-8.5
Median Age of Workforce, 2004	49.3yrs	42.5yrs	49.8yrs	40.3yrs
Total Participation Rate, 2005 (%)	58.8	54.4	51.2 <sup>6</sup>	62
Unemployment Rate (Adjusted), Feb. 2007 (%)	14.3	19.6 <sup>7</sup>	25.3 <sup>8</sup>	11.8

**Source:**

Labour Force Survey, Statistics Canada; Labour Market Indicators and Trends: Labour Market Development Division, Department of Human Resources, Labour and Employment. Winter 2007

Within these regions some communities experience higher employment opportunities than others based on their industrial base and/or their role as regional centres providing a more comprehensive range of business, social and personal services. Table 3-5 below which shows higher levels of participation and employment in Come By Chance, Arnold's Cove, Clarenville, Marystown and Sunnyside.

<sup>4</sup> Economic Region: Notre-Dame-Central-Bonavista

<sup>5</sup> 2006 Data Census data

<sup>6</sup> Economic Region 1020: South Coast-Burin Peninsula

<sup>7</sup> Economic Region: Notre-Dame-Central-Bonavista

<sup>8</sup> Burin Peninsula and South Coast

**Table 3-5 Community Employment, Unemployment and Participation Rates 2001(%)**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	Come By Chance	Placentia
Labour Force;									
Male	140	290	150	65	1370	1,225	150	115	1,005
Female	70	250	120	40	1260	1,050	115	80	825
Employment Rate, 2001, %									
Males	40.9	68.7	37.7	50.0	60.2	45.6	42.3	72.7	38.3
Females	37.3	56.0	34.0	21.1	52.6	44.1	25.0	57.1	37.5
Unemployment Rate, 2001, %									
Males	35.7	-	22.6	-	16.0	29.8	27.6	11.1	36.1
Females	17.6	7.7	29.2	50.0	13.6	16.6	54.2	0.0	19.9
Participation Rate, 2001, %									
Males	63.6	69.9	50.8	50.0	71.7	65.0	55.8	81.8	59.9
Females	43.6	61.9	45.3	2.1	60.8	53.2	50.0	57.1	46.8

**Notes:**

Swift Current includes Garden Cove

Southern Harbour includes Little Harbour East

Placentia Includes Dunville, Freshwater and Jerseyside

**Source:**

Census 2001, Community Profiles, Statistics Canada

3.2.2.4 *Employment*

Provincial Employment by Industry Sector and Occupation

Employment growth in many sectors has been sustained in recent years by the oil and gas industry, construction work and goods producing sector. April 2006 saw a decline in activity across all industries as a result of failed negotiations respecting the Hebron field and the shut down of the Terra Nova field. This caused some of the remaining service industries to move elsewhere or defer some of their investments; other companies to suspend their activities and still others were forced to close their doors. The effect of these events has caused a major negative ripple throughout the provincial economy with employment declines in all resource sectors (Refer to Appendix B, Table B-6). As an example, the major Newfoundland and Labrador oil and gas trade show was not held in the Province for the first time in 18 years.

Regional Employment by Industry Sector and Occupation

Within the Study Area, the primary occupations are manufacturing and construction, business services, wholesale and retail trade, health and education, and agriculture and other resource based industries (Refer to Appendix B, Table B-7 for more detailed information).

Data presented in Table 3-6 provides the distribution of workers by gender and industry occupation within the Province as well as the Study Area. The categories of trades, transport and equipment show a higher proportion of employment for males than do other industries, demonstrating the relationship between industrial activity and number of skilled workers in the Province as well as this region. Within the Study Area communities, females are primarily employed in the business, finance and administration categories as well as sales and service demonstrating how few females are involved in industrial activity.

**Table 3-6 Distribution of Workers by Occupation, 2001**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Management Occupations				
Males	9.2%	7.2%	6.7%	11.1%
Females	6.4%	7.2%	5.3%	6.5%
Business, Finance, Admin				
Males	6.5%	3.2%	2.3%	8.7%
Females	21.4%	14.4%	15.0%	26.3%
Natural and Applied Science & related				
Males	7.6%	4.9%	4.2%	9.7%
Females	1.9%	1.0%	1.2%	2.6%
Health				
Males	2.3%	1.7%	0.9%	3.0%
Females	9.5%	5.6%	7.0%	10.9%
Social Science, Education, Government Service & Religion				
Males	5.5%	4.3%	4.5%	6.4%
Females	9.6%	8.2%	7.9%	10.4%
Art, Culture & Recreation				
Males	1.5%	0.8%	0.6%	2.3%
Females	2.4%	1.2%	0.4%	3.1%
Sales and Service				
Males	16.0%	10.4%	12.0%	18.8%
Females	34.3%	36.0%	34.4%	30.8%
Trades, Transport, Equipment				

	Province	Clarenville- Bonavista	Burin Peninsula	Avalon Peninsula
Operators	29.4%	36.5%	30.9%	25.8%
Males	1.8%	2.6%	1.9%	1.2%
Females				
Primary Industries				
Males	11.6%	15.5%	20.0%	6.3%
Females	2.9%	6.5%	7.5%	1.2%
Processing, Manufacturing and Utilities				
Males	6.9%	13.0%	14.9%	4.8%
Females	5.5%	12.1%	12.8%	3.3%
Other				
Males	3.3%	2.4%	2.9%	3.1%
Females	4.4%	5.3%	6.7%	3.6%

**Source:**  
 Community Profiles, 2001, Statistics Canada

Within the individual Study Area communities, the greatest sources of employment for men is within the trades, transport and equipment operator job categories as well as in the processing, manufacturing and utilities categories. For females it is within business, finance and administration categories as well as sales and service and health categories. (Refer to Appendix B, Table B-8).

No provincial laws exist to support employment equity (M. Moran, pers.comm), but federal laws on equity exist through the Federal Contractors legislation.” Recently, larger scale projects (e.g. Voisey’s Bay, White Rose) have been required to have equity plans, which should help increase the participation rate of women in trades and resource development (L. Macleod, pers.comm).

### 3.2.2.5 Income

#### Provincial Income

Income levels in the Province have seen steady increases and 2005 personal incomes on a per capita basis had grown almost 17 percent over 2001 levels (Refer to Appendix B, Table B-9) Management occupations and natural/applied sciences are the highest paying occupations. (Refer to Appendix B, Table B-10). Income levels in the Province are low relative to Canadian averages and this is particularly true of rural areas where incomes levels are generally lower due to the nature of employment.

#### Regional Income

Some of the lowest wage rates and incomes are in the Clarenville-Bonavista region and the highest incomes are realized in the Avalon Peninsula. Wage rates and incomes on the Burin Peninsula are also below the provincial average. Females in all three regions

(Clarenville-Bonavista, Burin Peninsula and the Avalon Peninsula earn and are paid significantly less than males (Refer to Appendix B, Table B-11).

Differences in incomes among communities often reflect the availability and seasonal nature of work. In Sunnyside, for instance, the local refinery provides steady employment and relatively high wages and this translates into steady indirect employment and other benefits. On the Avalon Peninsula labour demand is higher as is the standard of living. This puts upward pressure on wages resulting in higher overall incomes. Table 3-7 shows average income levels (2001) for the primary communities that will be affected by the projects as well the incidents of Social Assistance and Employment Insurance. Note that these income levels fall below the provincial average of \$22,176. Information on wage rates by occupation is available on a provincial basis only.

**Table 3-7 Community Incomes**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	By Come Chance	Placentia	Little Harbour East
Personal Income per capita, 2004,\$	22,700	21,500	23,000	19,900	22,000	20,600	19,200	20,900	17,000	19,000
Average Couple Income, 2004,\$	66,500	64,700	65,000	42,700	52,200	57,500	68,800	51,800	55,800	43,300
Median Incomes, 2004, All, \$	42,800	42,400	43,800	34,400	28,400	40,300	42,100	44,000	NA	15,600
Employment Insurance Incidence, 2001, %	48.2	62.3	40.7	50.0	31.1	34.7	71.4	43.5	45.6	-
Social Assist. Incidence, 2001, %	10.4	4.1	6.1	4.8	10.3	17.6	3.1	6.4	14.1	-

**Notes:**

No income "Income by Source" data available for Garden Cove

**Source:**

Community Accounts, Income Accounts, Government of Newfoundland and Labrador (2004)  
Statistic Canada, Community profiles, 2001

As noted, it is not uncommon for provincial communities to have a reliance on income transfers and the level of transfers generally reflect the economic health and independence of an area. Income transfers tend to be higher in areas where

employment levels and wage rates are relatively low. Table 3-8 shows the amount of income transfers by source for each of the communities in the Study Area.

**Table 3-8 Income Transfers by Source, 2004 (Thousands)**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	By Come Chance	Placentia*	Little Harbour East
Employment Insurance										
-Amount (\$,000)	971	3,014	466	617	9,122	7,484	2,529	827	3,876	569
-Contribution (%)	9.1	12.9	7.5	11.5	5.7	7.7	24.0	9.9	10.5	21.4
Income Support										
-Amount (\$,000)	150	168	33	14	2,245	2,473	46	84	883	11
-Contribution (%)	1.4	0.7	0.5	0.3	1.4	2.5	0.4	1.0	2.4	0.4
Worker's Compensation										
-Amount (\$,000)	-	71	-	-	975	1,300	-	-	220	-
-Contribution (%)	-	0.3	-	-	0.6	1.3	-	-	0.6	-
Old Age Security										
-Amount (\$,000)	493	1,338	395	374	7,397	3,281	492	406	2,921	305
-Contribution (%)	4.6	5.7	6.4	7.0	4.7	3.4	4.7	4.8	7.9	11.5
Canada Pension Plan										
-Amount (\$,000)	369	944	304	334	6,572	3,528	300	376	2,073	113
-Contribution (%)	3.5	4.0	4.9	6.2	4.1	3.6	2.8	4.5	5.6	4.3
Child Tax Credit										
-Amount (\$,000)	104	232	50	51	2,045	1,632	140	73	640	-
-Contribution (%)	1.0	1.0	0.8	0.9	1.3	1.7	1.3	0.9	1.7	-

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	By Come Chance	Placentia*	Little Harbour East
Total Transfer Incomes										
-Amount (\$,000)	2,214	5,921	1,350	1,553	28,289	20,394	3,932	1,961	10,992	1,064
-Contribution (%)	20.7	25.3	21.8	28.9	18.5	21.0	37.3	23.4	29.9	40.1
Total Transfer Incomes Per Capita (\$)	4,700	5,400	5,000	5,800	4,100	4,300	7,100	4,900	5,300	7,600

**Source:**

Compiled By Community Accounts, Newfoundland and Labrador Statistics Agency, Government of NL and Lab. Based on Canada Customs and Revenue Agency data for Small Area and Administrative data, Statistics Canada

No income "Income by Source" data available for Garden Cove

It comes as no surprise that small communities with a high proportion of older residents such as Little Harbour East would receive the largest amount and percentage of transfer payments. Communities with a diverse economic base and a higher proportion of younger residents, such as Clarenville, would receive fewer transfer payments and, therefore, would have a lower percentage of transfer payments.

### 3.2.2.5 Future Labour Challenges

Sustaining future labour supply poses a number of challenges for the Province. Demographic trends demonstrate that the population is both declining and aging as a result of low births rates, increased out-migration and other factors. These same projections demonstrate that the labour force will shrink as the older workers, now aged 55-64, retire over the coming decade. Provincial data predict a rapid decrease in new labour market entrants as a percentage of retirees and that over the next 15 years, "There will be only one new labour market entrant for every two potential retirees" (Department of Human Resources, Labour and Employment, 2007). This will create significant challenges in terms of sustaining business and economic growth and supporting new project initiatives in the future. Literacy rates, particularly among the older age groups in rural areas, also present challenges.

To address these labour challenges, the provincial government commissioned a task force in 2006 to consider the future demand for skilled trades people in the Province and the ability of the provincial workforce to respond to these demands (All the Skills to Succeed, March 2007). The Task Force also considered the cumulative demand for

labour that would be generated as a result of several large scale projects, both those already in operation (Hibernia, Terra Nova, White Rose oil field and IOC mining operations) and new projects that are well advanced into the planning stage (Voisey's Bay Nickel Company, the development of the Hebron oil field and the Lower Churchill Project). A detailed analysis of the cumulative demand for labour is discussed in Volume 4 Section 15, Cumulative Effects.

### **3.2.3 Business Capacity**

#### *3.2.3.1 Provincial Business Capacity*

#### *3.2.3.2 Business Overview*

The Province's small population and diffused market means fewer opportunities for provincial entrepreneurs. Research shows that the key driver for business success is increasing market share (Shepard, Locke and Lynch, 2002) and, with limited local opportunities to achieve this, firms must expand their businesses through export opportunities. Most provincial firms, however, have limited financial resources to cushion the risk associated with exploring and developing markets outside the Province. The Province ranks eighth in Canada and third in Atlantic Canada for total exports as a percentage of GDP (54.8 percent, averaged from 2001 to 2004).<sup>9</sup>

Almost 60 percent of the Province's businesses are located in the St. John's area, with the others being proportionately dispersed throughout other regions. The Avalon Peninsula will continue to be the industrial and business centre for the Province and this is demonstrated in its relatively vigorous economy. A healthy number of businesses (57 percent) have been operating in the Province for more than 10 years, while the number of business start-ups in the past three years is under 13 percent (Shepard, Locke and Lynch, 2002).

The Province has good diverse engineering capacity, the majority of whom are located within the St. John's area. There are 78 civil engineering companies, 45 mechanical engineering companies, 34 electrical engineering companies, four chemical engineering companies, four petroleum engineering companies, and one metallurgical engineering company (Professional Engineers and Geoscientists of Newfoundland and Labrador, pers. comm.)

Table 3-9 shows the number of businesses operating in the Clarenville-Bonavista Region, the Burin Peninsula and the Avalon Peninsula.

---

<sup>9</sup> Data calculated by the Newfoundland Statistics Agency, Department of finance and statistics Canada. This data provided to AMEC by the Strategic partnership Secretariat, Government of Newfoundland and Labrador, June 2005.



**Table 3-9 Number of Businesses by Industrial Classification (NAICS) in Region, December 2005**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Mining and Oil and Gas Extraction	72	-	-	43
Construction	1,847	144	43	1,046
Manufacturing	629	49	13	304
Wholesale	773	35	14	457
Transportation and Warehousing	824	65	27	324
Professional, Scientific and Technical Services	895	27	18	638
Management of Companies and Enterprises	108	-	-	76
Administrative Support, Waste management and Remediation Services	611	29	14	350
Accommodation and Food Services	1,427	98	50	605
Total	7,186	447	179	3,843

**Source:**

Production Accounts, Community Accounts. Based on Statistics Canada Business Register, 2005

**3.2.3.3 Regional Business Capacity**

There is no data that accurately provides the number of businesses in each sector within the communities of the Study Area; however, 2004 data shows that approximately 6.0 percent of businesses in the Province were located in the Clarenville-Bonavista regions, 3.6 percent in the Burin Peninsula and more than 48 percent on the Avalon Peninsula (Refer to Appendix B, Table B-12).

Significant industrial infrastructure exists in the upper portion of Placentia Bay as well as in nearby Trinity Bay (e.g. Newfoundland Transshipment Terminal, North Atlantic Oil Refinery, Kiewit Offshore Services, Marystown as well as the industrial cluster at Argentia) Much of this infrastructure has been developed to support the development of the Province's oil and gas sector and significant and ongoing upgrades have ensured that these facilities remain competitive with international standards. Together, these facilities have supported an extensive range of complex industrial projects that have developed comprehensive industrial construction and fabrication capabilities. The relative close proximity of these facilities in the region provides a competitive advantage to the Province that is not always recognised and offers significant synergies to support continued industrial expansion (For further details on each of these major industrial sites, refer to Appendix B, Section B-2).

Several large non-oil related businesses are located with the Study Area including Smith's Snack Service in Norman's Cove, Icewater Seafoods in Arnold's Cove, Parson's Trucking in Southern Harbour and the industrial park at Argentia (Brief descriptions of these businesses can be found in Appendix B, Section B-3).

Table 3-10 shows the main businesses and employers in the larger community within the Study Area.



**Table 3-10 Main Businesses and Employers in Select Communities**

Sunnyside/Come By Chance	Arnold's Cove	Clarenville	Marystown	Placentia
<ul style="list-style-type: none"> <li>• North Atlantic Refinery</li> </ul>	<ul style="list-style-type: none"> <li>• Ice Waters Fishery</li> <li>• Come By Chance Refinery</li> <li>• Newfoundland Transshipment Limited</li> <li>• Regional High School</li> <li>• </li> </ul>	<ul style="list-style-type: none"> <li>• Local Hospital</li> <li>• Three local schools</li> <li>• Post secondary: College of the North Atlantic; Keyin Technical</li> <li>• Hotels</li> <li>• RCMP</li> <li>• Town</li> <li>• Revenue Canada and Other federal Satellite offices</li> <li>• Provincial Government offices: Transportation, Forestry, Government Services</li> <li>• Wal-Mart</li> </ul>	<ul style="list-style-type: none"> <li>• Kiewit Offshore Services</li> <li>• Fishery Products Intern'tl</li> <li>• Health Care Board (Hospital in Burin)</li> <li>• Prov. Government Offices: ITRD, HRLE, Zone Board</li> <li>• Federal Government Offices: Services Canada</li> <li>• Three local schools</li> <li>• Post-Secondary: College of North Atlantic, Keyin Technical, Centrac</li> <li>• Wal-Mart</li> <li>• CND Tire</li> <li>• Breton Group</li> </ul>	<ul style="list-style-type: none"> <li>• Marine Atlantic</li> <li>• Argentia Freezers</li> <li>• Placentia Health Care Centre</li> <li>• VBNC Demonstration Plant</li> <li>• College of the North Atlantic</li> <li>• Three local schools                             <ul style="list-style-type: none"> <li>▪ Stellar Woodworking</li> <li>▪ Ed Collins Contracting</li> <li>▪ Brown Co.</li> </ul> </li> <li>• M.J. Hickey</li> <li>• Sobey's</li> <li>• Mahers Contracting</li> </ul>

### **3.3 EDUCATION AND TRAINING**

#### **3.3.1 Educational Capacity**

##### *3.3.1.1 Provincial Educational Capacity*

###### Primary and Secondary Schools

The population of Newfoundland and Labrador is decreasing and, therefore, school enrolment is also declining. In the 2006-07 school year 74,304 children were enrolled in the primary and secondary system as compared to 76,763 in 2005-06, 79,439 in 2004-05, and 81,458 in 2003-04. Year over year decrease in enrolment has been above three percent for the last two school years. The Eastern School district has the highest enrolment with nearly 42,706 students in 2006-07 (Eastern School District, <http://www.esdnl.ca/>).

###### Post-Secondary Educational Institutions

Within the Province there is one university: Memorial University of Newfoundland (MUN). It has two campuses in St. John's (main campus and the Marine Institute), a campus in Corner Brook (Sir Wilfred Grenfell College), a campus at St. Pierre and Miquelon (Institute Frecker) and a campus in Harlow, England (Harlow Campus). One public college, the College of the North Atlantic (CNA), has 17 provincial campuses and a campus in Qatar in the Middle East. There are 32 private training institutions located throughout the Province that are licensed by the Department of Education.

The following sections focus on Project relevant programs offered by Memorial University, CNA and by relevant private colleges.

#### **Memorial University of Newfoundland**

Memorial University offers several programs that are specifically related to the oil and gas sector. These include: engineering (bachelors, masters and PhD levels), business (bachelors and masters levels), oil and gas studies (masters level), and several science programs (bachelors, masters and PhD levels). While the focus of the engineering faculty has been previously on offshore and oil gas, the new programs in process engineering and offshore safety are particularly relevant to oil refinery related work and research.

Memorial University has made significant contributions to the oil and gas sector in the area of applied research with the PanAtlantic Petroleum Systems Consortium (PPSC) and the Centre for Marine Compressed Natural Gas (MUN, 2007). Memorial University is also home to several Canadian Research Chairs including related topics such as, Petroleum Geoscience/ Geotechnology, Environmental Science, Natural Resource Sustainability and Community Development and Petroleum Reservoir Engineering and

Characterization (MUN, 2007). Overall the University has developed considerable capacity in oil and gas related education and training and are now expanding their programs to include refinery related programs (For details on programs refer to Appendix C, Table C-1).

### **College of the North Atlantic (CNA)**

CNA is one of the largest post-secondary educational and skills training centres in Atlantic Canada and the only public college in the Province. CNA offers nearly 100 full-time and 300 part-time programs to approximately 20,000 students each year. Programs include academics, applied arts, business studies, health sciences, engineering technology, industrial trades, information technology, tourism and natural resources. Enrolment at the college has increased by 100 people each year since 2001 (D. Hanrahan, pers. comm.).

Typically, when CNA delivers training in core skill trades such as a millwright, scaffolding, machinist, welding, pipefitters, etc., these courses run at full capacity. Campuses can increase their capacity to respond to specific industry needs and this would include recruiting suitable instructors beyond their current complement and possibly looking for additional facilities on a short-term basis, all of which have been done before. All campuses indicated that if industry did increase its demand for skilled trades and worked with the College to focus on delivering incremental program for same, they would respond very quickly, sometimes in as little as a week.

It should be noted that CNA campuses are a primary area for employers outside of the Province to recruit new graduates and it is not unusual for the schools to see a significant percentage of new graduates lured from the Province as soon as their training is complete.

### **Private Colleges**

In the Province 32 private institutions offer a wide range of programs from office administration to heavy equipment operation (Refer to Appendix C, Table C-2).

#### *3.3.1.2 Regional Educational Capacity*

Education in the Study Area is administered by the Eastern School District Board. The largest of the five school boards in the Province, this Board manages 122 schools with approximately 44,000 students and 3,000 teaching and support staff.

Early Childhood Education

As of 2003, nine child care centres were located in the eastern region (excluding the St. John's CMA) with a total child enrolment of 224, averaging 25 per establishment. (Auditor General's Report, 2003). In the Study Area four licensed childcare centres exist: one each in Placentia and Marystown and two in Clarenville. (Health and Community Services, 2007).

Capacity for day care is shown in Table 3-11.

**Table 3-11 Daycare/preschool Capacity and Enrolment - The Study Area**

Location	Name	Capacity	Enrolment	Teacher/Staff
Clarenville	Early Discoveries Preschool/Day Care	19	7-12	2
Clarenville	Toddlers Corner Day Care	23	18/19	3
Marystown	Explore and Discover Child Care Centre	57	57	6-7
Placentia	Little Pete's Daycare	16	26 (Half in Morning and Half in Afternoon)	2

**Source:**

Early Discoveries C. Pike, pers. comm.  
 Explore and Discover Childcare Centre, A. Murphy, pers. comm.  
 Toddler Corner Day Care, L. Peddle, pers. comm  
 Little Pete's Daycare, Jacques Whitford, 2007

Primary and Secondary Education

Enrolment at the fourteen schools in the Study Area for the years 2001 to 2007 has shown a slight, steady decline with the exception of the schools in Clarenville that show relatively stable enrolments (For data on Enrolment, refer to Appendix C, Figures C-1 to D-4).

Data on school capacities in the Employment Catchment Area show that without exception, capacity exists for more students in each of the area's schools. Cumulatively, additional capacity exists for 2,533 students in Study Area communities (Refer to Appendix C, Table C-3A and C-3B). As is the case throughout the Province, with a substantial decrease in school enrolment due to out-migration and declining birth rate, a rationalization of schools has occurred and will continue to occur. This is also true for the Study Area.

Student/teacher ratios are available for economic zones within the Province and are depicted below<sup>10</sup>. The number of students per teacher has declined in the period from 1997 to 2006 in all economic zones and shows a consistent trend compared to the provincial average (Table 3-12).

**Table 3-12 Student/Teach Ratio by School Year (1997-2006)**

Economic Zone	Student/Teacher Ratio by School Year								
	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06
15	14.3	13.9	13.6	13.1	12.6	12.8	12.7	12.6	13.1
16	14.5	14.4	13.9	13.5	12.4	12.7	12.9	12.6	12.9
18	15.4	14.7	14.6	13.8	13.0	12.8	13.0	12.5	12.0
Provincial Average	15.1	15.0	14.7	14.2	13.6	13.9	13.7	13.9	14.1

**Source:**  
 Community Accounts, 2007

Future plans for schools in Placentia include:

- closure of St. Edward's School in June 2009;
- Renovations to St. Anne's Academy, which will become a K-6 school for Placentia/Dunville area;
- a new grade 7-L4 school to be constructed. This school will replace Laval High School and will open by September 2009 (S. Dale, pers. comm.).

Voisey's Bay Nickel Company (VBNC) is contributing funds to the Town for school construction. The new high school will provide courses in skilled trades, home economics, computer science and have a gymnasium, fitness centre, library and challenging needs suite (Newfoundland and Labrador Department of Natural Resources, 2006 in Jacques Whitford, 2007).

Future plans for schools in Clarenville include:

- Clarenville Primary School will close;
- an extension will be built on Clarenville Middle School;

<sup>10</sup> Zone 15 (Discovery Regional Development Zone) encompasses the north end of Placentia Bay including Clarenville, Zone 16 (Schooner Regional Development Corporation) encompasses the Burin Peninsula and Zone 18 (Avalon Gateway Regional Economic Development Inc.) encompasses the Avalon Peninsula.

- Balbo Elementary School will be reconfigured to a K-3 school for the entire feeder system; and
- Clarenville Middle School (with extension) will be a grade 4-8 school for the entire feeder system (S. Dale, pers. comm.).

Future plans for schools in Marystown include:

- Pearce Junior High will close in June 2009;
- Donald C. Jamieson Academy will become a grade K-8 school for the students in the Salt Pond area; and
- Marystown Central High will become a grade 8-L4 school (S. Dale, pers. comm.).

### Post-Secondary Education

Within the larger Employment Catchment Area, CNA has a campus in Clarenville, Placentia, Bonavista, Burin, Carbonear, Seal Cove and St. John's (Details on the programs offered at these facilities and their capacity in each is presented in Appendix C, Table C-4 and Table C-5).

Within the Study Area, there are two Keyin College campuses, one located in Clarenville and the other in Marystown. Both locations focus on business management and administrative courses, but are currently planning on providing courses in some skilled trades. Keyin provides a course in Occupational Health and Safety at their Grand Falls –Windsor Campus. Centrac College offers a wide range of business, trades and technology programs (For a full listing of relevant programs provided by private colleges refer to Table D-2).

## **3.3.2 Educational Attainment**

### *3.3.2.1 Provincial Educational Attainment*

North American firms, particularly manufacturing and processing operations, are becoming more innovative and developing new technologies as a means of advancing their competitive position. This has created increased demand for a greater variety of skills and higher levels of education among workers. Employers are also putting an increased emphasis on securing workers with superior team-building, communications and problem solving skills (Department of Human Resources, Labour and Employment, 2007).

Overall, education levels among the Province's working population are the lowest in Canada. In 2004, only 67 percent of the working population had finished high school and



just 9.9 percent had completed university.<sup>11</sup> Overall, while educational levels have been rising among the younger population, increases in the level of education among ages 25-54 remain low, particularly in rural areas.

Employers note that basic literacy, writing and numeracy skills present challenges. The most recent literacy data for the Province comes from 2003 data generated by the International Adult Literacy and Life Skills Survey (IALSS). This data indicated that over 50 percent of people aged 16-65 in the Province were scoring in levels 1 and 2 of literacy proficiency. Level 1 indicates persons with very poor skills and level 2 literacy generally enables a person to deal only with material that is simple, clearly laid out, and in which the tasks involved are not too complex. The proficiency in reading, writing and comprehension in both levels is very low and is believed to inhibit an individual's ability to learn new job skills (Literacy NL <http://www.literacynl.com>).

Table 3-13 provides baseline statistics for educational levels in the Province compared to the Canadian average.

**Table 3-13 Selected Indicators for Education**

<b>Selected Indicators</b>	<b>Newfoundland and Labrador</b>	<b>Canadian Average</b>
Full time post-secondary enrolment as percent of population, ages 15-24, 2004	25.7	24.2
Percent of working age population who have completed high school, 2004	67.0	75.6
Percent of working age population who have completed university, 2004 (25+ years)	9.9	17.2
Percent university enrolment in biology, physical sciences and engineering, 1999	18.6	19.6

**Source:**  
 Statistics Canada; Strategic Partnership Secretariat, Government of Newfoundland and Labrador. June 2005.

<sup>11</sup> Data calculated by the Newfoundland Statistics Agency, Department of Finance and Statistics Canada. This data provided to AMEC by the Strategic Partnership Secretariat, Government of Newfoundland and Labrador. June 2005

### 3.3.2.2 Regional Educational Attainment

Levels of education vary within the Province with rural areas realizing lower gains. The highest level of education is concentrated in major urban areas of the Avalon Peninsula. For the Clarenville-Bonavista region and the Burin Peninsula, slightly more population than the Province as a whole has less than a high school education. The Avalon Peninsula has almost eight percent more (Refer to Table D-6). Table 3-14 provides educational attainment levels for the provincial workforce ages 25-54 within the core project regions based on 2001 census data. These numbers have improved substantially over 1996 levels and it is anticipated that 2006 Census data will demonstrate further gains

**Table 3-14 Highest Level of Education, Ages 25-54 Years, by Region**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Percent of Population Ages 25-54 With Less than High School	30.8	38.6	39.8	22.9
Percent of Population Ages 25-54 With High School Diploma	9.3	11.2	7.8	12.0
Percent of Population Ages 25-54 With Post-Secondary Certificate or Diploma	40.0	35.0	41.3	42.3
Percent of Population Ages 25-54 With University Degree	12.8	8.1	6.9	18.0

**Source:**  
 Department of Human Resources, Labour and Employment, 2007.

Table 3-15 outlines levels of education among key communities within the Project Study Area.

**Table 3-15 Highest Level of Education, Total Population, by Select Communities, 2001**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clareville	Marystown	Southern Harbour	By Come Chance	Placentia*	Garden Cove	Little Harbour East
Less than High School (%)	69.5	52.4	52.2	73.9	39.4	40.8	50.0	38.2	45.2	36.4	53.6
High School Diploma Only(%)	-	9.5	4.3	-	8.4	8.3	8.0	14.5	9.4	9.1	25.0
College / Trades (%)	14.6	22.6	32.6	13.0	30.1	30.6	35.0	40.3	35.2	36.4	14.3
Bachelor's Degree or Higher (%)	3.7	3.6	-	-	11.5	7.3	-	3.2	1.8	13.6	-

**Source:**

Community Profiles, Education Accounts, 2001. Government of Newfoundland and Labrador\* St. Bride's Area - Department of Human Resources, Labour and Employment, 2007

Industry consultations also indicate the technical skills of the provincial labour force are lacking and industrial sectors are facing increasing challenges in recruiting and retaining skilled workers (Department of Human Resources, Labour and Employment, 2007). Levels of education have been increasing notably among the youth population, the same group with the highest propensity to relocate outside the Province. Increased education among older workers is not occurring and concerns exist that these workers will not be able to develop their skill sets to meet current employer demands.

### 3.4 PHYSICAL INFRASTRUCTURE

Quality of life is enhanced with the provision of good transportation, clean water, reliable electrical power, effective waste management and dependable communications. This section examines the provision of physical infrastructure as contributors to quality of life, and their condition and/or capacity to handle additional demands resulting from the Project. The focus is primarily on the Study Area with reference to the provincial physical infrastructure only when it adds to the knowledge about the Study Area.

### 3.4.1 Ground Transportation

#### 3.4.1.1 *Provincial Ground Transportation*

The Newfoundland and Labrador Department of Transportation and Works (NLDTW) classifies roadways based on their function in a scale ranging from access to mobility and separates roads along this scale based on:

- 1) differences in traffic service and land service;
- 2) design features; and
- 3) operational needs associated primarily with adjacent land use.

Regional maintenance roadways have also been classified from 1 to 4 based on whether they are paved or gravelled. This maintenance classification system also has three subordinate classes of gravel roads. Roads in the Province have the following service classifications ranging from mobility (Class 1 and 2) to access Classes 3 – 5 (Newfoundland and Labrador Roadway Classification Guidelines, nd.).

- Class 1A, Trans-Canada Highway (NHS) - Undivided
- Class 1B, Trans-Canada Highway (NHS) - Divided
- Class 2A, Trunk (non-NHS)
- Class 2B, Trunk (NHS)
- Class 3, Main Community Access
- Class 4, Community Access
- Class 5, Local

#### 3.4.1.2 *Regional Ground Transportation*

Ground transportation infrastructure is focused on highway systems as no railway exists in Newfoundland. Route 1, the Trans-Canada Highway, is connected to all communities on the Isthmus through smaller feeder roads. The feeder roads to Garden Cove, North Harbour, Come By Chance, Sunnyside, Arnold's Cove, Southern Harbour, Little Harbour East and Clarendville are all maintained by the provincial Department of Transportation. Each municipality is responsible for maintenance on any of its local roads. Goobies and Swift Current are located on Provincial Highway Route 210, which is maintained by the provincial government.

The Newfoundland and Labrador Department of Transportation and Works (NLDTW) uses a highway maintenance schedule based on a classification scale from "A" to "E". "A" represents the lowest level of service and "E" represents the highest. (D. Brennan, pers. comm.). The following roads are listed for consideration for future capital funding for upgrading:

- Route 210 (Burin Peninsula Highway) between North Harbour and the Trans-Canada Highway;
- Route 210 between Pipers Hole River and Garden Cove;
- the North Harbour Road to Route 210;

- Garden Cove Road to Route 210;
- Sunnyside Road to Trans-Canada Highway – resurfacing;
- Come by Chance Road to North Atlantic Refinery;
- Arnolds' Cove Road from Tanker Inn to the end of the community;
- Little Harbour Road from Trans-Canada Highway to end of the community; and
- Route 100 from Trans-Canada Highway to Argentia - \$1 million of capital improvements during 2007.

Despite a decrease in population, all community roads within the Impact Area have seen a slight increase in traffic between 2004 and 2006.

Details of future upgrading plans and average traffic counts are provided in Appendix D, Tables D-1 and D-2.

Several trail systems are located in the Study Area. The Newfoundland Trailway runs along the old Railway route and through the Study Area and is the only “long distance” trail in the Study Area. Most other communities have smaller walking trails, geared toward tourism and local recreational uses.

DRL Coachlines operates a daily bus service along the entire Trans-Canada Highway in Newfoundland from St. John's to Port-aux-Basques with scheduled stops at Whitbourne Junction, Goobies Junction and Clarenville. Other private transportation companies that service the Isthmus include Marsh's Taxi, which operates between St. John's and Bonavista, with stops in Whitbourne and Clarenville, and Newhook's Taxi that operates between St. John's and Placentia (and Argentia in the summer when the ferry is running), makes a stop in Whitbourne. Spencer's, Foote's and Cheesman's taxis offer service from Burin to St. John's. Riverside Taxi has two cars operated by the Tanker Inn in Arnold's Cove as a method of transporting crews from tankers docked at the Newfoundland Transshipment Terminal. Two taxi companies operate in Clarenville with a combined total of 8-9 cars. There are also 3 local taxi companies in the Marystown area. No public transit services are offered in the Study Area.

Several couriers based in St. John's deliver to the Study Area. Larger national/international companies such as Purolater, UPS, Fedex, Dynamex and Sameday have presence throughout the Province and deliver internationally. From the Study Area, packages can be sent through these couriers or by using the local bussing/taxi companies.

With the exception of road upgrades, all ground transportation can increase their capacity.

### 3.4.2 Marine Transportation

Within Placentia Bay are several major harbours capable of accommodating large ocean-going vessels such as oil tankers, ferries, container and bulk carriers, general cargo vessels, Canadian Coast Guard (CCG) boats, and naval and fishing vessels. The main ports are Argentia, Burin, Cow Head, Come By Chance, Marystown, and Whiffen Head. There are also 44 small craft harbours, two of which are maintained by Transport Canada and the remainder by the Federal Department of Fisheries and Oceans (DFO). Small craft harbours are operated in Arnold's Cove, Little Harbour East, Garden Cove, Marystown (Little Bay), North Harbour, Placentia and Southern Harbour ([www.smartbay.ca](http://www.smartbay.ca)). Larger vessels use the eastern Channel of Placentia Bay to travel to and from Come By Chance and Whiffen Head.

In some Placentia Bay ports (i.e. Come By Chance and Whiffen Head), pilotage is required and all tankers or vessels over 1,500 tonnes, excluding CCG, military and fishing vessels, must accept a pilot while entering and exiting the port. This service is provided by the Atlantic Pilotage Authority (APA) which employs two pilot vessels and eight harbour pilots. A "Pilot Boarding Station" (PBS) is located at Red Island, where vessels carrying oil must be boarded by the pilots and then accompanied into port. Additionally, at Come By Chance and Whiffen Head, the two mandatory ports, purpose-built tugs help oil tankers discharge or load product. For more information on fishing vessels refer to the Fisheries and Aquaculture Component Study. For additional information on Placentia Bay marine traffic refer to the *TERMPOL Review Process on Marine Traffic Volume Survey*.

CCG is responsible for vessel traffic management in Placentia Bay and has a Marine Traffic Communications and Traffic Services facility in Argentia that maintains a voluntary traffic management system. Marine safety services are detailed in Section 3.6.7.

Due to its importance in the oil and gas and fisheries/aquaculture industries and associated increases in vessel traffic, APA and CCG have increased their services over the past few years. In 2001, for example, monitored vessel traffic in the area totalled 6,906, and by 2003 the count had increased to 9,009. Oil tanker traffic increased by 136 percent during this period from 570 to 1,345 movements (S. Canning, pers. comm.). Table 3-16 provides volumes and types of marine vessel traffic in the Bay from April 2004 to March 2005.

**Table 3-16 Placentia Bay Vessel Movements (April 2004 to March 2005)**

Vessel Type	Inbound	Outbound	Transit	In-Zone	Out-Zone	Total
Tanker <50,000 DWT	133	141	24	66	0	364
Tanker >50,000 DWT	352	355	12	193	0	912
Chemical Tanker	27	20	6	9	0	62
General Cargo	28	30	32	14	0	104
Bulk Cargo	6	6	14	0	0	26
Container	52	52	268	19	1	392
Tug	11	11	8	2016	0	2046
Tug with Tow	14	13	10	2	0	39
Government	46	48	18	119	0	231
Fishing	128	131	5	29	0	293
Passenger	2	1	5	0	0	8
Other (recreation and fishing vessels >20m)	3	2	5	1286	0	1296
Vessels < 20m	0	16	18	978	0	1012
<b>Sub-Total Movements</b>	<b>802</b>	<b>826</b>	<b>425</b>	<b>4731</b>	<b>1</b>	<b>6785</b>
Ferry	39	42	9	1411	0	1501
<b>Total Movements</b>	<b>841</b>	<b>868</b>	<b>434</b>	<b>6142</b>	<b>1</b>	<b>8286</b>

**Notes:**

Vessel movements are categorised as follows:

Inbound: A vessel entering the Vessel Traffic Services (VTS) Zone

Outbound: A vessel leaving the VTS Zone.

Transit: No arrival or departure port within the zone.

In-Zone: A vessel movement that begins and ends within the VTS Zone (within Placentia Bay).

Out-Zone: A vessel participating in VTS but which is not within the VTS Zone of responsibility.

**Source:**

Transport Canada, 2006 – Public Consultation for Transport Canada oil spill risk assessment South Coast

Marine Atlantic, a Canadian Federal Crown Corporation, operates a ferry service between Newfoundland and Nova Scotia. The two Newfoundland terminals are located in Port aux Basques and Argentia. The latter is located near the site of the former Argentia Naval Base. Service is provided three days per week between Argentia and North Sydney, Nova Scotia from mid June to late September each year. At its peak, Marine Atlantic employs about 1,200 people between its three terminals (Argentia and Port-Aux- Basques, Newfoundland and North Sydney, Nova Scotia. The ferry takes approximately 14 hours to travel between Argentia and North Sydney (Marine Atlantic, 2006). There were 80 crossings of this route in each of 2005 and 2006 although the number of passenger vehicles decreased in this period by 3.9 percent (Newfoundland and Labrador Department of Tourism, Culture and Recreation, 2007 in Jacques Whitford, 2007).

Provincial ferry service in Placentia Bay is offered from South East Bight to Petite Forte, on the east side of the Bay. The ferry operates six days a week with Tuesday being the layday. The ferry runs year round and has 2-4 departures per day. (Department of Transportation and Works, 2007).

In summary, Placentia Bay's experiences a variety of vessel usage - fisheries, ferries, tankers, pleasure boats - which has increased over the past few years primarily due to the oil and gas industry.

### **3.4.3 Air Transportation**

There are no airports in the Study Area, however, two privately operated airstrips operate in Clarenville and Winterland (east of Clarenville) service private aircraft and less often, medevacs and firefighting water bombers (D. Shea, pers. comm.).

St. John's International Airport is closest to the Study Area. Most non-resident visitors (80 percent) to the Province enter through the Airport and passenger volumes have increased 35 percent from 2002 to 2005. The St. John's International Airport Authority, which manages the Airport, predicts a further 20 percent increase in passenger traffic in the next five years (St. John's International Airport, 2005 in Jacques Whitford, 2007). The passenger terminal was upgraded in 2003 and the Cougar Heliport Terminal was completed in 1997. Two cargo terminals, one for Air Canada and the second for general aviation, are located on site. The airport has a capital projects plan that will spend \$36.5 million in upgrades to airport infrastructure and facilities between 2006 and 2007, with \$20 million of the total to be spent in 2007. Carriers using the airport include Air Canada, Air Canada Jazz, WestJet, Provincial Airlines, Air Labrador, Continental, Air Saint-Pierre, Astraeus Airlines, Sun Wing and Air Transit (J. Bennett, pers. comm.).

In summary, air traffic has increased over the past several years at the expense of car ferries. This trend is expected to continue and the airport is making improvements to capture this increase. The Province is well serviced by helicopters primarily as a result of the offshore oil and gas industry, but also in response to provincial safety needs (air ambulance, forestry).

### **3.4.4 Waste and Wastewater Management**

#### **3.4.4.1 *Provincial Waste and Wastewater Management***

The Province recently announced plans to implement a solid waste management strategy. This plan would see the closure of 160 waste sites, leaving approximately 40 operational sites in the province. In the coming years, the Government will pursue waste diversion initiatives with the goal of reducing waste going into landfills by 50% by 2015. Objectives to achieving this goal include:

- The elimination all open burning of waste in the province by 2012; and
- The phasing out of unlined landfills by 2010.



### 3.4.4.2 *Regional Waste and Waterwater Management*

Communities in the Study Area use solid waste management sites located in North Harbour, Sunnyside, Southern Harbour, Chance Cove, Clarenville, Marystown and Placentia. Table 3-17 lists waste management facilities used by the Study Area and their capacities if available.

**Table 3-17 Waste Management in the Study Area**

Waste Management Site	Community Served	Capacity	Notes/Other
Southern Harbour	Arnold's Cove Southern Harbour	NA*	Town uses a 33 tonne compacter and makes two trips per week
Clarenville	Clarenville	-10 year life span at a 10,000 cubic metres/year	-Traditional style dump, could expand if approved by the provincial government
Sunnyside	Come By Chance Sunnyside	NA*	
North Harbour	Garden Cove Goobies Swift Current North Harbour	NA*	-Dump will close in the near future with waste being diverted to St. John's
Marystown	Marystown	Limited (without burning the site will soon be full) Future capacity of the regional waste management site has yet to be determined	- Burn when permitted to burn and bury during non-burning seasons.
Placentia	Placentia	NA*	-

**Notes:**

\*All waste management landfill sites serving the Study Area communities are not lined, and therefore could be expanded if needed. The government of Newfoundland and Labrador has committed to ending all burning of garbage on the Avalon by 2007, and implementing an Avalon waste management initiative, which would see all garbage in the study area diverted to St. John's (C. Riggs, 2007 pers. comm.).

**Source:**

Community Leaders, pers. comm.; C. Riggs, pers. comm.

No disposal sites for hazardous waste exist in Newfoundland and Labrador (D. Maddox, pers. comm.).

Within the Province there are 38 Green Depots, of which three are located in the Study Area. Green Depots in Clarenville, Dunville, and Marystown are privately run businesses that generate revenue through collection, sorting and shipment of beverage containers.

No wastewater treatment exists in the Study Area, as is the case for 80 percent of Newfoundland and Labrador communities. Typical of coastal communities, sewer pipe systems in the Study Area drain directly into the ocean (C. Riggs, pers. comm., 2007) with the exception of Goobies where residents use private septic systems (W. Goobie, pers. comm.). The cost for connection to a sewage system varies by community; in Arnold's Cove it is \$48/year for both residences and businesses.

No waste treatment exists in the Study Area. All sewer systems in the area are aged and will soon need to be upgraded (C. Riggs, pers. comm.). One exception is the reed bed sewage treatment pilot project in Marystown. This project currently has 30 homes participating in using plants to treat sewage (P. Power, pers. comm.).

When the provincial solid waste management plan is fully implemented, one full service regional waste disposal facility will be located in each of the Avalon, Central and Western zones, with regional areas having to develop their own system to transport waste to these sites (Provincial Solid Waste Management Strategy, Government of NL, 2007). Communities on both the east and west side of Placentia Bay are also beginning to hold discussions on a regional waste management systems, but no formal plans are yet in place (Municipal Managers, pers. comm.).

In summary, issues related to waste management are very much of concern to both municipalities and the Department of Environment and Conservation. Within a few years regional waste management facilities should be in place within the Employment Catchment Area.

### **3.4.5 Public Utilities**

Most towns within the Study Area provide drinking water to residents. Homes and businesses in Come By Chance, Southern Harbour and Arnold's Cove are connected to their town's drinking water system, while Sunnyside is in the process of connecting all homes to the services, with about 75 percent complete to date. The rate charged for this service varies by community, but in Arnold's Cove, for example, water for residential use is \$144/year and for commercial use it is \$240/year. Details on each Study Area community water supply systems, future plans and their thoughts on capacity are contained in Table 3-18.

All communities believe they have sufficient supply for now and into the future.

**Table 3-18 Municipal Water Supply Details**

Community	Current Water Supply System	Future Plans/Capacity
Clarenville	<ul style="list-style-type: none"> <li>• Shoal Harbour Pond and Andrew's Pond are the supply ponds</li> <li>• Have a full treatment system</li> <li>• They have a capacity of 3,240,000 gallons per day (2,250 per minute)</li> <li>• Fish plant is the biggest user. Currently in negotiations with them over future usage. The fish plant will probably use 800-900 gallons per minute</li> <li>• There are no other big users in the community</li> <li>• They have 2 reservoirs (1.3 million and 1 million gallons)</li> <li>• Everyone in the community is on the system</li> </ul>	<ul style="list-style-type: none"> <li>• New plant set to open mid-June</li> <li>• Have never had water capacity problems and do not foresee any in the future</li> </ul>
Arnold's Cove	<ul style="list-style-type: none"> <li>• Steve's Pond is the supply pond</li> <li>• Have chlorination system</li> <li>• 100% of the town is on the system</li> <li>• 1,200-1,300 gallons per minute capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Never had water shortage problems</li> <li>• More water than they will ever use</li> </ul>
Come By Chance	<ul style="list-style-type: none"> <li>• Ingsters Pond is the supply pond</li> <li>• Chlorination system</li> <li>• Have a water tower with chlorination</li> <li>• 100 percent of the town is on the system</li> </ul>	<ul style="list-style-type: none"> <li>• Never had any shortages</li> </ul>

Community	Current Water Supply System	Future Plans/Capacity
Southern Harbour	<ul style="list-style-type: none"> <li>• Brigades Pond is supply pond</li> <li>• 100 percent of the town is on the system</li> <li>• chlorination system</li> </ul>	<ul style="list-style-type: none"> <li>• never had any water shortage problems – fish plant once had the water going consistently, now fish plant isn't open</li> <li>• much more usage could easily be handled</li> </ul>
Garden Cove	<ul style="list-style-type: none"> <li>• Arch Cove Pond is the supply pond</li> <li>• It's a protected area</li> <li>• 100 percent of the community is on the system</li> <li>• chlorination system</li> <li>• new pump installed 3 weeks ago</li> <li>• have boil orders every now and again</li> </ul>	<ul style="list-style-type: none"> <li>• no problems with capacity – could double or triple usage and still have lots</li> </ul>

**Source:**  
 Individual municipalities

Both the Departments of Government Services and Health and Community Services jointly monitor water quality in public water supplies in the Province. Regular sampling by Environmental Health Officers occurs throughout the Province. Boil water orders are issued when tests show higher than accepted levels of coliforms (bacteria) or if there are deficiencies in chlorination (Refer to Appendix D, Table D-3 for communities where boil water orders have been issued).

For specific communities on either side of Southern Head, Come By Chance and North Harbour, the water supply system varies. Come By Chance is in the process of developing a water treatment plant. The development plan for this plant will include allocations for future developments and water needs and will be completed in the near future (Water quality in North Harbour is poor. The town supply comes from two surface sites and one well site, and has been on a boil order for the last 10 years. There is no chlorine treatment in the community, resulting in continued boil orders (R. Goulding, pers. comm.).

All electricity in the Study Area is provided by Newfoundland Power. The Electricity comes from hydro generation in Bay d'Espoir and, during peak consumption, from the Holyrood Generating Station. The only exception is the North Atlantic Refinery, which receives power from a direct feed from Newfoundland and Labrador Hydro through the Sunnyside substation (C. Costello, pers. comm.).

In summary, sufficient water exists for any development growth, but potable water is of questionable quality. Newfoundland Power and Newfoundland and Labrador Hydro produce electrical power to respond to demand.

### **3.4.6 Communications**

Cable television in the Study Area is provided by Persona Communications. About half of the local residents use cable, and half use satellite dishes. Arnold's Cove and Clarenville have high-speed internet, while the remainder of the Study Area has dial-up access. Cell phone coverage is provided throughout the Study Area by Aliant Mobility. Radio service is widely available throughout the study area. Broadcasting comes from stations in St. John's, Clarenville and Marystown. Communications supply is current and can be upgraded to respond to future needs.

Marine Communications in Placentia Bay are among the most advanced in the world. All vessels are equipped with VHF (very high frequency) radios, in which all vessel movements are broadcast. Additionally, many vessels are equipped with a VMS (vessel monitoring system) system which allows the vessel to be monitored by DFO and the Canadian Coast Guard. All users of Placentia Bay have access to Smart Bay ([www.smartbay.ca](http://www.smartbay.ca)), which provides current information on weather and wave conditions. Most vessels also have a GPS (global positioning system) as well as a cell phone and/or satellite phone (Gene Lee, pers. comm.).

## **3.5 SOCIAL SERVICES INFRASTRUCTURE**

Quality of life is enhanced with efficient and timely access to social and community services and infrastructure such as health clinics, hospitals, housing and recreation. This section examines the provision of social services and infrastructure as contributors to quality of life, and their condition and/or capacity to handle additional demands resulting from the Project. Education, which often forms part of a community's social infrastructure, is covered in Section 3.3.

### **3.5.1 Land Administration and Statutory Plans**

In Newfoundland and Labrador, all land areas are crown land with the exception of populated urban and rural communities. The bulk of the Study Area is, therefore, sparsely populated crown land with communities located almost exclusively along bay shores and highway systems. Use of crown land is regulated by the Department of Environment and Conservation through provisions stated in *The Lands Act* (1991). This Department "makes land available for industry, settlement, recreational and conservation needs in an environmentally safe manner compatible with adjoining land uses" and processes approximately 3,000 land tenure applications per year. (Department of Environment and Conservation, Lands Division, Government of Newfoundland and Labrador).

Land use in rural and urban communities is regulated by the Department of Municipal Affairs through provisions stipulated in *The Rural and Urban Planning Act* (2000).

The mandate of Municipal Affairs is “assisting and advising departments of government and any public authority in planning for the orderly and economic development of land; collecting information, undertaking research, and publishing and distributing related material; assisting local authorities; and encouraging planning and efficient development within the Province”(Department of Municipal Affairs, Government of Newfoundland and Labrador) Municipal Plans and Development Regulations implemented and adopted by Municipal Councils guide development in municipalities in the Province.

Some municipalities in the Study Area have prepared Municipal Plans to guide their development including: Arnold’s Cove, Come By Chance, Southern Harbour, Clarenville, Marystown and Placentia. Sunnyside is currently preparing their Municipal Plan. Smaller communities such as Garden Cove and Little Harbour East are considered local service districts and are not incorporated as a municipality and, therefore, have limited authority to provide basic services to residents such as sewer, water and local road maintenance. Local service districts do not have the authority under the Municipal Act to prepare Municipal Plans (C. Davis, pers. comm.). Unlike some other Provinces, Newfoundland and Labrador does not have a rural county system and, therefore, not all areas of the Province are bounded by municipal plans. This is the case for the remaining portions of the Study Area (E. Mitchell, pers. comm.).

All communities with Municipal Plans have made zoning provisions for future residential land uses (Table 3-19). In some cases, these lands are serviced making them more easily and quickly developed, while others have un-serviced lands available. Many of the older Municipal Plans make specific reference to availability of rural lands for temporary housing for the Hibernia labour force, which, may be also applicable to other oil and gas developments in the region.

**Table 3-19 Provision for Residential Development in Primary Study Area Communities**

Town/City	Availability of land for housing	Source
Arnold's Cove	<p>Few opportunities exist for housing infill, however, an extensive area is zoned “Comprehensive Development Area” and could provide 8 – 148 serviced lots over the next during the plan period (1987-1997) through an NLHC subdivision. Opportunities exist for 137 – 174 mobile homes or houses.</p> <p>The Plan states that rural land could be used for seasonal trailer or recreational vehicle park on a temporary basis or to “accommodate persons whose work is related to the Hibernia construction site” (p.17).</p> <p>In Arnold’s Cove, there are no plans to revise the 1992 Municipal Plan, but to amend the existing Plan when necessary to accommodate changes to land use (W. Slade, pers. comm.). Currently the Town is considering an amendment that will accommodate the LNG Transshipment Terminal. For this amendment, the land use will change from rural use to industrial zoning (C. Davis, pers. comm.).</p>	Arnold’s Cove Municipal Plan (1992); Dept. of Municipal and Provincial Affairs

Town/City	Availability of land for housing	Source
Clarenville	<p>Several new subdivisions have been constructed over the last 10 years; mainly single detached houses.</p> <p>Several others have been approved, but undeveloped serviced subdivisions available off Balbo and an extension of the NLHC development off Gladney Street can accommodate a “sizeable number” of new homes. 12 Municipal Plan amendments were made between 2001 and 2006 to accommodate growth.</p>	Clarenville Municipal Plan (1999); Dept. of Municipal Affairs
Come By Chance	<p>The Plan states that currently adequate land is set aside for urban development to accommodate new residential growth over the planning period. The Plan also provides for land for industrial worker accommodations and an adequate supply of industrial lands to respond to rapid and temporary growth arising out of oil-related activities in the Isthmus area.</p> <p>The Town has requested the Minister of Municipal Affairs to expand the Town’s boundaries to encompass the Project site at Southern Head. A decision on this request has not been made and requires further information from the Town, consultation with other provincial departments, a lengthy public process, and Cabinet approval. Whether or not the Town boundaries are expanded, it is typical that industry proponents negotiate tax agreements with neighbouring municipalities (E. Mitchell, pers. comm.).</p>	Canning & Pitt Associates Inc., 2001
Marystown	The Plan states that residential developments which have been placed on hold are being (or will be) re-activated because of greater certainty of the economy. Since 2002 there were 9 Plan amendments, 3 for additional housing and lodging developments.	Marystown Municipal Plan 2002 – 2012; Arvo McMillan, Planning Consultant)
Placentia	Currently approximately 70 building lots can be relatively quickly placed on the market; another 120 building lots could be generated in a proposed subdivision in the vicinity of St. Anne’s Academy and off the Main Road in Dunville. Thorne’s Trailer Court can accommodate approximately another 15 mobile homes on mobile home lots.	Placentia Municipal Plan 2004-2014 (Arvo McMillan, Planning Consultant)
Southern Harbour	Provisions have been made through zoning for future residential uses. Housing types permitted in these future areas include single detached, mobile homes, boarding houses and apartments. The Plan indicates that rural areas can accommodate travel trailer parks and be used for workers associated with the Hibernia development. There are a few infill sites remaining along the new road at the south end of town. Plan states that there are over 20 ha of land in various locations suitable for residential development (about 200 housing lots), however these areas are not currently serviced.	Southern Harbour Municipal Plan (1993); Dept. of Municipal and Provincial Affairs

**Key:**  
NLHC = Newfoundland and Labrador Housing Corporation

In the case of some highways in the Province, land use adjacent to highways is regulated by the Department of Municipal Affairs through *Protected Road Zoning*

*Regulations* (1979). A highway must be designated a “protected” highway for these regulations to apply. In the Study Area, the Trans-Canada Highway and Highway 210 (Burin Peninsula Highway) are protected. The Burin Peninsula Highway is guided by a specific land use plan entitled: *The Burin Peninsula Highway Zoning Plan* (1990). There is no specific zoning plan for the Trans-Canada Highway and thus provisions in the *Protected Road Zoning Regulations* apply.

The *Protected Road Zoning Regulations* identify eight urban and rural land use zones within a specified distance of the highway centre line. Distances vary depending on whether the road is within or outside of a municipal boundary. Distances regulated in areas outside a municipal boundary are 400 m from the highway centre line. The purpose of the Regulations are to restrict sporadic development along the highway, restrict highway access, ensure developments do not detract from roadside amenities, control advertisement placement, prevent development that may pose health and safety hazards, ensure developments are located to provide assistance to travelers, ensure standards of construction and to assist in the orderly and aesthetic development of the community and roadside services. To do this the Regulations provide development standards for access roads, buildings, advertisements, construction standards, service stations and the like within the zones.

### **3.5.2 Community Knowledge and Capacity**

Newfoundland and Labrador’s formal government structure consists of a provincial government headquartered in St. John’s, and 279 incorporated municipalities and 180 local service districts which represent approximately 96 per cent of the population. There are also 137 unincorporated communities. (Department of Municipal Affairs Annual Report, 03-04). The municipalities are represented by the umbrella organization of the Newfoundland and Labrador Federation of Municipalities as well as various regional groupings, known as Joint Town and Community Councils. The Combined Councils of Labrador serve as an umbrella organization in that region of the Province.

Given the age and history of this Province, this formal system of government is relatively new. The Province has neither a county nor regional government system.

Historically, the Province’s settlement patterns were largely dictated by access to the fishery, and virtually all the Province’s small communities are still located along 17,542 kMs of coastline. The Trans-Canada Highway, completed in 1966, and the Trans-Labrador Highway, to be completed in 2009, open up the interior of two large land masses to other resource and commodity developments such as agriculture, forestry, mining, manufacturing, and professional services. This is giving rise to and/or strengthening regional service towns such as Gander, Clarenville, Grand Falls-Windsor and Happy Valley-Goose Bay.

A number of provincial government departments have focused on a regional type of organizational development. The Rural Secretariat, which operates under the aegis of the Province’s Executive Council, has divided the Province into nine regions (See Figure



2) and provides access or links to information for citizens located within each of these regions. The Rural Secretariat also works with communities to build knowledge and help communities to plan and work cooperatively in social and economic development. Each region has a council that advises the government through the Rural Secretariat on issues related to the sustainability of their particular regions.

The Province also has 20 regional economic development boards that operate under the umbrella of the Newfoundland and Labrador Regional Economic Development Association. In essence, the purpose of each board is to develop and implement a strategic economic plan; partner with other community based agencies and organizations as well as governments in the implementation of these plans; and build local capacity.

There are also local rural development associations and a myriad of organizations that serve a variety of economic development and community organizational and social needs. They range from the Women's Institute to the Newfoundland and Labrador Association of Fire Chiefs and Firefighters to local churches' Ladies Auxiliary to the Royal Canadian Legion.

Newfoundland and Labrador is the most rural of all of Canada's Provinces because of the small size of its communities. This, coupled with its traditionally large and extended families, its history and community work patterns, has resulted in a long standing tradition of informal networks of communications and activities among individuals, families, neighbours and communities. In other words, in smaller communities everyone knows everyone and everyone knows who to contact to find out information on a particular subject or solve a particular problem. Thus, while a formal system of government exists, an informal system of 'getting things done' also occurs.

As a result, when a new activity is planned for a community or region, it takes time and considerable effort for "strangers" to build that same degree of familiarity and trust. While a formal decision on a project is often made by a town council, it still needs to receive informal "sanction" from the community at large. Once that sanction is received, these informal networks can pave the way to getting things done quickly and efficiently. This informal nature of dealing with events and activities is part of the rural character of Newfoundland and Labrador and contributes to its quality of life.

### **3.5.3 Housing and Accommodation**

#### *3.5.3.1 Housing Characteristics and Market*

##### *Provincial Housing Characteristics and Market*

Despite the fact that population of the Province is decreasing, the total number of occupied dwellings and the number of owned dwellings has increased while the number

of rental dwellings has decreased. This is contrary the national trend. During this same time period the average value and rental rate has increased.

Provincially a drop of nine percent in housing starts occurred in the year February 2006 – 2007. In this period, a 59 percent decline in single-detached housing starts occurred and an increase of 64 percent in all other housing types (CMHC, 2007).

Regional Housing Characteristics and Market

Table 3-20 shows data for occupied private dwellings in the Study Area including the total number of dwellings, owned and rented dwellings, average value of dwellings and average gross monthly rents. The data show trends between the 1996 and 2001 Census data. Census 2006 housing data was not available.

**Table 3-20 Occupied Private Dwelling Characteristics**

Community	Total # of Occupied Dwellings		Owned Dwellings		Rented Dwellings		Average Value (\$)		Ave Gross Monthly Rent (\$)	
	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001
Arnold's Cove	385	355	310	315	75	40	52,762	64,848	444	374
Clareville	1,850	1,895	1,240	1,245	610	650	85,717	96,714	494	506
Come By Chance	95	95	80	85	15	10	51,871	48,946	534	--
Div 2, Subd K (Garden Cove, North Harbour and Swift Current)	265	265	255	240	10	20	40,790	44,842	135	477
Div 1, Subd A (Goobies, Sunnyside, Southern Harbour, Little Harbour East)	325	305	295	285	25	20	46,227	54,061	--	293
Marystown	2,125	2,075	1,505	1,495	615	585	68,572	71,766	508	474
Placentia	1,675	1,625	1,320	1,275	360	345	91,418	54,161	447	442
Study Area	6,720	6,615	5,005	4,940	1,710	1,670	62,480	62,191	427	367
Province	185500	189040	143060	147750	42360	41170	70835	76283	497	513

**Source:**  
Statistics Canada 1996, 2001  
Newfoundland and Labrador Community Accounts

The only community which realized an increase in the total number of occupied dwellings was Clarenville which had an increase of 45 homes between 1996 and 2001. Consistent with the norm in more rural communities, the majority of people own their own homes and the rental market is very small. Average housing values rose in all Study Area communities except for Placentia, which decreased by almost 60%.

Housing sales are rare in the smaller Study Area communities. People take a more conservative approach since many feel that they were “burned” during construction of Hibernia. Some bought speculative houses in nearby communities in order to benefit from rising house prices while others moved to secondary (cottages) homes so they could rent their primary residences during construction periods. But workers moved into construction camps rather than buying in the communities.

Clarenville, Marystown and, to a lesser extent, Arnold’s Cove are the only communities in the Study Area where residential construction activity has been occurring (R. Dalton, pers. comm.). Currently two new subdivisions are being constructed in Clarenville, with a third planned to begin in the spring of 2007. Lots with 60-70 foot frontage in Clarenville are selling for \$40,000 - \$45,000. Selling prices range from \$8,000 in 2004 in Southern Harbour to \$115,000 in 2006 in Clarenville (Refer to Appendix D, Table D-4). Housing prices in the communities of the Study Area have not increased during the past year. Housing prices in Clarenville are comparable to those in St. John’s.

### 3.5.3.2 *Low Income and Rental Accommodations*

#### *Provincial Low Income and Rental Accommodations*

Low-income housing is provided by the Newfoundland and Labrador Housing Corporation (NLHC). It provided \$440,000 during the past fiscal year in grants and loans for low-income (under \$30,000/year) home owners throughout the Province. The joint Federal/Provincial Affordable Housing Program added more than 200 new units to the Province during 2006, and plans to continue adding additional units (D. Whelan, pers. comm.).

#### *Regional Low Income and Rental Accommodations*

Currently 29 low income rental units exist in Clarenville, one in Shoal Harbour, nine in Arnold's Cove, four in Goobies, one in Sunnyside and two in Come By Chance occupied with mostly long-term tenants. Rent is based on income levels, ranging from 25-30 percent of tenant income (N. Feltham, pers. comm.).

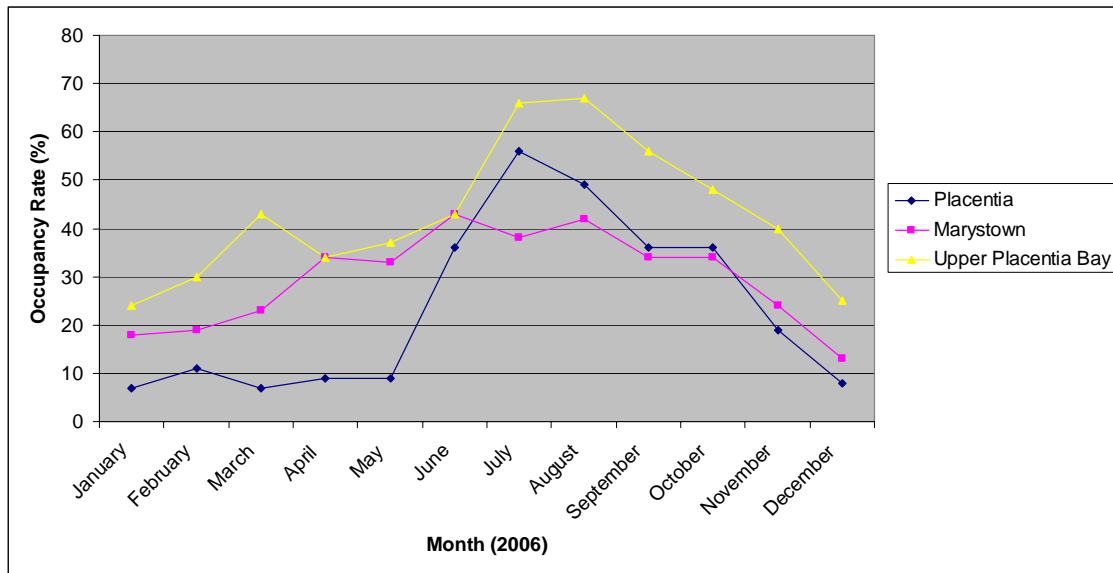
NLHC also services five communities on the Burin Peninsula: St. Lawrence, Fortune, Grand Bank, Burin and Marystown. Here they have a total of 319 units with 110 current vacancies. In the region, NLHC operate three senior's cottage complexes (26 units total) and finance three additional senior's homes (24 units total). The senior's cottages in the area operate at 100 percent capacity and rent is based on 30 percent of net family income.

In Placentia there are 55 rental units. Currently no vacancies exist, however, two units are available further south (outside the Study Area) (S. Rockwell, pers. comm.).

### 3.5.3.3 Temporary Accommodations

Temporary accommodations include hotels, Bed & Breakfasts, work camps, boarding houses and campsites. The Study Area contains: seven hotels with a total of 335 rooms, 19 B&Bs with a total of 60-75 rooms, three resorts, two Boarding houses with eight rooms and over 350 campsites (Refer to Appendix D, Table D-5).

Occupancy rates for the Study Area were provided by the Department of Tourism, Culture & Recreation. Figure 3-2 shows that occupancies in the Study Area increase in the summer peak months (June – September) to a maximum of 67 percent. The data also show that occupancy rates are higher for the Upper Placentia Bay communities in the peak period compared to Placentia and Marystown. In the off-peak periods of the year, Placentia has the lowest occupancy rates, followed by Marystown and Upper Placentia Bay communities.

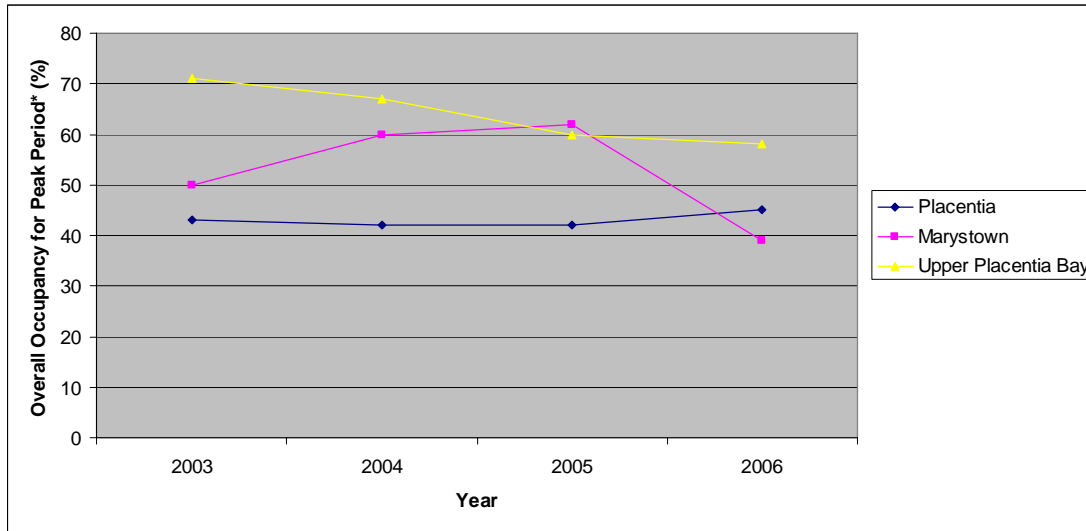


**Figure 3-2 Occupancy Rates for Primary Study Area by Month in 2006**

**Source:**

Newfoundland and Labrador, Department of Tourism, Culture & Recreation; AMEC Interpretation

Figure 3-3 shows overall occupancy in peak periods (June – September) for 2003 – 2006. The data show a steady decline in overall occupancy in the peak period for Southern Head communities between 2003 and 2006; an increase in Marystown between 2003 and 2005 with a drop in 2006 which may be attributed to lower reporting rates for 2006. Peak period occupancies have remained steady in Placentia, with a slight increase in 2006.



**Figure 3-3 Overall Occupancy Rates for Peak Period (2003 - 2006)**

**Notes:**

Peak Period is June - September

**Source:**

Newfoundland and Labrador, Department of Tourism, Culture & Recreation; AMEC Interpretation

No shelters exist for the homeless in the Study Area (A. Cook, pers. comm.) except one located in Marystown. There are four privately run personal care centres in the Study Area: two in Clarenville, one in Arnold's Cove and one in Marystown. Eastern Health administers personal care centres in Clarenville and Placentia (A. Cook, pers. comm.).

Camping in non-designated camping areas (e.g. crown lands) is a popular past-time for Newfoundlanders and Labradorians. There are no laws against camping on crown land. Gravel pit camping is discouraged by the provincial government and access has been closed off to many areas, but nothing can be legally done to prevent it from occurring. (F. Turner, pers. comm.). The Department of Transportation and Works has the right to remove any vehicle including campers parked along side roads that: obstructs general maintenance of the road and/or interferes with public safety (e.g., obstruction of traffic flow, obstruction of vision, obstruction of walkways) (D. Osmond, pers. comm.)

In summary, housing units exist for a limited supply of individuals within the Study Area and temporary accommodations are under utilized during off tourist season, but rental accommodations for individuals and families on fixed income are in short supply.

**3.5.4 Public Health and Acute Care Services**

*3.5.4.1 Provincial Public Health and Acute Care Services*

The Department of Health provides support services to six Regional Institutional Boards, four Regional Health and Community Services Boards, two Regional Integrated Boards and one Regional Nursing Home Board in St. John's. The actual delivery of programs and services including Health Promotion, Disease Prevention and Continuing Care are

provided by community health boards. The institutional boards deliver hospital services and long term accommodations to persons 65 years and older and persons suffering from chronic debilitating diseases. There are also a number of agencies directly accountable to the Department including the Memorial University of Newfoundland Medical School, and the Newfoundland and Labrador Centre for Health Information (<http://www.health.gov.nl.ca/health/department/default.htm>).

As is the case throughout the Province, it is becoming increasingly difficult to attract medical professionals to the rural areas of this Province and as the population grows older and increasingly declines due to out-migration and a lower birthrate, this situation will become exacerbated. The Health Canada Annual Report 2005-2006 indicates that there are 1.9 physicians for every 1,000 people in Newfoundland and Labrador, which compares favourably with 2.1 per 1,000 nationally. This is due, in part, to the number of doctors located in urban areas such as St. John's.

#### 3.5.4.2 Regional Public Health and Acute Care Services

The largest of the four Regional Integrated Health Authorities responsible for health care in the Province, Eastern Health services communities from St. John's to Port Blandford, including all communities in the Study Area. Eastern Health services a population of more than 290,000 and employs over 12,000 health care and support workers (Eastern Health, 2007). There are a number of health care facilities in the area including one hospital in Clarenville, several health care clinics and other facilities. Within the Study Area there are a total of 91 acute care beds, 8 critical care beds, 185 long-term care beds and 9 holding beds (For total service facilities of Eastern Health, refer to Appendix D, Table D-6). These facilities are outlined in table 3-21 below.

**Table 3-21 Health Care Facilities in the Study Area**

Community	Facility	Details	Capacity
Study Area			
Arnold's Cove	Arnold's Cove Clinic	-2 Doctors -Pharmacy	
	2 Private Physicians	Safety and Emergency Response Training designated	
	Hilltop Manor (nursing home)	-Level I and II care (32 beds) -privately owned	Currently 23 beds are filled.

Community	Facility	Details	Capacity
Clareville	Dr. G.B. Cross Memorial Hospital	-47 acute care beds -17 Physicians -90 RN's -30 LPN's -Total staff of 325 -14 long-term care beds (new 44 bed LTC facility under construction, due to open in 2008) - 2 Respite care beds 24 hour emergency services	Nursing and pharmacy shortages – confirm with Collette Smith, 709-466-5399
	Family Medical Clinic	-2 Doctors	
	Dr. David Brentnall Clinic	-1 Doctor	
	Clareville Medical Arts	-5 Doctors -1 Nurse Practitioner	
	Public Health Office	-5 Community Health Nurses -4 Renal Dialysis Unit Nurses -2 rotating Nurses	At full capacity – requesting 3 additional public health nurses this year for Clareville and Come By Chance.
Come By Chance	Public Health Office	-3 public health nurses	See Above.
Placentia	Placentia Health Centre	-10 acute care beds -75 long-term care beds (Level II, III and IV care at Lions Manor Nursing Home) -2 respite care beds -40 independent living units -24 hour emergency services with 3-beds  5 Physicians, (4 in-house, 1 community physician with hospital privileges) 17.8 Registered Nurses, 35.7 LPNs 1 Temporary assigned Nurse practitioner	At full capacity. Staffing review underway currently. Relief resources are depleted.
	Other Physicians	2 other physicians in Placentia	
	Public Health Office	3 Public Health Nurses**	

Community	Facility	Details	Capacity
Marystown	Burin Health Care Centre**	42 acute care beds (including 4 intensive care beds) 16 Doctors 85 Nurses 2 operating theatres 24 hour emergency services	Nursing and pharmacy shortage. Nursing shortage nearing crisis. Doctors and therapist positions filled. Workload is manageable.
	Public Health Office (Burin)	9 public health nurses	
Whitbourne	Dr. W. H. Newhook Community Health Centre	3 holding/observation beds 5-6 Doctors 10-12 Nurses (2 working at any one time) 24 hour emergency services No in-patient services	At full capacity. No staffing review underway. All positions are filled.

**Notes:**

Sunnyside, Goobies, Southern Harbour, Little Harbour East and North Harbour, Garden Cove and Swift Current have no health care services offered

**Sources:**

Eastern Health, 2007; Jacques Whitford, 2007; Whitbourne: B. Griffiths, pers. comm.; E. Mullins, pers. comm., D. Reid, pers. comm.

A recently released socio-economic study in the region indicates that a high nurse/population ratio (1:215) and an even higher physician/population ratio (1:4,508 maximum in a range) exists and suggests that general practitioners or family doctors may be most impacted by in-migration of large project workers (Jacques Whitford Limited, 2007). Many job opportunities are available for health care workers (mainly for nurses and physicians) in the region. It is projected that with the opening of the new long-term care facility in Clarenville, additional health care professionals will be required.

Two recent community health needs assessment studies have been undertaken: one on the Burin Peninsula and the other on the Southern Avalon (Eastern Health, 2006 and 2007). The Burin Peninsula study was based on 2004 figures. At that time, the Burin Peninsula had 63.3 specialists per 100,000 people compared with the Province's rate of 71 and the Canada average of 91. Burin had 75.9 general practitioners per 100,000 people compared with the Province's rate of 121 and the Canadian average of 98. Occupancy levels at medical care facilities increased slightly from 2002-2005 to 87% for medicine/surgery, 42% for obstetrics/gynecology and 46% for intensive care. Thus, the Study Area has fewer specialists and general practitioners than the provincial and national average, but capacity exists to treat new patients.

In 2006 Southern Avalon had 73.82 general practitioners per 100,000 people compared with the provincial and national averages of 99 and 97 respectively.

Other communities in the Study Area have community health offices, but residents must travel to the larger health care centres for treatment. Public Health Nurses working at community health offices provide a number of services including continuing care, home



care, public health nursing and international/travel health clinics. Public Health Nurses in Clarenville and Come By Chance are working at full capacity and have requested through the Federal “Basket of Services” program for an additional three employees to provide home and therapeutic services to shorten hospital stays and to reduce hospital admittance (J. Pickett, pers. comm.).

St. John’s has the largest hospitals in the Province: the General Hospital, the Janeway Children’s Health and Rehabilitation Centre at the Health Sciences Centre and St. Clare’s Mercy Hospital. Depending on the nature of the illness or accident, these hospitals are equipped or have access to almost any type of specialists and major equipment. The Janeway operates 53 acute care and 25 critical care beds, the General Hospital has 312 acute care and 32 critical care beds, while St. Clare’s has 188 acute care and 16 critical care beds (Eastern Health, 2007) There are also numerous specialist centres such as the Dr. H. Bliss Murphy Cancer Centre, the L.A. Miller Centre for long-term treatment and the Waterford Hospital for individuals with mental health issues.

International Health Services are provided by Eastern Health and Community Services through International travel clinics and there are private travel clinics in St. John’s. Clinics offer services in travel health counselling, immunizations and disease testing and are located at community health offices in Burin, Come By Chance, Clarenville, Holyrood, Placentia and Whitbourne (Eastern Health, 2007).

Paramedical Services in the Study Area are summarized in Table 3-22 and include dentists, chiropractors, and other health services. Other paramedical services are accessed in St. John’s.

**Table 3-22 Paramedical Services in Primary Study Area**

Paramedical Health Service	Communities Offered	Capacity	Source
Chiropractor	Clareville (1 professional) Marystown (1 professional) Most other chiropractic services are offered in the St. John's metropolitan area and Conception Bay	Operating at 70 percent capacity in Study Area as well as throughout the Province.	Dr. K. Cassell, pers.comm., President of the Newfoundland and Labrador Chiropractic Association, 03/28/07  Dr. R. Bryans, Newfoundland and Labrador Chiropractic Association, 04/26/07
Dentist	Arnold's Cove and Placentia (1 professional) Clareville (2 professionals)	Dentists in Clareville are very busy with new patients waiting 3-4 months for appointments	Newfoundland and Labrador Dental Association Website: <a href="http://www.nlda.net">www.nlda.net</a> ; accessed 03/28/07.  Dr. Rice's Dental Office, Clareville, 04/26/07.
Holistic Health and Naturopathic	None in Primary Study Area	NA	Local Yellow Pages Directory
Physiotherapists and Reflexologists	None in Study Area	NA	Local Yellow Pages Directory

As indicated in Table 3-22, a shortage of dentists exist in the Study area and current dentists are operating at full capacity.

In summary, despite a declining population in the Study Area, the current acute care providers are operating at full capacity partially because they are dealing with an older population and their attendant needs and also because it is becoming increasingly challenging to attract acute care givers to rural populations that lack the funding, medical, social and cultural facilities and staff to retain them.

### **3.5.5 Community and Family Social Services**

#### *3.5.5.1 Provincial and Family Social Services*

The Department of Health and Community Services provides support services to six Regional Institutional Boards, four Regional Health and Community Services Boards, two Regional Integrated Boards and one Regional Nursing Home Board in St. John's. The actual delivery of programs and services including Child, Youth and Family Services and Community Corrections, Family and Rehabilitative Services, Addictions, Mental Health and Continuing Care are provided by community health boards. The institutional boards deliver hospital services and long term accommodations to persons 65 years and older and persons suffering from chronic debilitating diseases.

Service Canada operated by Human Resources and Social Development Canada offers federal income support services including employment insurance benefits. The provincial income support program and Service Canada work in combination to provide range of income support, employment and career counselling services for individuals, organizations and businesses. Service Canada offices are located in Clarenville, Marystown and Placentia and can also be accessed by telephone or by Internet. Services include:

- **Individual Services:** Identification Cards (pleasure craft licensing; passport office receiving agent) and training and learning (apprenticeship incentive grant)
- **Organization services:** Partnership initiatives and funding programs
- **Business services:** Human Resources Management (hiring foreign workers; record of employment; wage subsidies) and Labour Market Information

### 3.5.5.2 Regional and Family Social Services

A wide range of community and family social services are offered in the Study Area through the Eastern Health Authority (Eastern Health and Community Services). Services and programs address: family violence, addictions, youth protection, child welfare, persons with disabilities, mental health issues, seniors issues, and persons with special needs. Service delivery in the Study Area is summarized in Table 3-23.

**Table 3-23 Community Services, Programs and Capacity in the Study Area**

Service	Location Offered	Service Details
Health Promotion and Protection	Clarenville Holyrood Whitbourne	<ul style="list-style-type: none"> <li>• Heart health e.g. active living, smoking and healthy eating</li> <li>• Substance abuse prevention</li> <li>• Mental health promotion</li> <li>• Reproductive health</li> <li>• Parent and child health</li> </ul>
Community Health Nursing	Bay Roberts Burin Clarenville Come By Chance Holyrood Placentia Whitbourne	Support health promotion and protection programs, school aged children and adult immunizations, and Communicable Disease Control and follow-up
Mental Health Services	Clarenville, Placentia and Marystown	Treatment/intervention, mental health promotion, partnerships with other service providers (RCMP, hospitals, schools, etc.). There are 90 acute care and 131 tertiary care beds in Eastern Newfoundland and Labrador (including St. John's).

Service	Location Offered	Service Details
Addictions Services	Bay Roberts (1 staff) Burin/Marystown (1 staff) Clareville (2 staff) Holyrood (1 staff) Whitbourne (1 staff)	Alcohol, drug and gambling prevention and treatment
Community Support Program	All Study Area Communities (on-line intake form or through Health and Community Services offices)	Placement and assessment for seniors, people with physical disabilities, personal care homes, long-term care facilities; Home support Special assistance programs Facility based respite Rehabilitation services Alternate Family Care Home Program Referrals for the Provincial Home Repair Program
Child Care and Intervention Services	Not listed	Child care services (licensing, monitoring and support of licensed child care options in the region); Community Behavioural Services Program is a community based behavioural support and training program; Direct Home Services Program is a family centered, home based, early intervention program with a focus on child outcomes
Child, Youth and Family Services	Bay Roberts Burin/Marystown Clareville Holyrood Placentia Whitbourne	Child, Youth and Family Services (CYFS) program responds to referrals of child maltreatment, assess risk and provide protective intervention services; The Adoptions program; The Community Corrections Program

Source:  
 Health and Community Services Eastern Board (EHCS)  
 E. Tilley, pers. comm..

Eastern Health supports the work of two Wellness Coalitions in the Province, one is the Eastern Regional Wellness Coalition which is active in the Study Area. This organization of community, government and non-government groups and agencies promotes wellness, improved health and well-being through a variety of health programs.

A home support program is provided through Eastern Health. In 2006 there were 257 active clients on the Burin Peninsula,. In 2005/06 approximately 75 requests were made for home support, of which 51 were approved. In the Clareville/Bonavista region, there were 78-112 requests made for home support between 2003-2006, of which 43-49 approvals were given (Eastern Health, 2006). In 2006, a community health needs assessment was conducted on the Southern Avalon in which stakeholders stated there were many problems finding workers due to the low pay of the jobs; other stakeholders

said it was a complicated process to find home care workers, and 51% of the people receiving home support said they were very satisfied and 17% said they were very dissatisfied (Eastern Health, 2007).

An income support program is provided through the provincial Department of Human Resources, Labour and Development and offers income support for individuals and families to meet basic needs such as food, clothing and shelter. Services are provided through four provincial districts. The Study Area lies within the Avalon and Central Districts and offices are located in Placentia, Marystown and Clarenville.

The Placentia office, in the Avalon District, has a service focus on employment services and has one Client Service Officer and one administrative assistant. A Career Development Specialist travels to the Placentia office from Harbour Grace several days per week to provide career counselling services. One social worker travels to the area to assist with some cases on an as-needed basis. At this time, the Regional Director does not see a need for more staff since this office deals with smaller caseloads compared to other areas in the District. These caseloads are fluid in that the majority of clients are moved into employment quickly and are replaced by other short-term clients. The office serves approximately 300 cases per year and has 30-40 longer term, active cases at any given time. There is a tender for new office accommodations including career info resource space (R. Wheaton, pers. comm.)

Service delivery of income support in the Central District has changed since November 2006, with centralized service delivery of specific programs throughout the Province. For example, Clarenville handles income support applications for 10 district offices and refers them, depending on the type of service required, to a different office, which may or may not be located where the applicant resides.

Clarenville's office employs 12 staff members (all full time), and although they are working at full capacity, no plans exist for more hires at this time. Since November 2006, this office processed approximately 400 applications per month. They also provide Career, Employment and Youth Services from this office.

In Marystown, the office provides work income supplements for the entire Province as of November 2006. This service provides extra income for basic needs for those clients that have some work (part time, casual) and require assistance. The office employs 17 Client Service Officers and handles approximately 800 clients since November 2006, with potential increases expected due to changing over of the work income supplement services to this location from other offices by August 2007. Although staff members are working at full capacity, at this time, no plans exist to increase the number of staff at this location. Career, Employment and Youth Services are provided from this office as well as the fisheries adjustment strategy to deal with fish plant closures in the region (R. Turner, pers. comm.).

In summary, although offices involved in community and family social services within the Study Area are currently working at full capacity, they feel they can manage as long as

the work load does not increase significantly. Capacity issues exist for home care support workers.

### 3.5.6 Tourism, Culture and Recreation

#### 3.5.6.1 Overview

For the most part, the Isthmus of Avalon is considered a “drive through” tourism area, although it offers a number of individual short-term attractions and recreational opportunities to visitors and residents. Table 3-24 lists some of the more well known sites and activities:

**Table 3-24 Some Recreational/Tourism Sites Within the Study Area**

Location	Activity
Arnold's Cove	Sunnyside's hiking trail, Lookout Point and Museum; Arnold's Cove Look Out Point, walking trail, Big Pond Bird Sanctuary and a privately owned park, Putt and Paddle Park
Blaketown	Beothuck Site
Clarenville	Service hub, white Hills ski resort, cross country trails
Norman's Cove/Long Cove	walking trails
Swift Current	Piper's Hole River Park, Four Star Kilmory Resort
Whitbourne	Heritage Museum
Woody Island	Woody Island Resort

The Cape Shore drive from Argentia to Cape St. Mary's is rated as a tier two destination area (Department of Tourism, 2004). Argentia/Placentia has been designated as a service centre/hub and gateway and is rated as a two star attraction by the Michelin guide, (i.e., 'worth a detour") and Cape St. Mary's Ecological Reserve, home to the third largest nesting colony of gannets in North America, is one of the Province's most well-known tourism icons along with icebergs and whales.

The Burin Peninsula is well known for its scenic beauty and cultural attractions. Visitors can enjoy whale and bird watching as well as many lighthouses and museums. Tourists come to this area for the scenic beauty and cultural significance. There is no one large tourist attraction in the area, but many smaller interest pieces. The tip of the Burin Peninsula is also the ferry access point to Saint Pierre et Miquelon, the last French colony in North America.

A number of cultural and historical sites are located in the Placentia area including the Castle Hill National Historic Site where lies the remains of an old French Fort, O'Reilly House Museum, significant archaeological digs and a Heritage Trail. North of the

community of Placentia is Ship Harbour where the Atlantic Charter Monument is located that commemorates the drafting of the Atlantic Charter in 1941 by then British Prime Minister, Sir Winston Churchill, and United States President, Franklin D. Roosevelt. The Charter, which was signed just offshore of Ship Harbour, is a joint declaration on the purposes of the war against fascism.

Tourism numbers within the Study Area were mixed with Castle Hill in Placentia reporting an 11 percent decrease in visitation from the previous year, but Cape St. Mary's Ecological Reserve and the Seaman's Museum reporting a 3 percent and 2 percent increase respectively. Anecdotally recreationally activities within Placentia Bay have increased.

#### 3.5.6.2 *Outdoor Activities*

The greater Placentia Bay area is of interest to both tourists and residents in terms of recreational opportunities including pleasure cruising, sea kayaking, cruising/remote island stay experiences, bird watching, national historic sites, and provincial parks.

Large Game (Moose and Caribou) hunting is a popular activity in the Study Area. Licenses are issued by a draw, with efforts taken to ensure hunters receive licenses near their community of residence. Hunting takes place annually from September to December with licenses usually issued for one animal.

Moose hunting takes place throughout the Study Area and caribou hunting occurs on Merasheen Island and near Clarenville. Both moose and caribou licenses were down in 2006 from 2005 (Refer to Appendix D, Table D-7 for hunting areas and number of moose and caribou licenses in each area). Salmon fishing in the Province is managed by the Department of Fisheries and Oceans and is a popular pastime for many people. In 2004, more than 15,500 salmon licenses were sold in the Province, with license holders being able to fish on all rivers in Newfoundland and Labrador (Jacques Whitford, 2007). Three salmon rivers are located on Southern Head: Watson's Brook, Come By Chance River and North Harbour River (Refer to Appendix D, Table D-8 for river rod days and total catch).

There is little to no activity on Watson's Brook as it is difficult to access and traditionally yields low catches. Rod days on both the Come By Chance and North Harbour Rivers decreased in 2006. There have been recent decreases in angling activity due to increased regulations and many people wishing not to participate (J. McCarthy, pers. comm.).

There is no licensing required to fish trout in Newfoundland and Labrador, however, the Province has one of the highest resident participation rates for the activity in Canada (Jacques Whitford Limited, 2007).

Trapping in the province of Newfoundland and Labrador is regulated by the Department of Environment and Conservation. Following successful completion of a Trapper Education Course offered by the Newfoundland and Labrador Trappers Association, anyone can apply to the Province's Wildlife Division for a Beaver Trapline Licence or a General Trapper's Licence. On the Island of Newfoundland, beaver can only be trapped within a specific registered trapline area. A General Trapper's Licence allows the license holder to trap all other furbearing species anywhere in the Province, subject to season dates and any existing trapping regulations.

There are 4,000 persons educated and eligible to trap in the Province. Of that number 2,500 obtain a General Trapper's Licence in any given year. There are 600 beaver trappers holding registered traplines on the Island of Newfoundland. On the Burin Peninsula north to Clarenville there are currently 44 beaver traplines. From Come By Chance south down the western portion of the Avalon Peninsula to Cape St Mary's there are a further 18 beaver traplines. The number of general trappers in the Study Area is unknown.

During the 2006-07 season the lynx harvest in the Primary Study Area (Avalon and Burin Peninsulas) was closed due to a naturally-occurring low point in their population cycle. This harvest season will re-open when populations rebound in response to naturally occurring increases in the snowshoe hare population, usually within two to three years. The shoreline area around Big Pond near Arnold's Cove is closed to shooting, snaring and trapping as part of a waterfowl and recreational area (J. Sharpe, pers. comm.).

Several trailer and private parks exist in the Study Area including Putt-N-Paddle near Arnold's Cove, Golden Sands Trailer Park at Marystown and the Bellevue Beach Trailer Park at Bellevue Beach.

In general, recreational hunting and fishing is down in the Study Area either because people have lost interest or because a naturally occurring population change has taken place.

#### 3.5.6.3 *Municipal Sports Facilities*

Throughout the Study Area several sports fields and playgrounds are located for the enjoyment of the general public. There are also three sports arenas and three swimming pools. Placentia's Unity PARC Arena is a multi-purpose sports centre offering hockey, skating and curling facilities to the surrounding area. In Marystown, the Marystown Ville Marie Swimming Pool offers swimming lessons and recreational swimming from May to September. The Marystown Arena is a multi purpose year round facility offering hockey, figure skating, curling, and a host of community and fundraising events. In Clarenville the Clarenville Stadium offers hockey, figure skating, curling and many other community events. Currently, plans are underway for the construction of a new multi-purpose sport



facility in Clarenville to be completed by fall 2008. Swimming pools are located in Clarenville and at the Bull Arm Fabrication Site.

In summary, basic recreational facilities exist within the smaller communities of the Study Area and larger facilities are found within the service communities. With significant out-migration from the Study Area, many of the facilities have sufficient capacity, but they also suffer from insufficient funds for ongoing operations and maintenance.

### **3.6 EMERGENCY SERVICES INFRASTRUCTURE**

Quality of life is enhanced when citizens feel they are well protected personally, as a family and as part of a community from events associated with crime, fire and/or accidents on land or at sea and that they know their neighboring communities will come to their aid in an emergency. This section examines the provision of emergency services infrastructure as contributors to quality of life, and their condition and/or capacity to handle additional demands resulting from the project. The focus is primarily on the Study Area with reference to the provincial emergency services infrastructure only when it adds to the knowledge about the Study Area.

#### **3.6.1 Policing and Crime Rates**

##### *3.6.1.1 Provincial Policing and Crime Rates*

The Royal Canadian Mounted Police is the Canadian national police service and an agency of the Ministry of Public Safety Canada.

The RCMP is unique in the world since it is a national, federal, provincial and municipal policing body. It provides a total federal policing service to all Canadians and policing services under contract to the three territories, eight provinces (except Ontario and Quebec), more than 200 municipalities, 165 Aboriginal communities, three international airports and numerous smaller airports. Its mandate is to prevent and investigate crime, maintain order, enforce laws on matters as diverse as health and the protection of government revenues, contribute to national security, ensure the safety of state officials, visiting dignitaries and foreign missions, and provide vital operational support services to other police and law enforcement agencies ([http://www.rcmp-grc.gc.ca/prog\\_serv/index\\_e.htm](http://www.rcmp-grc.gc.ca/prog_serv/index_e.htm)).

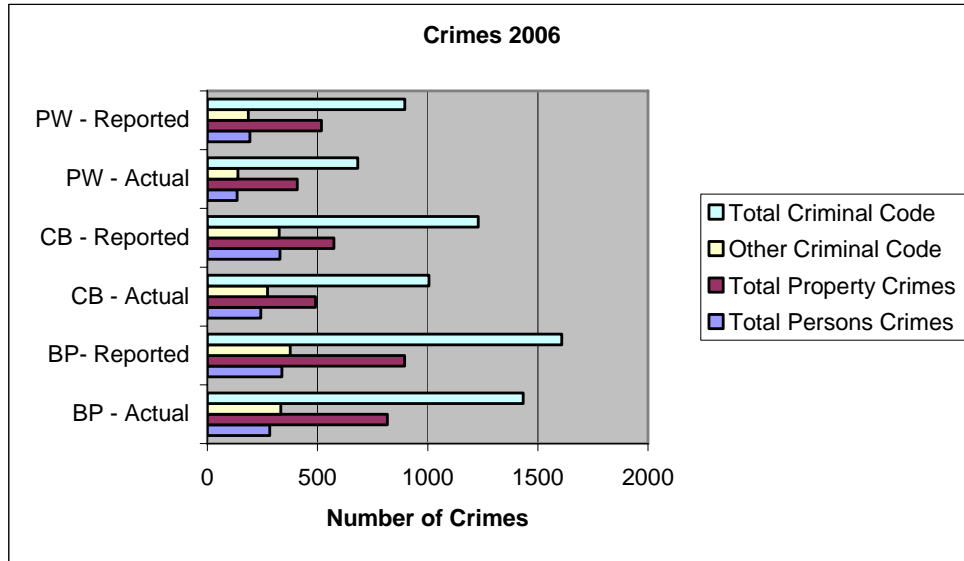
Within the Province the RCMP is headquartered in St. John's, but it also has regional detachments. To establish provincial contract policing positions a process is followed called the Annual Reference Level Update whereby the RCMP detachments submit a number of pre-approved (by the RCMP Executive) business cases to the provincial Department of Justice requesting an increase in provincial contract establishment. The Province then decides what positions or resources they will support each year at budget time. Approvals are also required from the federal government since they pay 30 of

contract policing positions and the Province pays the remaining 70 percent. The requests put forward are determined by a number of factors including caseload per member, population, geography, crime trends, economic forecast and any other factors that may have a significant impact. In addition to District resources there are a number of specialist unit resources that can be contract positions including: General Investigation Section members, Polygraph, forensic identification, dog section and Community Policing (J. Taylor, pers. comm.).

#### 3.6.1.2 *Regional Policing and Crime Rates*

All of the Study Area is policed by the Royal Canada Mounted Police (RCMP). The Clarenville detachment is responsible for the Clarenville to Bonavista district, the Placentia detachment covers the Placentia to Whitbourne district and the Burin detachment covers the Burin Peninsula. The Clarenville detachment includes a highway unit and employs 14 officers. The Placentia detachment employs seven officers while the Burin detachment has 22 officers as well as five federal offence officers. It is not yet known if additional staff contracts will be approved for 2007; however, staffing requirements are reviewed on an annual basis.

Figure 3-4 shows reported and actual crimes for the Police Districts that overlap the Study Area. The data show that total actual criminal code offences are greater in the Burin Peninsula District (1433), followed by the Clarenville Bonavista District (1006). Placentia Whitbourne District had the least number (682) of total actual offences. The data show that property crimes are higher in all Districts than person and other types of offences (Full data are provided in Appendix D, Table D-9).



**Figure 3-4 Reported and Actual Crimes in Placentia, Whitbourne, Clarenville, Bonavista and Burin Peninsula Police Districts (2006)**

Notes: PW = Placentia Whitbourne District, CB = Clarenville Bonavista District, BP = Burin Peninsula District

Numbers represent District workload only. They do not include Specialized Unit files.

Numbers do not include General Investigation Section Files or Criminal Code Traffic Offences.

Actual Numbers reflect actual crimes and are a better indicator of crime trends.

Reported Numbers reflect reported offences and are a more accurate representation of workload.

Source: RCMP, 2007; AMEC Interpretation

### 3.6.2 Search and Rescue (SAR)

#### 3.6.2.1 Provincial Search and Rescue

The National Search and Rescue Secretariat maintains a directory of Canadian Search and Rescue (SAR) organizations. In Newfoundland and Labrador the directory covers four regions. In the Province, ground search and rescue is usually coordinated by the RCMP, with the help of local SAR organizations. SAR volunteers in the Province are trained and certified by the RCMP in several disciplines including, map reading, compass usage, first aid, CPR, reduced light searches and various SAR techniques (e.g. cold water rescues) (Jacques Whitford, 2007).

#### 3.6.2.2 Regional Search and Rescue

The Study Area covers Region 4 and includes 24 SAR organizations with ground, marine or air SAR capabilities. Of the 24 SAR teams in the area, three are responsible for Placentia Bay. These are:

- The Triple Bay Eagles, based in Clarenville with 36 members;
- The Burin Peninsula Ground Search and Rescue Team, based in Marystown with 35 members; and
- The Avalon North Wolverines Search and Rescue Team, based in Bay Roberts.

Within Placentia Bay, the Civil Air Search and Rescue Association (CASARA) and Canadian Coast Guard (CCG) also help with SAR activities. The CASARA has headquarters in Gander, Stephenville and St. John's with a mandate to assist federal SAR forces in the Province as well as to promote aviation safety. Members are trained in aviation safety, spotting techniques, map reading, and other SAR techniques. Currently 125 volunteer members (National Search and Rescue Secretariat, 2007) are located in the Province. The CCG have three monitoring stations in Placentia Bay which are designed track vessel movements but also can be used to help coordinate SAR activities (Canadian Coast Guard, 2007).

In the case of a major emergency in the area, the Newfoundland and Labrador Emergency Measures Organization (NLEMO) would assist. NLEMO coordinates the use of provincial government resources in support of land, marine, and air searches. They determine the availability of support services and then act as a liaison between the authorities and providers of the resources and services. All volunteer SAR groups in the Province must be registered with NLEMO which also has its own 12-member Provincial Emergency Response Team consisting of eight volunteers and four regional engineers (NLEMO, 2007; <http://www.ma.gov.nl.ca/ma/fes/emo/>). (For a summary of SAR organizations operating in the Study Area refer to Appendix D, Table D-10).

### **3.6.3 Fire Safety**

As is the case in other rural Newfoundland and Labrador communities, individuals in the Study Area receive fire protection services through volunteer fire departments. Come By Chance, Sunnyside and Southern Harbour have volunteer fire departments. Additionally, an industrial fire department is located at the North Atlantic Refinery near Come By Chance (For details of municipal fire departments in the Study Area, staffing and equipment refer to Appendix D, Table D-11).

Fire services and fire protection of natural areas is provided through the provincial Department of Natural Resources. One of the duties of conservation officers throughout the Province is to respond to emergency fire situations. A district office is located in Clarenville and a satellite office is located in Whitbourne Ambulance.

### **3.6.4 Ambulance**

Throughout the Province 63 ambulances operate from 82 locations (Department of Health and Community Services, Government of Newfoundland and Labrador, 2007). In total there are 21 ambulances, responding to 3,698 calls per year with 83 full time and

seven part-time personnel. Call volumes have increased over recent years with the elderly using this service more often than others. In 2006-07 fiscal year, 55 percent of all ambulance transports were for patients over 65 years (Jacques Whitford, 2007) (For more specific information, refer to Appendix D, Table D-12).

Eastern Health is responsible for issuing ambulance licenses in the Province. In 2007, Eastern Health will complete a study of ambulance services to better understand needs with respect to service locations, base locations and number of ambulances required per base throughout the day. In addition negotiations are taking place to determine funding needs for additional ambulances and equipment (Jacques Whitford, 2007).

In addition to road ambulance services, air ambulance services are available throughout the Province 24 hours a day, 365 days of the year. Approximately 880 air ambulance medevacs occur annually. Three fixed wing air ambulances - one in Labrador and another in St. Anthony - serve Labrador and the Northern Peninsula, and one based in St. John's serves the remainder of the Province, including the Study Area, and backs up the other aircraft. Five helicopters, operating under a long-term government contract, also serve the Province's medevac needs as well (Department of Health and Community Services, Government of Newfoundland and Labrador, 2007).

### **3.6.5 Community Response Planning**

Within the Study Area Arnold's Cove, Come By Chance, North Harbour, Clarenville, Placentia and Marystown have formalized emergency response plans. Sunnyside is in the process of preparing an emergency response plan. Emergency response plans are not in place for the communities of Southern Harbour, Swift Current, Garden Cove and Little Harbour East. (For details respecting community's with response plans refer to Appendix D, Table D-13).

Emergency Response Plans are approved by municipal councils and typically include:

- Authority to prepare the Emergency Response Plan, call or terminate a state of emergency for the community;
- A list of plan maintenance and reviews/approvals and distribution list for the Plan;
- Responsibilities of all agencies that might be involved including RCMP, Town Council, Fire Department, provincial government agencies, etc.;
- Types of emergencies/hazards, their potential effects, potential actions and special equipment required for response;
- Availability of local equipment, personnel (with skills such as nursing, divers, etc.), venues and facilities available;
- Definition of terms;
- Involvement and authorities of provincial and federal government agencies
- Emergency operations centre location and an alternate;
- Mutual aid agreements or memorandums of understanding with other municipalities, industries or organizations; and
- Lists of telephone numbers and contacts.

### 3.6.6 Mutual Aid

While no formal mutual aid agreements are documented for the Study Area, a general understanding and agreement occurs among the communities that in the event of an emergency all municipalities will help each other.

Arnold's Cove has an agreement with the North Atlantic Refinery and Southern Harbour (W. Slade, pers. comm.). Come By Chance has an agreement with the Refinery, Arnold's Cove and Sunnyside (W. Coffin, pers. comm.). Southern Harbour has an agreement with Arnold's Cove and noted that all the fire departments in the area support each other (B. Power, pers. comm.). Sunnyside has an agreement with Come By Chance (N. Reid, pers. comm.). Emergency personnel from the region will help when accidents occur on the Trans-Canada Highway in the area. Garden Cove has a reciprocal agreement for aid with Swift Current and North Harbour (D. Brinston, pers. comm.). Marystown has no formal mutual aid agreements, but in the event of an emergency, it would be helped out by Burin (P. Power, pers. comm.). Goobies relies on Sunnyside and Come By Chance for emergency services (W. Goobie, pers. comm.).

### 3.6.7 Marine Safety Services

#### 3.6.7.1 *Provincial Marine Safety Services*

The Canadian Coast Guard is responsible for maritime search and rescue. The Maritime Rescue Sub-Centre in St. John's responds to approximately 500 incidents involving 2,900 people per year. In areas outside the St. John's region, services are augmented by the Canadian Coast Guard Auxiliary which has 1,000 volunteer members and 460 vessels (Jacques Whitford, 2007).

#### 3.6.7.2 *Regional Marine Safety Services*

The East Coast Response Corporation (ECRC) provides marine oil spill response services when requested by the responsible party, Canadian Coast Guard or any other government lead agency. ECRC can provide action plans, equipment, resources and operational management of oil spill clean up activities. ECRC is certified by Transport Canada – Marine Safety as a responsible organization under the *Canada Shipping Act*. To operate in a particular area, ECRC signs annual contracts with the local Response Organization.

ECRC has an office in Mount Pearl with four staff members and within the Province has access to a 120 member team of dedicated trained spill responders (P. Nippard, pers. comm.). ECRC operates a 24-hour emergency number that activates a call out response process. Mutual support contracts allow 540 additional spill responders and equipment to be called upon when needed. ECRC has mutual aid agreements with the Atlantic Emergency Response Team (ALERT) in St. John NB and with Point Tupper Marine Services (PTMS) in Point Tupper NS in Atlantic Canada.

The ECRC primary areas of response in Newfoundland include Holyrood and Come By Chance where they maintain an inventory of spill response equipment. ECRC has access to a total equipment inventory in Eastern Canada valued at \$40 million that includes such items as:

- Flexible Barges, Solid barges and Boats
- Boom sweep systems and Booms
- Communications
- Pumps
- Shoreline cleanup equipment
- Skimmers
- Trailers
- Miscellaneous: Clean fire incinerator, Gas detection and oil slick tracking devices.

In addition to the ECRC, oil handling companies must have their own emergency response plan, equipment and trained personnel. These facilities also make arrangements for support from companies such as ECRC. (Eastern Canada Response Corporation Ltd. 2007; P. Nippard, pers. comm.).

The Department of Fisheries and Oceans has identified Placentia Bay as a priority for integrated management due to the amount of vessel traffic, marine ecological sensitivity, and the number of stakeholders that rely on the Bay for their livelihood. The Placentia Bay Demonstration Project – Technology Solutions for Integrated Management (or “SmartBay Project”) provides integrated management of the Bay through “simple access by all stakeholders to data and information in support of effective management and sustainable development of coastal ocean areas and the safety and security of life at sea” (Smartbay, 2007). CCMC is responsible for the overall system engineering and project management of SmartBay and is the interface with stakeholders and product suppliers.

### **3.7 LAND USE**

Residents of Newfoundland and Labrador have a strong attachment to the natural environment. They are dependent upon it to sustain their primary resource economies (fishing, agriculture, mining and forestry), and to sustain traditional recreation activities such as fishing, boating, hunting, and plant harvesting. Therefore, natural resource use contributes to quality of life not only through economic opportunity, but through socio-cultural wellness. Sustaining a healthy natural environment within which these activities can be enjoyed is important to residents and stakeholders. Oil spills, waste discharges into the Bay, air quality degradation, accidents between large vessels and smaller recreational boats have the potential to negatively affect quality of life in the region. Information related to the Province for most of these land uses can be found in Section 3.2.1 and, therefore, is not repeated here.

### **3.7.1 Forestry**

The land of the Isthmus of the Avalon, including the Study Area is classified as part of the Maritime Barrens Ecoregion, Southeastern Barrens Subregion. The land generally consists of stunted almost pure stands of Balsam Fir with good forest growth localized in only a few protected valleys. Most of the timber in the Study Area is Crown owned. No productive forests have been identified in the area (Department of Natural Resources, 2007).

### **3.7.2 Agriculture**

Markland on the Avalon Peninsula is one of several primary agriculture areas in this Province (Cormack, Lethbridge and Goobies are three others). Located within the Markland area are a number of farms including some involved in experimental crops as well as the well-known Rodrigues Winery that produces more than 300,000 cases of berry based wine a year for the Newfoundland, Canada and international markets. Several fur and sheep farms are located near Cape St. Mary's and a number of small farms are located on the east side of Placentia Bay that produce products related to dairy cattle, sheep, beef, medicinal roots, hay and crops, greenhouse-floral, fox, cattle, emu, ostrich and Christmas trees.

One of the largest fox farms in North America is located in North Harbour. This farm consists of three fox units that combined have 450 breeder females and 100 males. Plans are in place to double farm operations over the next five years (M. Wiseman, pers. comm.).

As a result of a growing trend in small scale agriculture nationally and an increasing number of older people within the Study Area, a small but rising number of people are growing flowers and vegetables as well as raising livestock on a small commercial and hobby basis.

### **3.7.3 Protected Areas**

No federal parks are located within the Study Area. There are a few provincially protected areas including three Provincial Park Reserves: Bellevue Beach (on the Isthmus of Avalon, near Bellevue); Fitzgerald's Pond (near Dunville); and Jack's Pond (near Arnold's Cove). These Parks have neither camping nor day use facilities and provide for day use access only. Information on private and trailer parks can be found in section 3.5.6.

Also within close distance of the Study Area is Cape St. Mary's Ecological Reserve and Bay du Nord Wilderness Reserve. Cape St. Mary's is one of six seabird ecological reserves protected by the Newfoundland and Labrador Parks and Natural Areas Division. Located on the southeast corner of Placentia Bay and is one of the largest and most accessible seabird reserves in the world, being home to 24,000 Northern gannet,



20,000 black-legged kittiwake, 20,000 common murre, and 2,000 thick-billed murre during breeding season. Other birds nesting at Cape St. Mary's include more than 100 pairs of razorbill, more than 60 pairs of black guillemot, plus double-crested and great cormorant, and Northern fulmar (Department of Environment and Conservation, Government of Newfoundland and Labrador, 2007).

Just north and west of Placentia Bay is Bay du Nord Wilderness Reserve that provides excellent opportunities for kayaking, wilderness camping, hunting, fishing and wildlife observation. It is home to the 15,000 member Middle Range Caribou herd and is the largest Canada goose habitat in the Province. There are no facilities, amenities, trail markers or public buildings in the Reserve. Entry into the Reserve is managed by the Province through commercial operator, educational tour or scientific research permits. Gooseberry Cove is one of six Natural and Scenic Attractions protected by the Department of Environment and Conservation in the Province. Located south of Placentia in Placentia Bay, it is an attractive sandy beach ideal for picnicking.

### **3.7.4 Traditional Use -- Upper Placentia Bay**

#### *3.7.4.1 Head of the Bay*

Several residents from North Harbour indicated that they successfully hunt moose on Southern Head. The area has also been described as a good duck and goose hunting location and the North Harbour and Come By Chance river systems are known for their good salmon pools. During meetings in North Harbour, residents indicated that picking bake apples and blueberries on Southern Head is a traditional activity and that cabins were previously located in nearby Hollett's Cove. Hiking on Southern Head is focused on task-specific activities (hunting, fishing, plant gathering and berry picking) rather than experiential hiking (e.g. hiking for pure enjoyment of the scenery). A recreational boating club is located in Come By Chance that maintains a small craft wharf.

#### *3.7.4.2 Remote Cabins*

The islands of Placentia Bay are home to more than 250 licensed cabins and many more unlicensed cabins (K. O'Driscoll, pers. comm.). Despite being resettled more than 40 years ago, the islands continue to be a hub of recreational and fishing activity during spring, summer and fall (K. Tulk, pers. comm.). The three most populated islands in the Bay are Long Island, Woody Island and Merasheen Island. Approximately 65 cabins are located on Long Island, 70 on Woody Island and 50 on Merasheen Island (I. Eaton, K. Tulk and L. Pomeroy, pers. comm.).

During resettlement, the Government of Newfoundland and Labrador planned to take ownership of the resettled land on the islands; however, in many cases this did not occur resulting in much private land remaining in the hands of former residents. This has inhibited government's ability to track cabin usage (K. Tulk, pers. comm.). Estimates from government and cabin owners place total cabins on the islands at about 400, although this does not include the western mainland side of the Bay. The western side of

the Bay was also resettled, is only accessible by boat and also has many cabins (L. Pomeroy, pers. comm.).

On any summer day, upwards of 200 boats can be found “cruising” around the Bay, stopping at one of its 365 islands. Most of the cabin owners live on the Avalon and many use Swift Current as their starting point and, to a lesser degree, Arnold’s Cove and Garden Cove (I. Eaton, pers. comm.).

### **3.7.5 Aggregates**

The Newfoundland and Labrador Department of Natural Resources maintains a database of quarry permits issued throughout the Province. Their database, updated in March 2007, listed 68 quarry permits issued in the Study Area for 2007. In 2005 and 2006, these quarries produced 138,258 cubic metres and 123,646 cubic metres respectively (F. Kirby, pers. comm.). Production at these quarries is often in response to local contracts such as highway maintenance and therefore, varies from year to year (F. Kirby, pers. comm). (Details of quarry permits and type of aggregate produced are contained in Appendix E, Table E-1).

## **3.8 CONCLUSION**

Existing and new proposals for industrial activity in the Study Area have contributed to quality of life in the region. However, due to market volatility (mining, oil and gas and forestry sectors) and environmental decline (for fisheries sectors), there is room for enhancing quality of life through long-term, stable and local employment opportunities. The ability to increase economic growth and local business opportunities will depend, in part, upon the availability of skilled labour and the ability of industrial players in attracting them (back) to the region. Ironically, it will be a desire for quality of life factors such as proximity to family, a return to a traditional maritime culture, small community living and affordability of living expenses that will help drive this change.

Dependence on natural resources for economic activities and for traditional recreational activities is an important factor in maintaining quality of life. Currently, access to natural resources contributes to a high quality of life in the region. The Project will contribute to strengthening the region economically, but only if the proponent can ensure that negative effects to fisheries, agriculture and traditional land uses can be avoided or mitigated and positive effects are enhanced.

A wide range of social services and infrastructure is provided to residents in the Study Area. Quality of life is high when there is timely access to good quality services. Presently, some service providers are struggling with increases in demands while others are downsizing due to lack of demand. For example, the housing market in the Study Area, with the exception of Clarenville, is stagnant. While increased demand for housing and accommodations would stimulate sector growth, shortages in short-term housing availability could lead to negative effects like squatting. No concern was expressed

about current homelessness in the region. Similarly there has been a steady decline in primary and secondary school enrolments in the Study Area leading to school closures. Population increases and overall stability in the region will help keep schools open and limit the need for children to travel long distances for schooling. On the other hand, the demand and possible response for training for the Project may tax the current capacity of local training institutions.

There are increased demands for health care and, to a lesser degree, community and social services and continuing challenges to recruit and retain personnel for these services. Quality of life in the region would be enhanced if these pressures were alleviated. While municipal services such as waste and wastewater management, drinking water supply, power and communications do not seem to have capacity issues, there is room for improvement which would contribute to quality of life. For example, some communities have experienced boil water orders in past years and not all communities in the Study Area have prepared Emergency Response Plans. Of those that have Plans, not all have addressed responses to the possibility of potential oil refinery-related accidents. A positive step in improving services is preliminary discussions for a regional waste management system to eliminate local landfill capacity and garbage.

In summary, the Placentia Bay region is at a cross road with too many people currently leaving for jobs elsewhere in Canada while at the same time poised for economic growth as a result of this and other projects. The challenge will be to ensure that the physical, social and emergency service infrastructure can be successfully managed; labour, business and education and training institutions can be developed to benefit the Study Area and the Employment Catchment Area and land use can sustain this increased growth. If this can be achieved, the quality of life in the region will not only be maintained, but also enhanced.



## 4.0 REFERENCES AND KEY INFORMANTS

### **References**

*Auditor General's Report*, <http://www.gnb.ca/OAG-BVG/2003v1/2003v1-e.asp>.

Bull Arm Site Corporation, [www.bullarm.com](http://www.bullarm.com), 2007

*Burin Peninsula Community Health Needs Assessment*, Eastern Health, 2006

Canadian Housing and Mortgage Corporation, Preliminary Housing Start Data March 2007.

Eastern Canada Response Corporation Ltd. Website: <http://www.ecrc.ca/en>

Eastern Health, 2007 <http://www.easternhealth.ca/index.aspx>

Eastern School District, 2007 <http://www.esdnl.ca/>

### **Government of Canada**

Department of Fisheries and Oceans, Canadian Coast Guard, <http://www.ccg-gcc.gc.ca/>

Statistics Canada, Community Profiles, 2007  
<http://www12.statcan.ca/english/census06/data/profiles/community>.

Statistics Canada, Community Profiles, 2001  
<http://www12.statcan.ca/english/profil01>

Statistics Canada, Community Profiles, 1996  
<http://www12.statcan.ca/english/census01/info/census96.cfm>

Statistics Canada, Population Estimates for Census Subdivisions (based on 2001 Census),

Statistics Canada, Provincial Economic Accounts, Catalogue No. 13-213, November 2006

Transport Canada, National Oil Spill Preparedness and Response Regime, <http://www.tc.gc.ca/marinesafety/oep/ers/regime/menu.htm>.

### **Government of Newfoundland and Labrador**

*All the Skills to Succeed*: Report of the Newfoundland and Labrador Skills Task Force. March 2007

*Demographic Change; Newfoundland and Labrador Issues and Implications*, Government of Newfoundland and Labrador, 2002

Department of Education. *Annual General Return*,  
[http://www.ed.gov.nl.ca/edu/pub/stats06\\_07/stats06\\_07.htm](http://www.ed.gov.nl.ca/edu/pub/stats06_07/stats06_07.htm)

Department of Education. Training Sites.  
<http://www.ed.gov.nl.ca/app/trainingsites.htm>

Department of Environment and Conservation, *Hunting and Trapping Guide*,  
2006. <http://www.env.gov.nl.ca/env/wildlife/HuntingGuide%20Apr2.pdf>

Department of Environment and Conservation. *Lands Act*, 1991.  
<http://www.env.gov.nl.ca/env/lands/cla/about.html>

Department of Environment and Conservation, *Wilderness and Ecological Reserves Act*. <http://www.hoa.gov.nl.ca/hoa/sr/>

Department of Finance, Community Accounts. Newfoundland Statistics Agency  
<http://www.communityaccounts.ca/communityaccounts/onlinedata/getdata.asp>

Department of Finance, Economics Research and Analysis Division,  
<http://www.stats.gov.nl.ca/>.

Department of Finance, *The Economy 2007*. Economics and Statistics Branch  
(Economic Research and Analysis Division),

Department of Finance, *The Economy 2004*. Economics and Statistics Branch  
(Economic Research and Analysis Division)

Department of Finance for Fisheries and Oceans Canada - Oceans and Habitat Management Branch ([www.nfl.dfo-mpo.gc.ca](http://www.nfl.dfo-mpo.gc.ca)). *Estimating the Value of the Marine, Coastal and Ocean Resources of Newfoundland and Labrador – Regional Breakout for the Placentia Bay Area* was prepared by the Economics and Statistics Branch,

Department of Finance. *Labour Force Survey, Employment by Industry*.  
[http://www.stats.gov.nl.ca/Statistics/Labour/Employment\\_Industry.asp](http://www.stats.gov.nl.ca/Statistics/Labour/Employment_Industry.asp).

Department of Finance, Population Statistics. Newfoundland Statistics Agency,  
2005.

Department of Health and Community Services, Government of Newfoundland and Labrador, <http://www.health.gov.nl.ca/health>.

Department of Human Resources, Labour and Employment, *Labour Market Indicators and Trends: Avalon Peninsula Region*. Labour Market Development Division.

Department of Human Resources, Labour and Employment. *Labour Market Indicators and Trends: Burin Peninsula Region*. Labour Market Development Division.

- Department of Human Resources, Labour and Employment. *Labour Market Indicators and Trends: Clarenville-Bonavista Region*. Labour Market Development Division.
- Department of Municipal Affairs, *Annual Report, 2003-2004*, <http://www.ma.gov.nl.ca/ma/PUBLICAT/AnnualReport/AnnualReport2003-04.pdf>.
- Department of Municipal Affairs, *The Burin Peninsula Highway Zoning Plan* (1990)
- Department of Municipal Affairs, *Protected Road Zoning Regulations* (1979)
- Department of Municipal Affairs. *The Urban and Rural Planning Act, 2000*. [http://www.ma.gov.nl.ca/ma/municipal\\_services.html](http://www.ma.gov.nl.ca/ma/municipal_services.html), Accessed March 28, 2007
- Department of Municipal and Provincial Affairs, *Arnold's Cove Municipal Plan* (1992)
- Department of Municipal and Provincial Affairs, *Clarenville Municipal Plan* (1999);
- Department of Municipal and Provincial Affairs, *Southern Harbour Municipal Plan* (1993);
- Department of Natural Resources, *Newfoundland and Labrador Mineral Resources Atlas, 2007*, <http://gis.geosurv.gov.nf.ca>.
- Department of Natural Resources. Executive Council Press Release, October 13, 2006.
- Department of Tourism, Culture and Recreation, *A Special Place, A Special People, The Future for Newfoundland and Labrador Tourism, 2004*
- Department of Transportation and Works. *Highway Design and Traffic Engineering. Roadway Classification Guidelines*, nd.
- Department of Transportation and Works, Provincial Ferry Service, <http://www.tw.gov.nl.ca/FerryServices/>
- Press Release, May 8, 2006.
- Provincial Solid Waste Management Strategy, 2007*
- Rural Secretariat Regions – Map.  
<http://www.exec.gov.nl.ca/rural/pdf/annualreport05-06.pdf>.
- Strategic Partnership Secretariat, June 2005.
- Jacques Whitford Limited., *Long Harbour Commercial Nickel Processing Plant. 2007 Socio-economic Component Study*,. Feb. 2007.

Literacy Newfoundland and Labrador. <http://www.literacynl.com>

Marine Atlantic, [www.marine-atlantic.ca](http://www.marine-atlantic.ca)

McMillan, Avro, *Placentia Municipal Plan 2004-2014*

McMillan, Avro, *Marystown Municipal Plan 2002 – 2012*

Meisen, Axel. President and Vice-Chancellor of Memorial University of Newfoundland, speech at Conference on Economic Development Benefits of the Oil and Gas Industry in Newfoundland and Labrador, May 2007

Memorial University of Newfoundland (MUN), <http://www.mun.ca>.

National Search and Rescue Secretariat, [http://www.nss.gc.ca/site/index\\_e.asp](http://www.nss.gc.ca/site/index_e.asp).

Newfoundland and Labrador Emergency Measures Organization,  
<http://www.ma.gov.nl.ca/ma/fes/emo/>.

Newfoundland and Labrador Environmental Industry Association. <http://www.neia.org>.

Newfoundland and Labrador Health and Community Services website:  
[www.health.gov.nl.ca/health/guide/other.html](http://www.health.gov.nl.ca/health/guide/other.html).

Newfoundland Transshipment Limited, [www.ntl.net](http://www.ntl.net), 2007

North Atlantic Refining, [www.northatlantic.ca](http://www.northatlantic.ca), 2007

Royal Canadian Mounted Police, [http://www.rcmp-grc.gc.ca/index\\_e.htm](http://www.rcmp-grc.gc.ca/index_e.htm).

Shepard, Barry, Wade Locke and Scott Lynch. *Innovation Business Survey. A Survey of Innovation and Research and Development Activity in Newfoundland and Labrador's Private Sector*. Commissioned by ACOA and Industry Canada

Smart Bay website: [www.Smartbay.ca](http://www.Smartbay.ca).

### **Key Informants**

Bennett, Joe	Director of Marketing and Community Relations, St. John's International Airport
Brennan, Don	Department of Transportation and Works, Government of Newfoundland and Labrador
Brinston, Donald	Chair Local Service District, Garden Cove
Bryans, Dr. R.	Newfoundland and Labrador Chiropractic Association
Canning, Strat	Canning and Pitt Associates Inc
Caines, Maisie	College of the North Atlantic, Clarenville Campus
Cassell, Dr. K.	Newfoundland and Labrador Chiropractic Association
Clarke, Darrel	College of the North Atlantic, Placentia Campus
Coffin, Wendy	Town of Come By Chance



Collins, Judy	Collins Ambulance Service
Cook, Arleen	Eastern Health
Costello, Chris	Newfoundland Power
Dale, Stephen	Eastern School District
Dalton, Reta	Remax Clarenville
Davis, Corrie	Department of Municipal Affairs, Government of Newfoundland and Labrador
Eaton, I.	Placentia Bay Island Cabin Owner
Feltham, Norm	Gander Regional Manger, Newfoundland and Labrador Housing Corporation
Fiander, Trudy	Marystown Ambulance
Fuher, Mark	Professional Engineers and Geoscientists of Newfoundland and Labrador
Goobie, William	Chair Local Service District, Goobies
Gosse, Gary	Department of Transportation and Works, Government of Newfoundland and Labrador
Graham, Mike	College of the North Atlantic, Burin Campus
Griffiths, Barb	Eastern Health
Goulding, R.	Department of Environment and Conservation, Government of Newfoundland and Labrador
Hanrahan, D.	College of the North Atlantic
Kirby, Fred	Department of Natural Resources, Government of Newfoundland and Labrador
Lee, Eugene	AMEC Earth and Environmental, St. John's
Leung, Arthur	College of the North Atlantic
MacLeod, Leslie	Provincial Advisory Council on the Status of Women
Maddox, D.	Department of Environment and Conservation, Government of Newfoundland and Labrador
McCarthy, Jim	AMEC Earth & Environmental, St. John's
Mitchell, Elaine	Department of Municipal Affairs, Government of Newfoundland and Labrador
Moran, Maria	Women in Resource Development Committee
Morrissey, John	Manager of Highway Design & Traffic Engineering Department of Transportation & Works
Mullins, Edina	Eastern Health
Murphy, Amanda	Explore and Discover Child Care Centre
Myers, Derek	Professional Engineers and Geoscientists of Newfoundland and Labrador
Myrden, Gary	College of the North Atlantic, Carbonear Campus
Nippard, Paul	East Coast Response Corporation and Eastern Canada Response Corporation
O'Driscoll, Keith	GIS Analysis, Government of Newfoundland and Labrador
Osmond, Dean	Department of Transportation and Works, Government of Newfoundland and Labrador
Peddle, Lori	Toddlers Corner Day Care
Petten, Wanda	College of the North Atlantic, Seal Cove Campus
Pickett, John	Eastern Health, Community Health and Nursing Services
Pike, Christine	Early Discoveries Preschool/Daycare
Pomeroy, L.	Woody Island Resort
Power, Bernadette	Town of Southern Harbour

Power, Petrina	Town of Marystown
Reid, Noreen	Town of Sunnyside
Reid, Diana	Placentia Health Centre
Riggs, Charlie	AMEC Earth & Environmental, St. John's
Rockwell, Sid	Housing Officer, Newfoundland and Labrador Housing Corporation
Sharpe, J.	Department of Environment and Conservation, Government of Newfoundland and Labrador
Shea, Doug	Department of Transportation and Works, Government of Newfoundland and Labrador
Slade, Wayne	Town of Arnold's Cove
Taylor, J.	Royal Canadian Mounted Police
Tilley, Evelyn	Eastern Health (Mental Health Manager)
Tilley, Paul	College of the North Atlantic, Clarenville Campus
Tulk, Ken	Historian
Turner, Frank	Department of Environment and Conservation, Government of Newfoundland and Labrador
Turner, Robert	Department of Human Resources, Labour and Employment, Government of Newfoundland and Labrador
Walters, Robin	College of the North Atlantic, Seal Cove Campus
Wheaton, Roxy	Department of Human Resources, Labour and Employment, Government of Newfoundland and Labrador
Whelan, Dave	Marystown Regional Manager, Newfoundland and Labrador Housing Corporation
Wiseman, Merv	President of Newfoundland and Labrador Federation of Agriculture

**APPENDIX A  
DEMOGRAPHY**

**Table A-1 Population Data**

Demographics	Province	Clarenville- Bonavista	Burin Peninsula	Avalon Peninsula
Population , 2001				
Total	512,930	29,955	23,640	235,125
Males	249,080	14,995	11,670	113,700
Females	258,995	14,960	11,970	121,425
Population 2004, Total*	505,469	28,689	21,669	235,125
Population Change 1991-2006 (%)	-12.1	-20.1	-25.0	-2.4
Number of Communities	593	86	40	118

**Source:**

Census 2001, Statistics Canada; Community Accounts; Labour Market Indicators and Trends, HRLE

\*2006 Census data is unavailable by Rural Secretariat regions.

**Table A-2 Natural Population Changes, Newfoundland and Labrador 1999-2006**

	1999- 2000	2000- 2001	2001- 2002	2002- 2003	2003- 2004	2004- 2005	2005- 2006
Births	5,060	4,732	4,636	4,596	4,598	4,451	4,368
Deaths	4,232	4,233	4,126	4,276	4,318	4,405	4,494
Population Difference	+828	+499	+510	+320	+280	+46	-126

**Source:**

NL Stats Agency Community Accounts 2007

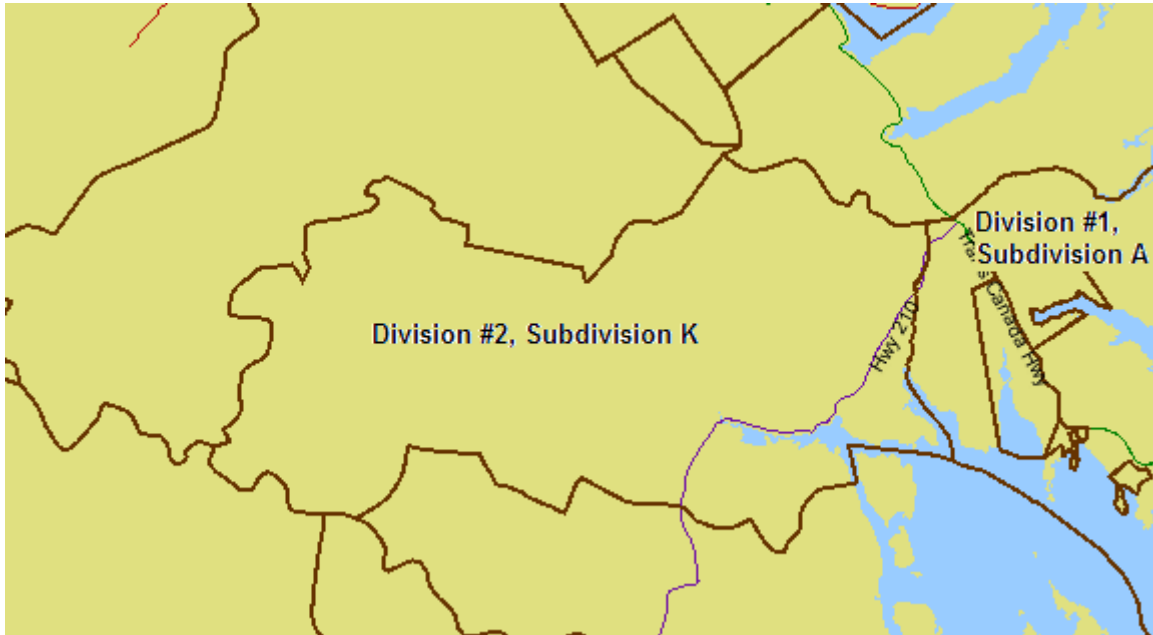
**Table A-3 Interprovincial Migration 1999-2006**

	1999- 2000	2000- 2001	2001- 2002	2002- 2003	2003- 2004	2004- 2005	2005- 2006
Interprovincial In- migration	8,400	7,499	8,784	9,198	8,397	8,213	10,544
Interprovincial Out-migration	12,663	11,992	12,136	10,881	10,424	11,923	14,912
Interprovincial Net Migration	-4,263	-4,493	-3,352	-1,683	-2,027	-3,710	-4,368

**Source:**

NL Stats Agency 2007

**Figure A-1**





**APPENDIX B  
ECONOMY**

**(Union Surveys, Major Study Area Industries, Major Study Area Businesses)**

## Appendix B-1 Union Surveys

### Results of Union Survey respecting Availability of Skilled Trades and Labour April 2007

**#1 - How many members are registered with your union and residing in the province for each of the following occupations?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter		650 220 Apprenticeship
Millwright	360	1
Labourer	740	60
Electrician	800	8
Equipment Operator	120	12
Operating Engineers	1000	100
Pipe Welder		280
Insulator	162	3
Painter	107	1
Boilermaker	480	06
Carpenter	1253	17
Ironmaker	205	5
Sheetmetal Worker	94	1
Welder-Structural	195	10
Concrete Finisher	272	19

**#2 - What is the minimum level of qualifications / training required for members in the following occupations?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	Pre-employment program & registered with the Gov't.	
Labourer	N/A	N/A
Electrician	-	-
Equipment Operator	Class 3 Drivers Licence	
Operating Engineers	Hold JourneyPerson certificate or 10 years experience; must be registered apprentice	
Welder, High Pressure-F3F4 Tickets	150 welders with CWB – 100 have addition high pressure or T.I.G Tickets	
Insulator	-	-
Painter	Pre-employment Course and 5400 hours Trade Qualifier.	
Boilermaker-Rigger Fitter-Inter-Prov	Red Seal 130	
Carpenter	Pre-employment program/registered apprentices with Gov't	
Ironmaker	Journey Person 7200 Hrs	
Sheetmetal Worker	Provincial License	
Welder-Structural*	CWB T-Class: 150	CWBS-CLASS14
	CWB S-CLSS	
Concrete Finisher	Journey Person, Registered Apprentice	



**#3 - How many members in each of the occupations are known to be employed / unemployed within the province?**

	<u>MALE</u>		<u>FEMALE</u>	
	Employed	Unemployed	Employed	Unemployed
Pipe fitter	-	-	-	-
Millwright	4	357	-	-
Labourer	50	690	0	60
Electrician	70	730	0	8
Equipment Operator	50	70	0	12
Operating Engineers	200	800	6	94
Pipe Welder	-	-	-	-
Insulator	37	99	1	1
Painter	39	68	1	2
Boilermaker	5%	95%		100%
Carpenter	30	1223	6	9
Ironmaker	14	190	0	10
Sheetmetal Worker	14	80	-	1
Welder-Structural	-	-	-	-
Concrete Finisher	50	222	0	19

**#4 - How many employed / unemployed members located in other areas of the province would likely commute or migrate for work on the project?**

	<u>MALE</u>		<u>FEMALE</u>	
	Employed	Unemployed	Employed	Unemployed
Pipe fitter			250	
Millwright			Most All	
Labourer			90%	
Electrician	70	730	0	8
Equipment Operator	40	30	0	12
Operating Engineers			Unknown	
Pipe Welder				
Insulator			Unknown	
Painter	107		3	
Boilermaker		99%		99%
Carpenter			Our inquiries indicate all members travelling will relocate to where job is.	
Ironmaker			All	
Sheetmetal Worker		90		1
Welder-Structural			All	
Concrete Finisher			90%	

**#5 - How many members in each of the occupations are known to have relocated outside of the province for work? What percentage is likely to return if work becomes available?**

	<u>MALE</u>	<u>FEMALE</u>
	Pipe fitter	-
Millwright	Travel as needed on shutdowns and will return when work starts.	
Labourer	150	10
Electrician	-	-

Equipment Operator	25	0
Operating Engineers	None of our members have actually relocated. We do have some who are currently working on permit outside the province while waiting for work to start here.	
Pipe Welder	-	-
Insulator	28	1
Painter	90	10
Boilermaker	No permanent relocation – very transient group	
Carpenter	Very few have relocated. All are travelling as needed and will return when work starts provided wages and benefits.	
Ironmaker	20	0
Sheetmetal Worker	25	0
Welder-Structural	5	0
Concrete Finisher	None have relocated	

**#6 - How many members located outside the province would likely migrate to the province for work on the project?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	All Current	
Labourer	All	All
Electrician	-	-
Equipment Operator	20	0
Operating Engineers	All members who are working on permit outside this province will return when work becomes available.	
Pipe Welder	-	-
Insulator	-	--
Painter	72	8
Boilermaker	N/A	-
Carpenter	All current members would return	
Ironmaker	-	-
Sheetmetal Worker	25	-
Welder-Structural	Almost All	
Concrete Finisher	N/A	N/A

**#7 - How does someone get to be an apprentice?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	Pre-employment + work experience	
Labourer	N/A	N/A
Electrician	-	-
Equipment Operator	N/A	N/A
Operating Engineers	Must successfully complete a 24 week registered apprenticeship program.	
Pipe Welder	9 Month Welding Course	
Insulator	-	-

Painter	Pre-employment course – gain employment with Bona Fide Contactor then become indentured.
Boilermaker	Grade 12
Carpenter	Complete 9 month pre-employment or regular trade work hours with Gov't
Ironmaker	12 Month Course
Sheetmetal Worker	12 Month Course Must register with Dept of Education - Industrial Training
Welder-Structural	9 Month Course
Concrete Finisher	Pre-employment Course or prior work as a Trade helper

**#8 - If applicable, how long does apprenticeship take in the following occupations?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	7200 hours plus schooling (approx. 5 years)	
Labourer	N/A	N/A
Electrician	-	-
Equipment Operator	N/A	
Operating Engineers	5400 hours	
Pipe Welder, Welder Pressure	5600 hours for tickets	
Insulator	8000 hours	
Painter	Pre-employment course then 5,400 relevant hours or 7200 hours with all required competencies	
Boilermaker	5600 hours plus pass apprentice tickets and Red Seal	
Carpenter	Approx 5 years to complete in school and work experience	
Ironmaker	12 Month Course	
Sheetmetal Worker	4 Years	
Welder-Structural	9 Month Course / 5600 hours plus pass appropriate tickets	
Concrete Finisher	3-4 years	

**#9 - How many persons are currently engaged in apprenticeship programs?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	120 Registered apprentices 26 pre-employment program	
Labourer	N/A	N/A
Electrician	250	7
Equipment Operator	0	0
Operating Engineers	180	20
Welder	12	0
Insulator	-	-
Painter	3	0
Boilermaker	12	0
Carpenter	302 Registered Apprentices	

37 1<sup>st</sup> years, 12 pre-employment

Ironmaker	13	2
Sheetmetal Worker	16	1
Welder-Structural	0	0
Concrete Finisher	15	1

**#10 - Does the union anticipate that labour demands from other projects in the area and/or the province will interfere with the ability to secure labour for this project?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	No	No
Labourer	No	No
Electrician	No	No
Equipment Operator	No	No
Operating Engineers	No	No
Welder/Pressure	No	No
Insulator	No	No
Painter	Other projects in area will attract more interest and more applicants.	
Boilermaker	No	No
Carpenter	No if wages and benefits are sufficient.	
Ironmaker	Yes	
Sheetmetal Worker	No, Not according to the projection for Sheet metal Workers by N.L.R. Employers Assoc.	
Welder-Structural	Yes	
Concrete Finisher	No	

**#11 - Are there any specific occupational gaps anticipated by the union that would affect the project?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	Maybe technology changes	
Labourer	No	No
Electrician	No	No
Equipment Operator	No	No
Operating Engineers	No	No
Welder/Pressure	No	No
Insulator	No	No
Painter	It is possible that occupational gaps will present themselves due to Technological change and new products but will but affect the project.	
Boilermaker	No	No
Carpenter		
Ironmaker	Heavy formwork training would be needed based upon employer's requirements	
Sheetmetal Worker	No	No
Welder-Structural	No	No
Concrete Finisher	Yes	Yes

**#12 - Are there strategies the union will pursue to address and overcome these gaps and/or labour shortages? If yes, what are these strategies?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	We currently have plans to start a heavy formwork program which will focus on the specific type of formwork needed for this project.	
Labourer	-	-
Electrician	N/A	N/A
Equipment Operator	Recruitment	
Operating Engineers	We don't foresee any gaps. If necessary we will bring in qualified members from other locals.	
Welder/Pressure	Accelerate Apprenticeship Intake	
Insulator	-	-
Painter	Gaps and shortages will be addressed by manufacturer. Supplied training or by union resources.	
Boilermaker	Take Other Qualified	
Carpenter	We currently have plans to start a heavy formwork program which will focus on the specific type of formwork needed for this project.	
Ironmaker	Yes-Recruit	
Sheetmetal Worker	Qualified workers from neighbouring provinces would be readily available	
Welder-Structural	Yes-Recruit	
Concrete Finisher	Yes	Yes

**#13 - What are the normal leads time required to address occupational gaps and/or labour shortages?**

	<u>MALE</u>	<u>FEMALE</u>
Pipe fitter	-	-
Millwright	-	-
Construction Management	-	-
Labourer	-	-
Electrician	-	-
Equipment Operator	1 Week	
Operating Engineers	If any gaps or shortages occur, they can be resolved within 7 days.	
Pipe Welder	-	-
Insulator	-	-
Painter	Lead times are necessary and can be identified in conjunction with detailed scope of work/work description and construction schedule.	
Boilermaker	About 8 weeks	
Carpenter		
Ironmaker		
Sheetmetal Worker	3-4 days	
Welder-Structural		
Concrete Finisher	1-3 years	

**#14 - Will the union participate in any specific strategies to maximize local employment benefits?**

Pipe fitter	--
Millwright	Yes-Has/Will offer membership in the area to local people.
Labourer	Yes
Electrician	Yes
Equipment Operator	Yes
Operating Engineers	First opportunities will go to qualified Union members.
Pipe Welder	--
Insulator	Will recruit locally as is required
Painter	Yes, if people are qualified
Boilermaker	Yes. Will seek apprentices from local area as well as people partially training from local area and upgrade them
Carpenter	Yes-Has/Will offer membership in the area to local people.
Ironmaker	--
Sheetmetal Worker	Yes
Welder-Structural	Yes, if they meet qualifications
Concrete Finisher	Policy is to supply local members where work is taking place

**#15 - Have partnerships been formed with any post-secondary institutions for “just in time training”? If yes, Please describe.**

Pipe fitter	-
Millwright	Currently provides their own training
Labourer	N/A
Electrician	Developing a proposal for College of North Atlantic for training partnership
Equipment Operator	No
Operating Engineers	Operating Engineers have their own training college; They are constantly training new people as well as upgrading the skills of existing members
Pipe Welder	-
Insulator	Currently pursuing avenues for recruitment and training
Painter	Have had discussions with College of North Atlantic to provide training if there is sufficient demand
Boilermaker	Local 203 owns the Boilermakers Industrial training Center, Inc and can initiate training almost immediately
Carpenter	Currently provides their own training
Ironmaker	-
Sheetmetal Worker	No, but could if necessary
Welder-Structural	No
Concrete Finisher	Union owns the BAC Masonry College and are currently training bricklayers. Currently preparing an application to the Apprenticeship Board to have Concrete Finisher designated for apprenticeship training in the province

**#16 - Can these “training partnerships” address occupational gaps? Please identify.**

Pipe fitter	-
Millwright	Yes – working with WRDC to promote and provide training to women
Labourer	N/A
Electrician	No gaps exist
Equipment Operator	N/A
Operating Engineers	Have a steady influx of people through Operating Engineers College
Pipe Welder	-
Insulator	No gaps currently anticipated
Painter	Any gaps will be addressed through training
Boilermaker	-
Carpenter	Yes – working with WRDC to promote and provide training to women
Ironmaker	Yes. In areas such as welding they can quickly upgrade someone to a higher level. Current stock is of high calibre
Sheetmetal Worker	Yes, If contractors know a certain skills would be needed and advise union, skills would be attained
Welder-Structural	Don't Know
Concrete Finisher	Yes

**Responses:**

Boilermakers Local 203  
 Carpenters local 579  
 International Union of Bricklayers and Allied Craft Persons, Local 01  
 IBEW 2330  
 Insulators Local 137  
 Iron Workers Local 764  
 Labourers Local 1208  
 Ironmaker and Welder-Structural  
 Operating Engineers L 904  
 Millwrights Local 1081  
 Painters, Local 1984  
 Sheet Metal Workers Local 512  
 Teamsters Union Local 855  
 United Association of Journeymen and Apprentice

## Appendix B-2 Major Study Area Industries

The following section provides descriptions of the major industries located in Placentia and Trinity Bays.

### The Bull Arm Fabrication Site

Located in Trinity Bay, the Bull Arm site is a world class fabrication facility developed in 1990 to undertake the construction of the offshore oil drilling and production platform for the Hibernia oil field. The Site was also used for fabrication, hook-up and commissioning work on the Floating Production Storage and Offloading vessel (FPSO) for the Terra Nova offshore oil development. In 2003, the site received its International Ship and Port Security (ISPS) certification so that it is now fully authorized to safely accept all international vessels and rigs.

Bull Arm was also used to construct the 200 tonne Local Electrical Room (LER) and the Main Electrical Room Module (M12) for the White Rose Development Project, the province's third offshore oil field; it was completed in May 2004. In 2005, a refit of the semi-submersible drill rig the Henry Goodrich took place. Most recently, the 40-bed additional living quarters (ALQ) unit required for the Terra Nova FPSO was fabricated at the Site between March and June of 2006. The site has also been used to fabricate work for Voisey's Bay Nickel (Bull Arm Site Corporation, 2007).

The Bull Arm Site contains three major areas:

1. **The Drydock Construction and Fabrication Site** encompasses an area of 140,000 square metres, including a 9,000 square metre pipe shop/warehouse with ten overhead cranes; a carpentry/warehouse building; a concrete batch plant; a high strength concrete testing laboratory; administration/office buildings; and marine facilities including the former drydock and seven quays located inside and outside the drydock area. The oval shaped drydock is approximately 200 metres in diameter and composes an area of 40,000 square metres; it has two load-out quays 16.5 metres below low tide level. Water depth in the tow-out channel varies from 16 metres to 45 metres and greatly increases out into Bull Arm itself.

A 75 meter expansion to the FPSO quay occurred in 1999 incorporating rock filled caissons and sheet pile construction, extending the total length to 172 metres with a much larger lay down area. In anticipation of the site's work on the Terra Nova project, this extension was required to safely moor the Terra Nova FPSO during outfitting, hook-up and commissioning. If required, this area can be re-established easily with the addition of lifts and stair towers.

In 2005, the FPSO quay was enhanced to provide appropriate mooring for the Henry Goodrich drill rig. Several bollards (mooring points) were reconfigured and two new bollards were installed with 300 T and 400 T capacity. The drydock area and FPSO quay now contain a total of seven mooring points, increasing the site's capability to accommodate any type of rig or vessel (Bull Arm Site Corporation, 2007).



2. **The Topsides Fabrication and Assembly Area** is a 120,000 square metre area that includes an administration building, pipe shop, cutting shop, assembly hall, blast/paint shop, heated warehouse and a huge fully equipped module fabrication hall. The Topsides receiving quay is 200 metres in length with approximately 10 metres of water depth at the face. There is also a 140 metre long assembly pier capable of supporting a 40,000 tonne topsides structure. The Grand Module Hall is equipped with two overhead cranes with 75 tonne capacity with an auxiliary 10 tonnes on each. In 2004, the Module Fabrication Hall was equipped with a new 39m x 39m vertical lift door that opens completely in less than 10 minutes (Bull Arm Site Corporation, 2007).
3. **The Back Cove Industrial Area and Deepwater Site** includes significant laydown areas and docking facilities to support ice-free, deepwater construction operations, and can be used as either a storage area or service area. The deepwater site can be used for concrete platform construction and topside mating. Facilities at this area, which can be re-established, include a ferry terminal, 1200 square metres of shop space, security turnstiles, and electrical and telecommunications connections to the actual deepwater site (Bull Arm Site Corporation, 2007).

### **Cow Head Offshore Fabrication Facility**

This facility was completed in the early 1990s and covers a land area of 8.1 ha. The site includes a fabrication building of 1.4 ha, an “L” shaped dock of 44 m length along the front face, and 78 m along the inner face. Water depth at the outer dock is 15 m lowest low tide (LLT). There is an adjacent loadout wharf built primarily for skidding large assemblies directly onto barges. The wharf face is 30 m long, and the minimum water depth is 6.9 m. The facility allows MODUs with a maximum draft of 15 m to be towed directly alongside docking areas so repair and service work can be performed from land.

The offshore fabrication facility consists of several interconnected buildings, the largest of which is the outfitting and assembly building containing two 50-t and one 20-t, cabcontrolled cranes with 17 m under the hook, one computer numerically controlled flame cutting machine, two automated submerged arc welding machines, twenty shielded metal arc welding machines, eight sets of rollers for large diameter pipe, 52 gas metal arc/flux welding machines with 15-m extended push-pull feeders systems and two portable plasma arc cutting machines. There are separate high alloy pipe and carbon pipe prefabrication areas, each 672 m<sup>2</sup> in area. These are paired with high alloy pipe and carbon pipe fabrication areas, each 705 m<sup>2</sup> in area. All are equipped with handling and fabrication equipment, 5 t cranes with 5 m under the hook and 1-t jib cranes. The high alloy pipe fabrication area is air conditioned for proper control of temperature and humidity to facilitate welding of titanium.

The main fabrication shop for cutting steel is 1,960 m<sup>2</sup> in area, with a 15 and 10-t crane, each with 5 m under the hook and configured to travel directly into the main outfitting and assembly area. This building features (among a wide range of equipment) a 1,000 mm capacity cold cut saw complete with stockyard, infeed and discharge conveyors and side transfer systems, eight portable flame cutting machines, and a CNC plasma marking/oxyfuel cutting and bevelling machine with a cutting area of 9 m x 19 m.

The facility also includes a 1,200 m<sup>2</sup> maintenance and electrical hop/administration building, a 17.6 m x 20 .5 m shot blast and painting hall, an X-ray bunker designed to Canadian Atomic Energy Authority specifications, and various stores, office, control room, and fabrication related areas.

### **North Atlantic Oil Refinery, Come By Chance**

North Atlantic Refining, Newfoundland's only oil refinery, employs more than 550 people and contributes over \$140 million annually to the provincial economy. In addition, North Atlantic's marketing division also employs nearly 150 people in sales. Since acquiring the facility in 1994, North Atlantic has invested more than \$550 million in improvements and upgrades to their facility (North Atlantic Refining, 2007). Some of North Atlantic's most recent expansions include:

- \$23 million, 300,000-barrel Butane Storage Facility.
- \$6 million gasoline unit upgrade now producing a virtually sulphur-free gasoline
- \$35 million diesel unit upgrade now producing near zero sulphur diesel fuel
- \$15 million truckloading facility

### **Newfoundland Transshipment Facility, Whiffen Head, Newfoundland**

The transshipment facility at Whiffen Head is a regional facility supporting the transshipment of crude oil from Hibernia, and other Grand Banks offshore developments, to refineries in the U.S., Canada and overseas. Currently the facility can handle tankers from 35,000 to 160,000 deadweight tons and store three million barrels of crude oil. The site design enables the terminal to be expanded substantially with room for an additional pier and at least ten more storage tanks.

The NTL terminal is located approximately 325 nautical miles southeast of the Grand Banks oilfields. It has a design receiving rate of 80,000 barrels per hour and a design loading rate of 50,000 barrels per hour. Presently handling Hibernia and Terra Nova crude oil, it is equipped with two vessel berths accommodating 35,000 - 159,000 deadweight ton tankers and six crude oil storage tanks, each with 500,000 barrel working capacity. NTL's two state-of-the-art 5600-horsepower tug boats, the Placentia Hope and Placentia Pride, are used to escort laden tankers to and from the pilot station in Placentia Bay and to dock/undock tankers at the NTL terminal. Both tugs are equipped to provide firefighting support.

The Whiffen Head site receives about two million barrels a week from the three shuttle tankers Kometik, Mattea, and Vinland. The oil is then transported by conventional oil tankers to the marketplace in Canada and the eastern United States. The marine facilities include an approach causeway, tug basin, trestle, and two jetties, with berthing and marine topside facilities. Onshore facilities include a tank farm, tank heating system, interconnecting flowlines, supporting facilities, waste water handling system and fire protection system. The tank farm consists of six tanks, with a working capacity of 500,000 barrels each.

The facility handles about 300 tankers annually to accommodate the current production rates at the Grand Banks oil fields. Of this total, about 170 are second-leg tankers

picking up oil from Whiffen Head and transporting it to market (Newfoundland Transshipment Limited, 2007).

### **Appendix B-3 Major Study Area Businesses**

A few large private sector businesses are located in the Study Area. One of these is Smith Snack Service Ltd., in Norman's Cove, which has existed for about 30 years. This company manufactures and distributes food such as sandwiches to schools, stores and institutional cafeterias throughout Newfoundland. The company currently employs 25 people year-round and has plans to expand, creating possibly 15-20 more jobs.

Another large business in the Study Area is Avalon Ocean Products Inc. in Arnold's Cove. Established in 1989, the company distributes products such as sea scallops, squid, Atlantic cod, blackback, flounder, capelin and lobster to markets in Canada, Europe and the United States. The company is seasonal, working from March to December of each year, with employment varying from 25-40 workers. The company also operates a fish plant in Fairhaven and a storage facility in Arnold's Cove.

Parson's Trucking in Southern Harbour employs 20 full-time and 50 part-time people at peak seasons. 35 years in business, they have three quarries, undertake site and excavation work, do automotive repair for both the public and industry and provide operators with rental equipment.

A variety of industries are located on both the north and south sides of the Argentia Harbour adjacent to the Marine Atlantic Ferry. These include Argentia Freezers (EIMSKIP), Collin's Contracting, Penny Industrial, Public Works Canada, Argentia Management Authority, Argentia Property Management, Argentia Dry Cleaning, Stellar Woodworks, Town of Placentia, St. Lawrence Cement, Tacamor, Rogers International, Pier Water Sales, Northland Contracting, Fusion Services and Voisey's Bay Nickel Company. Approximately 180 people are employed on the Argentia Peninsula, totalling 3,540 person months.

**Table B-1 Selected Economic Indicators Newfoundland and Labrador: 1999-2010**

Year	1999	2000	2001	2002	2003	2004	2005	2006f	2007f	2008f	2009f	2010f
GDP (\$m)	12,184	13,922	14,179	16,457	18,186	19,473	21,486	23,513	24,416	24,423	24,065	
% change	9.0	14.3	1.8	16.1	10.5	7.1	10.3	9.4	3.8	0.0	-1.5	
GDP (\$m chained 1997)	11,715	12,322	12,515	14,471	15,372	15,237	15,298	15,589	16,914	17,042	16,898	16,444
% change	5.5	5.2	1.6	15.6	6.2	-0.9	0.4	1.9	8.5	0.8	-0.8	-1.5
Personal Income (\$m)	10,651	11,122	11,576	11,927	12,447	12,835	13,316	13,869	14,338	14,874	15,442	
% change	4.0	4.4	4.1	3.0	4.4	3.1	3.7	4.1	3.4	3.7	3.7	3.1
% change real	2.5	1.4	3.0	0.6	1.4	1.3	1.1	2.1	1.5	1.1	1.4	
Retail Trade (\$m)	4,433	4,760	5,201	5,407	5,736	5,755	5,884	6,059	6,213	6,395	6,6623	6,774
% change	8.1	7.4	9.3	4.0	6.1	0.3	2.2	3.0	2.5	2.9	3.6	2.3
% change real	6.8	3.6	8.9	3.4	4.4	-1.8	-1.1	0.9	2.1	2.0	2.4	1.1
Capital Investment (\$m)	3,611	3,399	3,371	3,361	3,712	4,243	4,576	4,530	4,185	3,992	3,882	4,084
% change	27.8	-5.8	-0.8	-0.3	10.4	14.3	7.8	-1.0	-7.6	-4.6	-2.7	5.2
% change real	27.2	-7.9	-1.4	-2.0	10.9	11.2	6.3	-0.4	-8.6	-5.5	-4.1	2.9

**Table B-2 GDP by Industry, Newfoundland and Labrador (Chained 1997\$ millions)\***

<b>Industry</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
All Industries	9,406.7	9,901.9	10,537.3	11,161.7	11,226.8	12,974.7	13,787.7	13,626.9	13,668.7
Agriculture, Forestry, Fishing & Hunting	311.5	316.6	364.8	358.2	346.1	350.5	350.7	380.4	369.1
Mining and Oil Extraction	477.6	797.8	927.4	1,323.1	1,204.5	2,312.2	2,710.4	2,470.2	2,405.2
Utilities	457.1	488.6	452.7	441.0	407.9	451.8	434.0	425.9	445.6
Construction	579.0	566.1	670.3	587.7	682.6	682.0	668.2	728.5	778.2
Manufacturing	653.0	677.9	816.3	851.7	821.2	831.6	991.7	999.9	1,057.3
Seafood Product Prep and Packaging	131.5	144.9	180.0	171.2	169.0	203.0	237.0	257.7	196.5
Other Manufacturing	521.5	533.0	636.3	680.5	652.2	628.6	754.7	742.2	860.8
Wholesale Trade	373.1	394.8	435.0	444.7	446.2	452.9	466.0	469.9	473.1
Retail Trade	575.0	587.5	620.8	664.5	697.6	735.6	760.5	771.6	773.8
Transportation and Warehousing	447.6	405.5	422.0	419.5	426.3	429.4	472.9	485.7	496.5
Information and Cultural Industries	367.0	391.4	422.4	479.2	470.7	535.7	518.4	517.6	528.9
Finance & Insurance, Real Estate & Renting & Leasing & Mgmt of Companies & Enterprises	1,691.5	1,727.9	1,751.5	1,746.7	1,781.1	1,815.2	1,876.3	1,944.8	1,991.1
Professional, Scientific and Technical Services	226.9	264.1	275.2	288.5	320.5	354.4	345.5	347.9	349.3
Administrative and Support, Waste Management and Remediation Services	87.8	102.3	111.6	112.6	126.1	131.4	128.4	128.5	126.4
Education Services	752.7	707.7	720.5	712.1	719.5	745.0	754.0	760.4	747.2
Health Care and Social Assistance	906.2	915.2	948.9	979.3	1,014.9	1,043.7	1,076.0	1,084.5	1,077.8
Arts, Entertainment and Recreation	48.5	49.8	44.9	49.1	51.1	52.4	50.2	52.6	53.9

Industry	1997	1998	1999	2000	2001	2002	2003	2004	2005
Accommodation and Food Services	212.4	231.5	233.2	236.5	244.6	255.6	269.8	271.9	267.1
Other Service (Except Public Administration)	228.4	237.5	250.5	251.7	252.5	272.9	291.3	298.0	296.4
Public Administration	1,011.4	1,031.4	1,053.2	1,062.3	1,094.1	1,120.5	1,139.4	1,148.7	1,153.6

**Notes:**

Industry categories do not add to industry totals due to chain fisher volume index methodology.

**Source:**

Statistics Canada, November 2006; 2006 data unavailable

\* Reasoning for using chained 1997\$ figures from Stats Canada, "In May 2001, the quarterly Income and Expenditure Accounts adopted the Fisher index formula, chained quarterly, as the official measure of real expenditure-based Gross Domestic Product. Two reasons exist for the adoption of this particular formula: it produces the most accurate measure of quarter to quarter growth in GDP and its components; and, the change brings the Canadian measure in line with the US quarterly Income and Product Accounts which also use the chain Fisher formula to measure real GDP."

**Table B-3 Fish Landings**

	2005	2006 (preliminary)	% Change
<b>Landings (000 tonnes)</b>			
Shellfish	173.3	195.3	12.7
Groundfish	60.3	43.6	-27.2
Pelagics	105.1	107.3	2.1
Total	338.7	346.2	2.2
Seals	290.2	296.6	2.2
<b>Landed Value (\$ millions)</b>			
Shellfish	362.6	315.0	-13.1
Groundfish	78.6	63.7	-18.9
Pelagics	39.6	36.4	-8.0
Seals	16.5	30.2	82.7
Total	497.3	445.3	-10.5

**Source:**  
Department of Finance, The Economy 2007

**Table B-4 Labour Market Indicators Newfoundland and Labrador 1997-2009(f)**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006f	2007f	2008f	2009f
Labour Force (000's)	230.9	234.3	241.9	237.8	242.7	248.5	254.1	254.3	252.5	253.1	254.4	256.0	257.9
% change	-0.3	1.5	3.2	-1.7	2.1	2.4	2.3	0.1	-0.7	0.2	0.5	0.6	0.7
Employment (000's)	188.3	192.4	201.0	198.0	203.8	207.2	212.3	214.3	214.1	215.7	218.0	221.3	224.5
% change	0.4	2.2	4.5	-1.5	2.9	1.7	2.5	0.9	-0.1	0.7	1.1	1.5	1.4
Unemployment Rate (%)	18.4	17.9	16.9	16.7	16.1	16.7	16.5	15.7	15.2	14.8	14.3	13.6	13.0
CPI (1992=100)	108.2	108.4	110.0	113.3	114.5	117.3	120.7	122.9	126.1	128.4	130.6	133.1	135.6
% change	2.1	0.2	1.5	3.0	1.1	2.4	2.9	1.8	2.6	1.8	1.7	1.9	1.9
Housing Starts	1,696	1,450	1,371	1,459	1,788	2,419	2,692	2,870	2,498	2,234	2,024	1,976	1,992
% change	-16.6	-14.5	-5.4	6.4	22.5	35.3	11.3	6.6	-13.0	-10.6	-9.4	-2.4	0.8

**Key:**

GDP= Gross Domestic Product at market prices

CPI= Consumer Price Index

f= forecast

**Source:**

Statistics Canada; CMHC; Economics and Statistics Branch, Department of Finance

**Table B-5 Work Mobility Patterns**

	Province	Clarenville- Bonavista	Burin Peninsula	Avalon Peninsula
People Usually Traveling to Other Communities for Work:				
Number	51,788	3,065	1,690	35,330
Percent		43.6	33.2	43.0
Average Distance Traveled for Work for People Outside Community (One Way), 2001	51.5 km	77.2 km	80.5 km	48.3 km
Primary Economic Centers		-Clarenville -Arnold's Cove -Sunnyside -Come Chance -Bonavista	-Marystown -Burin	-St. John's -Mount Pearl -Conception Bay South
Migration rate (%)	-5.1	-4.2	-1.6	-2.7

**Source:**

Department of Human Resources, Labour and Employment. 2007.

**Table B-6 Employment by Industry (NAICS), Newfoundland and Labrador, 1999-2006 Annual and February 2007, Thousands**

Industry	1999	2000	2001	2002	2003	2004	2005	2006	Feb. 2007
All Industries	201.0	198.0	203.8	207.2	212.3	214.3	214.1	215.7	203.0
Goods-Producing Sector	46.8	43.0	43.7	42.6	42.2	47.7	49.0	49.1	36.8
Agriculture	1.1	1.0	1.0	1.1	1.5	1.3	2.2	1.9	1.0
Forestry, Fishing, Mining, Oil, & Gas	14.5	14.4	14.0	13.8	14.5	15.6	15.2	16.4	14.3
Fish Harvesting	8.3	8.3	6.8	7.6	7.9	8.3	8.8	8.2	6.8
Utilities	2.2	1.6	2.4	2.5	2.1	2.0	2.4	2.2	1.5
Construction	11.4	10.9	10.5	9.3	9.5	11.7	12.4	12.9	9.2
Manufacturing	17.5	15.2	15.8	16.0	14.6	17.2	16.8	15.7	10.8
Fish Processing	8.1	6.0	6.9	7.2	6.0	7.8	7.0	6.7	2.1
Services-Producing Sector	154.2	155.1	160.0	164.6	170.1	166.6	165.0	166.6	166.3
Trade	34.4	35.3	38.3	37.9	36.5	39.0	38.5	37.7	37.4
Transportation and Warehousing	10.6	11.1	11.8	10.4	12.3	12.0	11.2	11.6	9.9
Finance, Insurance, Real Estate, & Leasing	7.8	7.4	7.7	7.4	7.9	8.1	7.6	6.5	6.8
Professional, Scientific, & Technical Services	6.0	6.6	6.8	7.7	7.4	6.7	7.1	6.7	7.5



Industry	1999	2000	2001	2002	2003	2004	2005	2006	Feb. 2007
Management, Administrative and Other	4.1	4.8	5.9	8.4	7.7	7.2	7.4	8.5	7.3
Educational Services	16.4	16.0	16.7	17.3	15.8	16.7	16.8	16.6	21.2
Health Care & Social Assistance	28.3	28.1	28.7	29.3	31.3	29.7	29.4	30.1	30.6
Information, Culture, & Recreation	5.6	6.9	7.4	7.4	7.6	7.9	7.2	8.8	7.5
Accommodation & Food Services	11.5	12.4	11.8	11.9	13.6	12.9	13.5	13.4	12.3
Other Services	12.1	10.9	9.4	10.7	12.7	10.9	11.5	11.3	9.2
Public Administration	17.4	15.6	15.6	16.2	17.1	15.4	14.7	15.3	16.6

**Source:**  
Statistics Canada, Labour Force Survey, March 2007

**Table B-7 Individuals Reporting Work in Industry, Full Time and Part Time, 2000**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	Come By Chance	Placentia
Agriculture and Other Resource based Industries									
Males	25	40	-	-	75	110	75	10	150
Female	10	20			40	20	30	10	35
Manufacturing and Construction									
Male	85	180	-	-	435	535	30	30	320
Female	20	130			65	170	40	15	60
Wholesale and Retail Trade									
Male	0	20			215	240	20	15	110
Female	10	40	-	-	275	230	25	15	105
Finance and Real Estate									
Male	0	0			35	30	0	10	10
Female	0	0	-	-	30	55	0	10	20
Health and Education									
Male	0	0			195	160	0	10	60
Female	10	25	-	-	470	410	15	0	295
Business Services									
Male	0	25	-	-	235	180	15	10	200

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	Come By Chance	Placentia
Female	0	10			90	70	0	10	70
Other									
Male	10	20			185	215	0	10	150
Female	20	20	-	-	290	270	0	0	230

**Notes:**

Swift Current includes Garden Cove

Southern Harbour includes Little Harbour East

Placentia Includes Dunville, Freshwater and Jerseyside

**Source:**

Community Profiles, 2001, Statistics Canada

**Table B-8 Individuals Reporting Work in Industry, Full-Time and Part-Time, 2000**

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	Come By Chance	Placentia
Management Occupations									
Males	0	15			180	145	10	10	20
Females	0	15	-	-	185	70	0	0	25
Business, Finance, Admin									
Males	0	0			105	40	0	0	201
Females	20	35	-	-	235	210	0	15	65
Natural and Applied Science & related									
Males	15	10	-	-	150	45	10	0	45
Females	0	0			30	20	0	0	15
Health									
Males	0	0	-	-	75	1095	0	0	0
Females	0	0			120		0	0	95
Social Science, Education, Government Service & Religion									
Males	10	0	-	-	120	100	0	0	65
Females	0	15			210	185	0	0	70
Art, Culture & Recreation									
Males	0	0	-	-	15	20	0	0	0
Females	0	10			15	15	0	0	10
Sales and Service									
Males	15	10	-	-	200	320	10	0	190
Females	35	45			400	470	20	20	370

	Sunnyside	Arnold's Cove	Swift Current	North Harbour	Clarenville	Marystown	Southern Harbour	Come By Chance	Placentia
Trades, Transport, Equipment Operators									
Males	25	85	-	-	390	530	40	45	480
Females	0	0			10	15	10	0	25
Primary Industries									
Males	25	40			20	95	65	10	155
Females	10	15	-	-	25	20	30	0	35
Processing, Manufacturing and Utilities									
Males	40	115	-	-	105	170	15	15	30
Females	10	105			30	120	35	20	20

**Notes:**

Swift Current includes Garden Cove

Southern harbour includes Little Harbour East

Placentia Includes Dunville, Freshwater and Jerseyside

**Source:**

Community Profiles, Statistics Canada, 2001 Census

**Table B-9 Personal and Disposable Income (\$), Newfoundland and Labrador**

Income	1997	1998	1999	2000	2001	2002	2003	2004	2005
Personal Income (\$ millions)	9,963	10,239	10,651	11,122	11,576	11,927	12,447	12,835	13,316
Personal Income per capita (\$)	18,082	18,961	19,983	21,064	22,176	22,981	24,029	24,826	25,907
Personal Disposable Income (\$ millions)	7,949	8,097	8,378	8,740	9,116	9,381	9,788	10,042	10,372
Personal Disposable Income per capita (\$)	14,426	14,994	15,719	16,553	17,464	18,075	18,896	19,424	20,179
Personal savings rate (%)	5.2	4.1	1.9	0.6	1.2	-0.1	-0.7	-1.2	-2.0

**Source:**

Statistics Canada, Provincial Economic Accounts, Catalogue No. 13-213, November 2006

**Table B-10 Wage Rate, Total and by Occupation, 2005**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Average Weekly Wages (Nominal), All Occupations, 2005	\$ 616	\$ 568 <sup>12</sup>	\$ 584 <sup>13</sup>	\$ 629
Management Occupations	\$ 977	-	-	-
Natural / Applied Science	\$ 945	-	-	-
Professional Occupations in business & Finance	\$ 875	-	-	-
Contractors and Supervisors in trades and Transportation	\$ 837	-	-	-
Other trades	\$ 769	-	-	-
Occupations Unique to Primary industries	\$ 761	-	-	-
Transport and Equipment operators	\$ 738	-	-	-
Construction trades	\$ 711	-	-	-
Trades, Transport and Equipment operators and related	\$ 711	-	-	-
Wholesale, Technical, Insurance, Real Estate	\$ 624	-	-	-
Machine Operators and Assemblers in Manufacturing, Including Supervisors	\$ 598	-	-	-
Financial, Secretarial and administration	\$ 575	-	-	-
Occupations Unique to Processing, Manufacturing and Utilities	\$ 546	-	-	-
Business, Finance and Administrative	\$ 545	-	-	-
Trades helpers, Construction, Transportation Labourers and Related	\$ 501	-	-	-
Clerical, Including Supervisors	\$ 492	-	-	-
Labourer in processing, manufacturing and Utilities	\$ 455	-	-	-
Sales and Services	\$ 354	-	-	-
Chefs, Cooks and Occupations in Food and Beverage	\$ 338	-	-	-

**Source:**

Department of Human Resources, Labour and Employment, 2007

**Table B-11 Income Levels**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Avg. Employment Income (Nominal), 2004	\$ 26,503	\$ 22,278	\$ 23,307	\$ 30,183
Total	\$ 31,775	\$ 27,693	\$ 29,291	\$ 35,917

<sup>12</sup> Calculated for Notre Dame-Central Bonavista Bay Economic Region

<sup>13</sup> Calculated for Economic Region 1020: South Coast-Burin Peninsula

	Province	Clarenville- Bonavista	Burin Peninsula	Avalon Peninsula
Males	\$ 20,579	\$ 15,805	\$ 16,047	\$ 24,079
Females				
Average Weekly Earnings, Dec 2006	\$709.76	-	-	-
Percent of Firms Providing Non-Wage Benefits, 2004				
Medical	64.2%	-	-	-
Dental	39.8%	-	-	-
Life/Disability Insurance	35.3%	-	-	-
Pension Plan	14.5%	-	-	-
RRSP	13.9%	-	-	-
Proportion of Total Provincial EI Beneficiaries in Population, 2005	-	28.1%	29.1%	13.5%
Proportion of Income Support Recipients in Population, 2005	-	11.3%	12.5%	11.2%

**Source:**

Department of Human Resources, Labour and Employment, 2007

**Table B-12 Industries in the Region**

	Province	Clarenville- Bonavista	Burin Peninsula	Avalon Peninsula
# of Businesses, 2005	16,812	1,018	598	8,119
% of Business in Province, 2004 (%)	100	6.1	3.6	48.3
% of Business with Less Than 5 Employees	10,015	687	421	4,542
Distribution of Total Provincial Firms by Region, 2004 (%)		6.0%	3.6	47.8
New Business Start-ups		NA	NA	NA

**Notes:**

The data for new business start-ups and business bankruptcies were not available



## **APPENDIX C EDUCATION**

**Table C-1 Memorial University of Newfoundland’s Oil and Gas Related Programs, Faculties and Facilities**

Type	
Faculty	50 including 19 new faculty and several research chairs
Facilities	Harsh Environment Bridge Simulator – Marine Institute
	Centre for Marine Compressed Natural Gas
	Landmark Graphics Visualization Laboratory
	Schlumberger Data Centre
	Inco Innovation Centre – mining and oil and gas focus
Programs	Advanced Diploma in Engineering
	Masters and PhD in Engineering
	Bachelors in Process Engineering
	Masters and PhD in Process Engineering
	Diploma in Marine Safety
	Diploma in Remotely Operated Vehicles
Executive MBA	Oil and Gas
	Maritime Management
Research foci	Offshore Safety
	Underwater Vehicles
	Engineering of Production Systems
Students	100+ in oil and gas operations

**Source:**

Axel Meisen, President and Vice-Chancellor of Memorial University of Newfoundland, speech at Conference on Economic Development Benefits of the Oil and Gas Industry in Newfoundland and Labrador, May 2007



**Table C-2 Private Training Institutions**

Institute	Training Offered
Academy Canada, Corner Brook website: www.academycanada.com	Baker Cabinet Maker Carpenter Construction/Industrial Electrician Cook Hairstylist Heavy Equipment Operator Painter and Decorator Roofer Steamfitter/Pipefitter Welder
Academy Canada, St. John's website: www.academycanada.com	Automotive Service Technician Baker Cabinet Maker Carpenter Construction/Industrial Electrician Cook Hairstylist Motor Vehicle Body Repairer (Metal and Paint) Painter and Decorator Plumber Roofer Sheet Metal Worker Steamfitter/Pipefitter Welder
BAC Training Centre (Bricklayers), St. John's	Bricklayer
Canadian Training Institute, Bay Roberts	Heavy Equipment Operator
Carpenters Millwrights College, Paradise website: www.nlrc.ca	Carpenter Lather (Interior Systems Mechanic) Industrial Mechanic (Millwright)
Centrac College, Marystown website: www.centraccollege.ca	Carpenter Construction/Industrial Electrician Heavy Equipment Operator Painter and Decorator Steamfitter/Pipefitter Welder
Central Training Academy, Badger	Heavy Equipment Operator
Corona College, Grandfalls-Windsor website: www.coronacollege.com	Hairstylist
DieTrac Technical Institute, Lewisporte website: www.dietrac.net	Carpenter Construction/Industrial Electrician Heavy Duty Equipment (Mechanic) Industrial Instrument Mechanic Industrial Mechanic (Millwright) Machinist Plumber Truck and Transport Mechanic Welder

Institute	Training Offered
Highland College, Mount Pearl website: www.highlandcollege.com	Automotive Service Technician
Iron Worker's Education and Training, St. John's	Ironworker Generalist
Keyin College, Carbonear website: www.keyin.com	Hairstylist
Keyin College, Clareville website: www.keyin.com	Hairstylist
LeMoine's School of Hair Design, St. John's website: www.delweb.com/lemoines	Hairstylist
Operating Engineers, Holyrood website: www.oecollege.ca	Heavy Equipment Operator Mobile Crane Operator
United Association Training Centre, Mount Pearl website: www.nacc.ca/266a.htm	Plumber Sprinkler System Installer Steamfitter/Pipefitter
Woodford Training Centre, Kelligrews website: www.woodfordtraining.com	Hairstylist

**Source:** Government of Newfoundland and Labrador  
<http://www.ed.gov.nl.ca/app/trainingsites.htm>

**Table C-3A Primary Study Area School Capacities**

School	Location	Grades	Service Area	Student Population	
				# Registered 2006-07*	Capacity of School (Max. # Students according to FRC**)
Balbo Elementary School	Shoal Harbour	K-8 (Go to Clarenville High School for 9-L4)	Burgoynes Cove George's Brook Harcourt-Monroe-Waterville Milton Shoal Harbour	353	460
Clarenville Primary School	Clarenville	K-3 (Go to Clarenville Middle School for 4-8)	Addeytown Churchills Clarenville Deep Bight Goobies Hatchet Cove Hillview Muddy Brook Port Blandford Queen's Cove St. Jone's Within Thorburn Lake	200	295
Clarenville Middle School	Clarenville	4-8 (Go to Clarenville High School for 9-L4)	Same as Clarenville Primary School	267	392
Clarenville High School	Clarenville	9-L4	Same as Clarenville Middle/Primary School + Balbo Elementary School	407	612
Sacred Heart Academy	Marystown	K-7 (Go to Pearce Junior High for 8-9)	Beau Bois Creston Creston North Jean de Baie Little Bay Marystown Marystown South	574	749
Sacred Heart Academy	Marystown	K-7 (Go to Pearce	Monkstown Mooring Cove		

School	Location	Grades	Service Area	Student Population	
				# Registered 2006-07*	Capacity of School (Max. # Students according to FRC**)
(cont'd)		Junior High for 8-9)	Red Harbour Rock Harbour Spanish Room		
Donald C. Jamieson Academy	Burin Bay Arm	K-7 (Go to Pearce Junior High for 8-9)	Bay View Black Duck Cove Bulls Cove Burin Burin Bay Burin Bay Arm Collins Cove Corbin Epworth Fox Cove-Mortier Frenchman's Cove Garnish Great Salmonier Kirby's Cove Lewin's Cove Little Salmonier Long Cove Path End Port au Bras Salt Pond Ship Cove The Droke Whale Cove Winterland	401	584
Pearce Junior High	Burin Bay Arm	8-9 (Go to Marystown Central High School for L1-L4)	Same as Sacred Heart Academy + Donald C. Jamieson Academy	255	425
Marystown Central High School	Marystown	L1-L4	Same as Sacred Heart Academy + Donald C. Jamieson Academy	478	791
St. Anne's	Dunville	K-9 (Go to	Argentia	225	607

School	Location	Grades	Service Area	Student Population	
				# Registered 2006-07*	Capacity of School (Max. # Students according to FRC**)
Academy		Laval High School for L1-L4)	Dunville Ferndale Fox Harbour Freshwater Jerseyside Marquise McAndrew Ship Harbour		
St. Edward's Elementary	Placentia	K-8 (Go to Laval High School for 9-L4)	Great Barasway Little Barasway Placentia Point Verde Southeast Placentia	219	408
Laval High School	Placentia	9-L4	Same as St. Anne's Academy + St. Edward's Elementary	261	375
Southwest Arm Academy	Little Heart's Ease	K-L4	Butter Cove Caplin Cove Gooseberry Cove Hodge's Cove Little Heart's Ease Long Beach Southport	117	259
Swift Current Academy	Swift Current	K-L4	Black River Garden Cove Goose Cove North Harbour Northern Bight Soldier's Cove Swift Current Woody Island	66	230
Tricentia Academy	Arnold's Cove	K-L4	Arnold's Cove Arnolds Cove Station Come By Chance	357	526

School	Location	Grades	Service Area	Student Population	
				# Registered 2006-07*	Capacity of School (Max. # Students according to FRC**)
			Goobies Station La Manche Siding Little Harbour East Ranem Station Southern Harbour Southern Harbour Station Sunnyside Upshall		

**Notes:**

FRC is Faculty-Rated Capacity, determined by factors such as room physical size, room function and class size caps.

Grades 10,11 and 12 are called level 1, 2 and 3. Level 4 is similar to Grade 13

**Source:**

Enrolment figures from the 2006-07 Annual General Return, Department of Education

**C-3B Primary Study Area School Capacities by Grade**

<b>Schools - Locations and Capacity for Amec Request</b>					
School	Location	Grades	Service Area	Student Population	
				# Registered 2006-07*	Capacity of School (Max. # Students according to FRC**)
Balbo Elementary School	Shoal Harbour	K-8 (Go to Clarenville High School for 9-L4)	Burgoynes Cove	353	460
			George's Brook		
			Harcourt-Monroe-Waterville		
			Milton		
			Shoal Harbour		
Clarenville Primary School	Clarenville	K-3 (Go to Clarenville Middle School for 4-8)	Addeytown	200	295
			Churchills		
			Clarenville		
			Deep Bight		
			Goobies		
			Hatchet Cove		
			Hillview		
			Muddy Brook		
			Port Blandford		
			Queen's Cove		
			St. Jone's Within		
			Thorburn Lake		
Clarenville Middle School	Clarenville	4-8 (Go to Clarenville High School for 9-L4)	Same as Clarenville Primary School	267	392
Clarenville High School	Clarenville	9-L4	Same as Clarenville Middle/Primary School + Balbo Elementary School	407	612
Sacred Heart Academy	Marystown	K-7 (Go to Pearce Junior High for 8-9)	Beau Bois	574	749
			Creston		
			Creston North		
			Jean de Baie		
			Little Bay		
			Marystown		
			Marystown South		
			Monkstown		
			Mooring Cove		
			Red Harbour		
			Rock Harbour		
Spanish Room					

Donald C. Jamieson Academy	Burin Bay Arm	K-7 (Go to Pearce Junior High for 8-9)	Bay View	401	534
			Black Duck Cove		
			Bulls Cove		
			Burin		
			Burin Bay		
			Burin Bay Arm		
			Collins Cove		
			Corbin		
			Epworth		
			Fox Cove-Mortier		
			Frenchman's Cove		
			Garnish		
			Great Salmonier		
			Kirby's Cove		
			Lewin's Cove		
			Little Salmonier		
			Long Cove		
			Path End		
Port au Bras					
Salt Pond					
Ship Cove					
The Droke					
Whale Cove					
Winterland					
Pearce Junior High	Burin Bay Arm	8-9 (Go to Marystown Central High School for L1-L4)	Same as Sacred Heart Academy + Donald C. Jamieson Academy	255	425
Marystown Central High School	Marystown	L1-L4	Same as Sacred Heart Academy + Donald C. Jamieson Academy	478	791
St. Anne's Academy	Dunville	K-9 (Go to Laval High School for L1-L4)	Argentia	225	607
			Dunville		
			Ferndale		
			Fox Harbour		
			Freshwater		
			Jerseyside		
			Marquise		
			McAndrew		
Ship Harbour					



St. Edward's Elementary	Placentia	K-8 (Go to Laval High School for 9-L4)	Great Barasway	219	408
			Little Barasway		
			Placentia		
			Point Verde		
			Southeast Placentia		
Laval High School	Placentia	9-L4	Same as St. Anne's Academy + St. Edward's Elementary	261	375
Southwest Arm Academy	Little Heart's Ease	K-L4	Butter Cove	117	259
			Caplin Cove		
			Gooseberry Cove		
			Hodge's Cove		
			Little Heart's Ease		
			Long Beach		
Swift Current Academy	Swift Current	K-L4	Black River	66	230
			Garden Cove		
			Goose Cove		
			North Harbour		
			Northern Bight		
			Soldier's Cove		
			Swift Current		
			Woody Island		
Tricentia Academy	Arnold's Cove	K-L4	Arnold's Cove	357	526
			Arnolds Cove Station		
			Come By Chance		
			Goobies Station		
			La Manche Siding		
			Little Harbour East		
			Ranem Station		
			Southern Harbour		
			Southern Harbour Station		
			Sunnyside		
Upshall					
*Enrolment figures from the 2006-07 Annual General Return, Department of Education					
**FRC is Facility-Rated Capacity, determined by factors such as room physical size, room function and class size caps.					

<b>Feeder Systems in Request File</b>		
<b>Clarenville High School Feeder System</b>		
<b>Grade</b>	<b>School</b>	
L4	Clarenville High School	
L3	Clarenville High School	
L2	Clarenville High School	
L1	Clarenville High School	
9	Clarenville High School	
8	Clarenville Middle School	Balbo Elementary School
7	Clarenville Middle School	Balbo Elementary School
6	Clarenville Middle School	Balbo Elementary School
5	Clarenville Middle School	Balbo Elementary School
4	Clarenville Middle School	Balbo Elementary School
3	Clarenville Primary School	Balbo Elementary School
2	Clarenville Primary School	Balbo Elementary School
1	Clarenville Primary School	Balbo Elementary School
K	Clarenville Primary School	Balbo Elementary School
<b>Marystown Central High School Feeder System</b>		
<b>Grade</b>	<b>School</b>	
L4	Marystown Central High School	
L3	Marystown Central High School	
L2	Marystown Central High School	
L1	Marystown Central High School	
9	Pearce Junior High	
8	Pearce Junior High	
7	Sacred Heart Academy	Donald C. Jamieson Academy
6	Sacred Heart Academy	Donald C. Jamieson Academy
5	Sacred Heart Academy	Donald C. Jamieson Academy
4	Sacred Heart Academy	Donald C. Jamieson Academy
3	Sacred Heart Academy	Donald C. Jamieson Academy
2	Sacred Heart Academy	Donald C. Jamieson Academy
1	Sacred Heart Academy	Donald C. Jamieson Academy
K	Sacred Heart Academy	Donald C. Jamieson Academy

<b>Laval High School Feeder System</b>		
<b>Grade</b>	<b>School</b>	
L4	Laval High School	
L3	Laval High School	
L2	Laval High School	
L1	Laval High School	
9	St. Anne's Academy	Laval High School
8	St. Anne's Academy	St. Edward's Elementary
7	St. Anne's Academy	St. Edward's Elementary
6	St. Anne's Academy	St. Edward's Elementary
5	St. Anne's Academy	St. Edward's Elementary
4	St. Anne's Academy	St. Edward's Elementary
3	St. Anne's Academy	St. Edward's Elementary
2	St. Anne's Academy	St. Edward's Elementary
1	St. Anne's Academy	St. Edward's Elementary
K	St. Anne's Academy	St. Edward's Elementary
<b>All other schools in this file are K-L4 schools.</b>		

<b>Enrolment by School and Grade from 2002-03 to 2006-07</b>															
<b>Clareville High School Feeder System</b>															
<b>Balbo Elementary School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03	37	39	45	35	34	35	39	44	36						344
2003-04	45	42	42	45	41	35	36	35	43						364
2004-05	40	42	45	37	44	38	33	30	32						341
2005-06	39	41	47	46	39	49	36	35	32						364
2006-07	33	38	34	47	45	38	49	35	34						353
<b>Clareville Primary School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03	54	49	45	62											210
2003-04	60	51	51	48											210
2004-05	69	55	52	52											228
2005-06	48	66	52	50											216
2006-07	40	50	57	53											200
<b>Clareville Middle School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03					56	71	52	58	68						305
2003-04					68	58	72	55	65						318
2004-05					47	69	54	73	56						299
2005-06					50	45	66	53	72						286
2006-07					48	51	43	68	57						267
<b>Clareville High School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03										89	101	101	120	13	424
2003-04										108	88	111	100	9	416
2004-05										102	103	86	92	19	402
2005-06										91	93	108	80	16	388
2006-07										104	92	109	90	12	407
<b>Marystown Central High Feeder System</b>															
<b>Sacred Heart Academy</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03	84	78	67	101	75	85	75	92							657
2003-04	75	81	84	69	101	76	88	72							646
2004-05	66	76	83	80	70	93	72	87							627
2005-06	58	64	79	81	80	63	93	80							598
2006-07	73	55	60	76	78	74	66	92							574

<b>Donald C. Jamieson Academy</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03	57	58	53	57	48	55	65	68							461
2003-04	49	57	52	51	55	50	52	62							428
2004-05	49	50	55	53	51	54	48	58							418
2005-06	42	48	49	52	53	51	56	50							401
2006-07	55	41	50	49	49	53	49	55							401
<b>Pearce Junior High School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03									204	140					344
2003-04									173	197					370
2004-05									128	165					293
2005-06									134	125					259
2006-07									126	129					255
<b>Marystown Central High School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03											173	167	184		524
2003-04											174	160	155		489
2004-05											231	120	152		503
2005-06											204	172	130		506
2006-07											130	161	165	22	478
<b>Laval High School Feeder System</b>															
<b>St. Anne's Academy</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03	32	27	33	22	28	26	39	37	44	41					329
2003-04	18	32	26	31	23	27	26	39	38	41					301
2004-05	15	18	30	26	28	21	28	25	39	38					268
2005-06	19	14	18	27	26	29	22	26	26	41					248
2006-07	16	18	17	17	25	31	28	21	26	26					225
<b>St. Edward's Elementary</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03	24	31	29	33	28	31	45	29	40						290
2003-04	20	20	29	28	29	29	28	44	30						257
2004-05	19	18	23	28	29	27	27	29	43						243
2005-06	26	20	19	24	27	29	30	23	26						224
2006-07	20	24	21	18	24	29	27	33	23						219
<b>Laval High School</b>															
Year	K	1	2	3	4	5	6	7	8	9	L1	L2	L3	L4	TOTAL
2002-03										37	96	98	83		314
2003-04										43	77	91	88	6	305
2004-05										28	84	72	87	11	282
2005-06										41	72	82	70	5	270
2006-07										27	84	67	81	2	261

**Table C-4 College of the North Atlantic, Programs and Capacity at Clarenville, Placentia and Bonavista**

	Clarenville	Placentia	Bonavista
Student population:	326 F/T 132 P/T	160 F/T 16 P/T	117 F/T 6 P/T
Capacity	Capacity at the Clarenville campus is hard to measure, as they have no real "upper limit". If there is not enough space for program needs in the building, they rent in the community or region.	NA*	NA*
Programs Offered: (capacity)	<ul style="list-style-type: none"> <li>• Adult Basic Education (32)</li> <li>• Business Administration (Accounting)(12)</li> <li>• Business Administration (General)(22)</li> <li>• Business Administration (Human Resources Management)</li> <li>• Business Administration (Marketing)(22)</li> <li>• Carpenter – Entry (20)</li> <li>• Career Exploration for Women</li> <li>• Engineering Technology (First Year)(20)</li> <li>• Office Administration (Executive)(15)</li> <li>• Steamfitter/Pipefitter – Entry (32)</li> <li>• College Distributed Learning Services</li> </ul>	<ul style="list-style-type: none"> <li>• Adult Basic Education(15)</li> <li>• Comprehensive Arts and Science: College Transition(15)</li> <li>• Career Exploration for Women</li> <li>• General Studies – Access</li> <li>• Heavy Duty Equipment Technician – Entry (17)</li> <li>• Machinist-Entry(16)</li> <li>• Machinist-Advanced(16)</li> <li>• Industrial Mechanic (Millwright) – Entry : 9 months (32+extra 28)</li> <li>• Industrial Mechanic (Millwright) –Advanced(16)</li> <li>• Welder – Entry(15)</li> </ul>	<ul style="list-style-type: none"> <li>• Adult Basic Education(18)</li> <li>• Comprehensive Arts and Science: College Transition (12)</li> <li>• Construction/Industrial Electrician – Entry(16 +16)</li> <li>• Career Exploration for Women</li> <li>• Natural Resources Technician I(15)</li> <li>• Natural Resources Technician II(15)</li> <li>• Office Administration (30)</li> <li>• Office Administration (Executive)</li> <li>• Plumber – Entry (16)</li> </ul>
Apprenticeships (Provincial Capacity )	<ul style="list-style-type: none"> <li>• Carpentry-Construction -8 wks (36)</li> <li>• Plumber-8 wks (32)</li> <li>• Steamfitter/Pipefitter-8 wks (32)</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial Mechanic (Millwright) Advanced (48)</li> <li>• Machinist – Advanced. (16)</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>

**Notes:**

\*The ability of these campuses to add on extra courses to meet local needs is not unprecedented. Their ability to do so will depend on the availability of instructors which can vary. Access to space is not an issue. If insufficient space exists within the campus area, the College will lease other available space in the area. It is not unusual to add programs, as required, notably in industrial trades.

**Source:**

College of North Atlantic, Administration, Individual Campuses. April 2007

**Table C-5 College of the North Atlantic, Programs Offered at Burin, Seal Cove  
Carbonear and St. John's**

	Burin	Seal Cove	Carbonear	St. John's
Student population:	290 F/T 32 P/T	288F/T 12 P/T	192 F/T 4 P/T	
Capacity	NA*	NA*	NA*	
Programs Offered:	<ul style="list-style-type: none"> <li>• Adult Basic Education (30)</li> <li>• Business Administration (Accounting)(25)</li> <li>• Business Administration (General) (25)</li> <li>• Business Administration (Human Resource Management)</li> <li>• Business Administration (Marketing)</li> <li>• Career Exploration for Women</li> <li>• Comprehensive Arts and Science Transfer: College University (90)</li> <li>• Comprehensive Arts and Science: College Transition</li> <li>• Cook – Entry(12)</li> <li>• Electrical Engineering Technology (16)</li> <li>• Engineering Technology (First Year)(20)</li> <li>• Industrial Instrument Mechanic – Entry (32)</li> <li>• International Business Management Post Diploma</li> <li>• Metal Fabricator (Fitter) Entry (27)</li> <li>• Office Administration 9@5)</li> <li>• Sheet Metal Worker Entry (16)</li> <li>• Welding</li> </ul>	<ul style="list-style-type: none"> <li>• Adult Basic Education (20)</li> <li>• Career Exploration for Women</li> <li>• Cook – Entry(12)</li> <li>• Construction/Industrial Electrical – Entry(16)+Extra 16</li> <li>• Industrial Instrument Mechanic – Entry15</li> <li>• Oil Burner Mechanic – Entry(12)</li> <li>• Powerline Technician (Operating) - Entry (12) + Extra 12</li> </ul>	<ul style="list-style-type: none"> <li>• Adult Basic Education (47)</li> <li>• Bricklayer – Entry</li> <li>• Business Administration (17)</li> <li>• Business Administration (Accounting)</li> <li>• Business Administration (Marketing)</li> <li>• Career Exploration for Women</li> <li>• Comprehensive Arts and Science Transfer: College University</li> <li>• Comprehensive Arts and Science: College Transition</li> <li>• Community Studies (30)</li> <li>• Engineering Technology (First Year) (16)</li> <li>• General Studies – Assess</li> <li>• Heritage Carpentry – Entry (18)</li> </ul>	<ul style="list-style-type: none"> <li>• Adult Basic Education</li> <li>• Automotive Service Technician</li> <li>• Business Management (Accounting)</li> <li>• Business Management</li> <li>• Business Management (Marketing)</li> <li>• Community Recreation Leadership</li> <li>• Computer Support Specialist</li> <li>• Cook</li> <li>• Diagnostic Ultrasonography</li> <li>• Early Childhood Education</li> <li>• Early Childhood Education (DLS)</li> <li>• English as a Second Language</li> <li>• Food Service &amp; Nutrition Management</li> <li>• Graphic Design</li> <li>• Graphic Production &amp; Printing</li> <li>• Hospitality Tourism Management</li> <li>• Marine Cooking</li> <li>• Medical Radiography</li> <li>• Medical Science (First Year)</li> <li>• Motor Vehicle Repair (Metal &amp; Paint)</li> <li>• Occupational Therapist Assistance</li> <li>• Office Administration (Executive)</li> <li>• Office Administration (Legal)</li> <li>• Office Administration (Medical)</li> <li>• Office Administration (Records &amp; Information)</li> </ul>

	Burin	Seal Cove	Carbonear	St. John's
	Engineering Technician(17) • Welder Entry(16)			Management) • Primary Care Paramedicine • Physiotherapists Assistant • 'Programmer Analyst (Business) Co-op' • Textile Studies • Welder
Apprenticeship (Provincial Capacity)	<ul style="list-style-type: none"> <li>• Metal fabricator (fitter)- Advanced (64)</li> <li>• Sheet metal worker- Advanced (16)</li> </ul>	<ul style="list-style-type: none"> <li>• Construction Electrical Advanced (144)</li> <li>• Industrial Construction Advanced (NA offered at campuses)</li> <li>• Industrial Instrument Mechanic Advanced (48)</li> <li>• Oil Burner Mechanic Advanced (12)</li> <li>• Powerline Technician (Operating) (24)</li> </ul>	None	

**Notes:**

\*The ability of these campuses to add on extra courses to meet local needs is not unprecedented. Their ability to do so will depend on the availability of instructors which can vary. Access to space is not an issue. If insufficient space exists within the campus area, the College will lease other available space in the area. It is not unusual to add programs, as required, notably in industrial trades.

**Source:**

College of North Atlantic, Administration, Individual Campuses. April 2007

**Table C-6 Highest Level of Education, Total Population, by Region, 2001**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Total Population With Less than High School, 2001 (%)				
Males	42.1	50.7	48.3	34.3
Females	42.6	51.9	51.8	34.4
Total Population With High School Diploma, 2001 (%)				
Males	9.0	9.0	7.0	9.6
Females	9.8	12.0	9.3	8.9
Total Population With Post-Secondary Certificate or Diploma, 2001 (%)				
Males	30.4	27.3	33.0	31.5
Females	28.7	23.3	26.4	31.9
Total Population With University Degree, 2001 (%)				



	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Males				
Female	9.5	5.2	5.5	13.5
	9.6	5.5	5.2	13.7

**Source:**

Census 2001, Statistics Canada; Available through Community Accounts

\*Includes Dunville, Freshwater and Jersey side

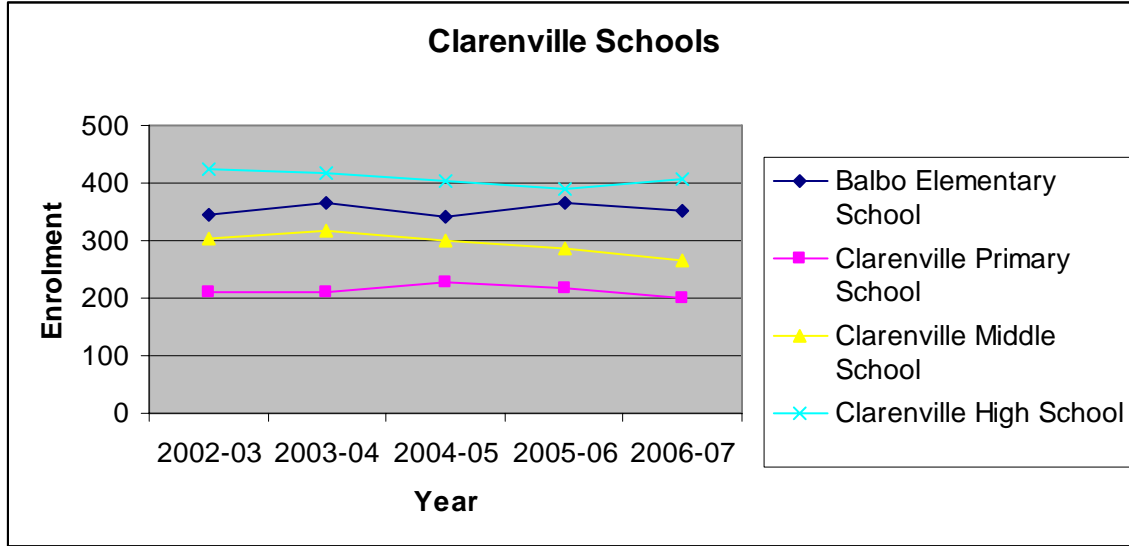
**Table C-7 Highest Level of Education, Total Population, by Region, 2001**

	Province	Clarenville-Bonavista	Burin Peninsula	Avalon Peninsula
Total Population With Less than High School, 2001 (%)				
Males	42.1	50.7	48.3	34.3
Females	42.6	51.9	51.8	34.4
Total Population With High School Diploma, 2001 (%)				
Males	9.0	9.0	7.0	9.6
Females	9.8	12.0	9.3	8.9
Total Population With Post-Secondary Certificate or Diploma, 2001 (%)				
Males	30.4	27.3	33.0	31.5
Females	28.7	23.3	26.4	31.9
Total Population With University Degree, 2001 (%)				
Males	9.5	5.2	5.5	13.5
Female	9.6	5.5	5.2	13.7

**Source:**

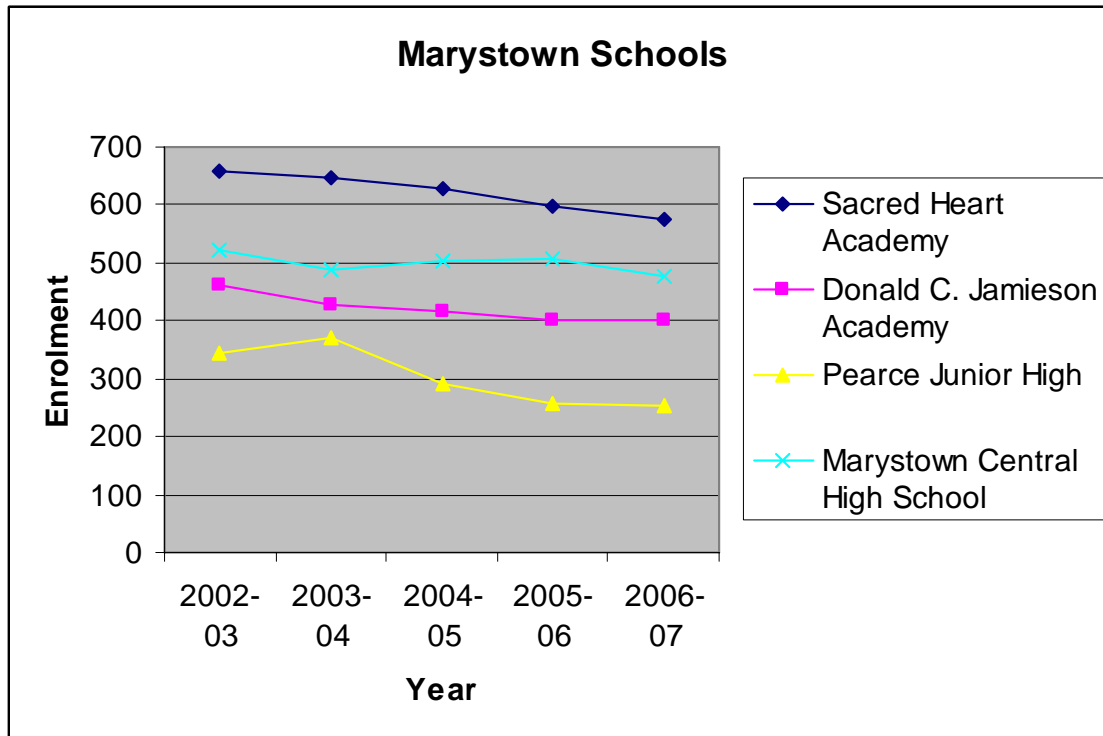
Census 2001, Statistics Canada; Available through Community Accounts

\*Includes Dunville, Freshwater and Jersey side



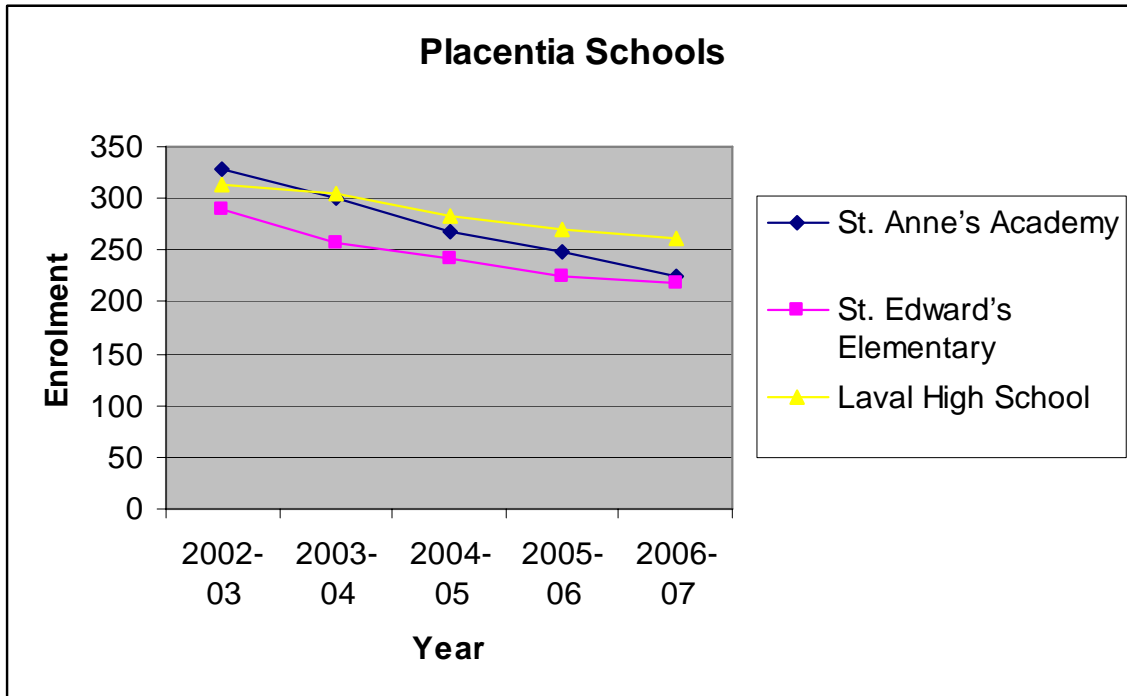
**Figure C-1 Clarenville School Enrolments 2001-2007**

**Source:**  
 Eastern School District, 2007; AMEC Interpretation



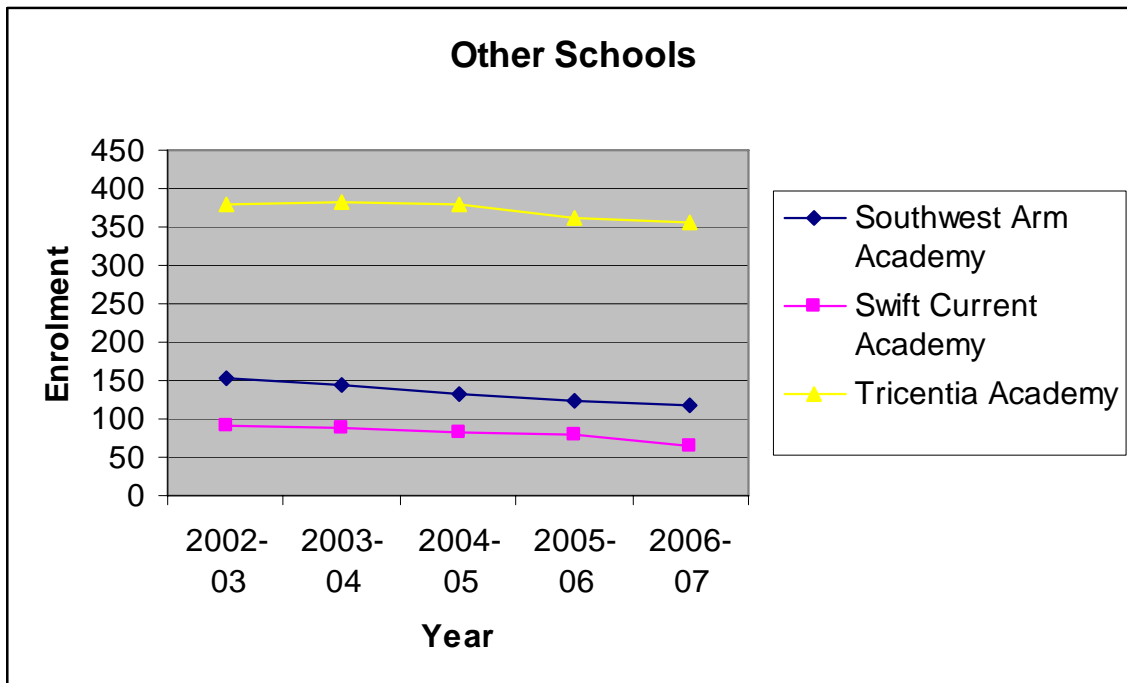
**Figure C-2 Marystown Schools Enrolments 2001-2007**

**Source:**  
 Eastern School District, 2007; AMEC Interpretation



**Figure C-3 Placentia Schools Enrolment 2001 – 2007**

**Source:**  
 Eastern School District, 2007; AMEC Interpretation



**Figure C-4 Other Primary Study Area Schools Enrolment 2001 - 2007**

**Source:** Eastern School District, 2007; AMEC Interpretation



**APPENDIX D**  
**INFRASTRUCTURE AND SERVICES**  
**(Physical, Social Services and Emergency Services)**

## Physical infrastructure

**Table D-1 Highway Conditions and Upgrading Plans**

Route	Current Condition	Classification	Notes
Route 1, TCH from Argentia Access to Clarenville (98 km)	<ul style="list-style-type: none"> <li>-Argentia Access to Chance Cove Intersection (33 km) resurfaced in 2006 and in good condition.</li> <li>-Chance Cove Intersection to 3 km west of Burin Peninsula Highway Intersection (42 km) resurfaced in 2005 and in good condition.</li> <li>-3 km west of Burin Peninsula Highway Intersection to Deep Bight (15 km) resurfaced in 1992 and in fair condition with some wheel rutting.</li> <li>-Deep Bight to Clarenville (8 km) resurfaced in 1993 &amp; 1995 and in fair condition.</li> </ul>	1A TCH(NHS) Undivided	-No upgrades scheduled
Route 210, Burin Peninsula Highway from TCH Int. to Terrenceville Int. (66 km)	<ul style="list-style-type: none"> <li>-TCH to North Harbour (12 km) exhibits wheel rutting, some subgrade problems and significant snow drifting conditions in open areas.</li> <li>-North Harbour Intersection towards Garden Cove Intersection (4 km) upgraded and resurfaced in 2001 and in good condition.</li> <li>-Garden Cove to Pipers Hole River (13 km) exhibits wheel rutting and some subgrade problems.</li> <li>-Pipers Hole River to Terrenceville Intersection (37 km) upgraded and resurfaced from 1998 to 1999 and in good condition.</li> </ul>	2A Trunk non-NHS	<ul style="list-style-type: none"> <li>-TCH to North Harbour section is presently listed for consideration for future capital funding to provide necessary upgrading and paving.</li> <li>-Garden Cove to Pipers Hole River section is presently listed for consideration for future capital funding to provide necessary upgrading and paving.</li> </ul>
Route 210-11, North Harbour Road (7.8 km)	<ul style="list-style-type: none"> <li>-Burin Peninsula Highway to the community of North Harbour (5 km) was resurfaced in 2001 &amp; 2002 and is in good condition.</li> <li>-The main road through the community of North Harbour (2.8 km) requires resurfacing.</li> </ul>	3 Community Access	-The main road is listed for consideration for future capital funding.
Route 210-13, Garden Cove Road (5.5 km)	<ul style="list-style-type: none"> <li>-Burin Peninsula Highway towards Garden Cove (1.2 km) requires resurfacing</li> <li>-The main road through the community of Garden Cove (4.3 km) was resurfaced in 2001 &amp; 2002 and is in good condition.</li> </ul>	3 Community Access	-Burin Peninsula Highway towards Garden Cove is listed for consideration for future capital funding.

Route	Current Condition	Classification	Notes
Route 2-1-07, Sunnyside Road (7.7 km)	-TCH to approximately km 2 requires resurfacing. -From km 2 to km 5.4 was resurfaced in 2001 and is in good condition. -From km 5.4 to the end of the main road through Sunnyside and Centre Cove (2.3 km) requires resurfacing.	3 Community Access	-TCH to approximately km 2 is listed for consideration for future capital funding. -From km 5.4 to the end of the main road through Sunnyside and Centre Cove is listed for consideration for future capital funding.
Route 2-1-06, Come By Chance Road (7 km)	-TCH to the community of Come By Chance (0.2 km) is in fair condition. -The main road through the community of Come By Chance (2.8 km) was resurfaced in 2001 and is in good condition. -From the community of Come By Chance to North Atlantic Refinery (4 km) is a gravel road in fair condition.	3 Community Access	Paving of the gravel road from Come By Chance to North Atlantic Refinery has been listed for consideration for future capital funding.
Route 2-1-04, Arnold's Cove Road (4.3 km)	-A new interchange was constructed in 2006 at the intersection to the TCH. -From the TCH to the Tanker Inn (1.2 km) was constructed and paved in 2006 and is in good condition. -From the Tanker Inn to the end of the community of Arnold's Cove (3.1 km) is in fair condition but does require minor upgrading. and resurfacing.	3 Community Access	-Tanker Inn to the end of the community of Arnold's Cove is listed for consideration for future capital funding.
Route 2-1-02, Southern Harbour Road (5.1 km)	-From the TCH to the end of the community of Southern Harbour is in fair condition but hasn't been resurfaced in since 1988.	3 Community Access	-No upgrades scheduled
Route 2-1-01, Little Harbour Road (5.8 km)	-From the TCH to km 3.9 is in fair condition but hasn't been resurfaced in recent years. -From km 3.9 to the end of the community in Little Harbour requires resurfacing.	3 Community Access	-From km 3.9 to the end of the community in Little Harbour is listed for consideration for future capital funding.
Route 100, TCH to Argentia (50 km)	-Highway is in poor shape and needs improvements	2A Trunk non-NHS	-Will undergo \$1 million of capital improvements during summer 2007

**Source:**

D. Brennon, pers. comm.

- Theoretically, roads with a Traffic Volume Level of Service of C to B are each capable of withstanding an increase of up to approximately 400 passenger cars per hour, changing them to Level of Service "E" roads (based on an analysis carried out for Routes 202 and 101 leading into Long Harbour for potential/acceptable traffic volume increase) (J. Morrissey, pers.comm.).
- A grade-separated interchange is recommended in the provincial long range plans for the Trans-Canada and Come By Chance access highway intersection. Traffic volumes for the proposed project may drive the development schedule for interchange construction. (G. Gosse, pers. comm.).
- Average annual daily traffic counts are provided in Table 3-48 and increased approximately two percent per year in the period between 2004 and 2006. This increase is based on annual increases in registered vehicles (J. Morrissey, pers. comm.).

**Table D-2 Average Annual Daily Traffic Counts**

Highway	Average Annual Daily Traffic Counts†	
	2004	2006*
Route 100, Argentia Access Road (exiting toward Dunville/Placentia)	1,619	1,684
Route 100, Argentia Access Road (on TCH at intersection)	12,435	12,932
Southern Harbour Access Road (to S. Harbour)	674	701
Southern Harbour Access Road (on TCH <sup>††</sup> at intersection)	10,695	11,123
TCH at Arnold's Cove (to Arnold's Cove)	2,084	2,167
Trans-Canada Highway at Arnold's Cove (on TCH at intersection)	11,167	11,614
TCH at Sunnyside and Come By Chance Roads (on TCH)	10,030	10,431
TCH at Sunnyside and Come By Chance Roads (on access roads)	1,329	1,382
Route 210 Burin Peninsula Highway (on TCH)	11,061	11,503
Route 210 Burin Peninsula Highway (to Goobies)	1,855	1,929
TCH at 230A Manitoba Drive (Clareville) on TCH	6,168	6,415
TCH at 230A Manitoba Drive (Clareville) access to Clareville	3,299	3,431

**Notes:**

\*Estimated traffic counts based on 2% annual increase (J. Morrissey, pers. comm. and Jacques Whitford, 2007)

† Total manual count

†† Trans-Canada Highway

**Source:**

Newfoundland and Labrador Department of Transportation and Works

**Table D-3 Incidences of Boil Water Orders in Study Area**

Community	Date of Boil Water Order Issue	Reason
Little Harbour East	January 1996	No chlorination
Harbour Mile; Little Harbour East	November 2003	No disinfection system in water supply; coliforms detected and confirmed
North Harbour	June 2000 (Communal well)	No chlorination
	January 1996 (Grandfather's Pond)	No chlorination
Swift Current	April 1999 (Drilled well)	No chlorination
	April 1999 (Black Duck Pond)	No chlorination

**Source:**

Department of Environment and Conservation, 2007



**Table D-4 Housing Activity in the Study Area 2002-2006**

<b>Community</b>	<b>Year</b>	<b>Starts</b>	<b>Sales</b>	<b>Average Sale Price</b>
Arnold's Cove	2002	3	0	NA
	2003	8	0	NA
	2004	3	1	\$25,000
	2005	2	0	NA
	2006 (End of June)	1	1	\$35,000
Clarenville	2002	33	16	\$75,000
	2003	20	24	\$94,500
	2004	14	27	\$98,500
	2005	40	22	\$105,000
	2006 (End of June)	0	22	\$115,000
Come By Chance	2002	0	0	NA
	2003	0	0	NA
	2004	0	2	\$52,000
	2005	0	0	NA
	2006 (End of June)	0	1	\$18,000
Garden Cove	2002	0	0	NA
	2003	0	0	NA
	2004	0	0	NA
	2005	0	0	NA
	2006 (End of June)	0	0	NA
Goobies	2002	0	0	NA
	2003	0	1	\$60,000
	2004	0	1	\$29,000
	2005	0	0	NA
	2006 (End of June)	0	1	\$54,000
Little Harbour East	2002	0	0	NA
	2003	0	0	NA
	2004	0	0	NA
	2005	0	0	NA
	2006 (End of June)	0	0	NA
Marystown	2002	16	0	NA
	2003	19	0	NA
	2004	19	1	\$82,000
	2005	13	1	\$15,900

Community	Year	Starts	Sales	Average Sale Price
	2006 (End of June)	4	0	NA
North Harbour	2002	0	0	NA
	2003	0	0	NA
	2004	0	0	NA
	2005	0	0	NA
	2006 (End of June)	0	0	NA
Placentia	2002	0	16	\$50,219
	2003	0	10	\$67,750
	2004	0	17	\$59,676
	2005	5	18	\$77,194
	2006 (End of June)	1	2	\$50,500
Southern Harbour	2002	0	0	NA
	2003	0	0	NA
	2004	0	1	\$8,000
	2005	0	0	NA
	2006 (End of June)	0	1	\$60,000
Sunnyside	2002	0	1	\$22,000
	2003	0	1	\$27,000
	2004	0	3	\$45,000
	2005	0	0	NA
	2006 (End of June)	0	0	NA
Swift Current	2002	0	0	NA
	2003	0	1	\$28,000
	2004	0	0	NA
	2005	0	0	NA
	2006 (End of June)	0	1	\$36,000

Source:  
 CMHC, 2007

**Table D-5 Temporary Accommodations in the Study Area -2006**

**Hotels:** (There are 7 hotels in the study area, 3 in Clarenville, and 1 in each of Goobies, Arnold's Cove, Marystown and Placentia.)

Hotel	Community	Rooms	Rates	Stars
Clarenville Inn	Clarenville	63	\$79.98-\$250.00	3
St. Jude Hotel	Clarenville	63	\$89.00-\$150.00, \$150.00-\$225.00 for suits	3 ½
Rest Land Motel	Clarenville	25	\$79.00 - \$95.00 Efficiency. Units, \$74.00 - \$89.00 Motel Units, \$95.00 - \$150.00 Suites, Add. Person \$10.00, Cots \$10.00.	2 ½
Trailside Motel	Goobies	12 (plus 1 housekeeping unit)	\$55.00-\$95.00	2 ½
Tanker Inn	Arnold's Cove	22	\$45.00-\$55.00	2 ½
Hotel Marystown	Marystown	131	\$70.00-\$100.00	2 1/2
Harold Hotel	Placentia	19	NA	2 ½

**B&B's:** (There are 19 B&B's in the Study Area.)

B&B	Community	Rooms	Rates	Stars
Aunt Minnie's Salt Box Vacation Home	Hickman's Harbour	3 rooms, 6 person max	\$89.00 - \$129.00, based on four person occupancy, \$25.00 extra person	2 ½
The Cove Vacation Home	Clarenville	2 rooms, one pull out twin couch	\$109.00-\$129.00, based on 4 person occupancy, \$25.99 per extra person	3 ½
Cromwell House	Clarenville	3 rooms, 6 person capacity	\$149.00-\$189.00, based on 4 person occupancy, \$25.99 per extra person	3 ½
The Beaumont Inn Bed and Breakfast	Clarenville	3 person capacity	NA	1 ½
Island View Hospitality Home	Clarenville	3 rooms	\$65.00-\$85.00	3
Sonia Heritage House	Clarenville	3 rooms	\$65.00-\$85.00	2 ½
Beau Bassin B&B	Clarenville	NA	NA	2 ½
Salt Water Joys	Sunnyside	4 rooms	\$60.00-\$85.00	3 ½
Walwyn Inn	Come By Chance	3 rooms	\$60.00-\$80.00	3 ½

B&B	Community	Rooms	Rates	Stars
Listening Hill Bed and Breakfast	Marystown	4 rooms	NA	4
Bayside Bed and Breakfast	Marystown	NA	NA	NA
Wheelhouse Inn	Burin	NA	NA	4
Heritage Square Bed and Breakfast	Burin	NA	NA	NA
Sound of the Sea Bed and Breakfast	Burin	NA	NA	NA
Spanish Rook Manor	Spanish Room	10	NA	4
Dixon House Bed and Breakfast	Placentia	3	NA	2 ½
LL & D Guest Room	Placentia	4	NA	NA
Rosedale Manor Bed and Breakfast	Placentia	5	NA	2 ½
Pretty's Bed and Breakfast	Whitbourne	5	NA	2 1/2

**Resorts:** There are 4 resorts in the Study Area.

Resort	Community	Rooms	Rates	Stars
Kilmory Resort	Swift Current	21 cabins of varying size	\$59.00-\$179.00	4
Woody Island Resort	Woody Island (boat departs from Garden Cove – 40 min ride)	4 lodges – 60 beds	\$119.00-\$149.00	2 ½
Golden Sands Resort	Marystown	116 Sites	NA	2 ½
Fiddler's Green Resort	Bellevue Beach	9 Cottages, 2 Suites	NA	NA

**Work Camps:** There are 0 work camps in the Study Area

Work Camp	Community	Rooms	Rates	Services Offered (food, transportation, nursing station, gym, laundry?)
0				

**Boarding Houses:** There are 2 boarding Houses in the Study Area

Boarding House	Community	Rooms	Rates	Services Offered
Ocean View Efficiency Units	Placentia	4	NA	3 star
Connie's Housekeeping Units	Bellevue	4	NA	NA

**Campsites:** There are 4 camp sites in the Study Area

Campsite	Location	Number of Sites	Rates	Seasonal or year round?
Putt-N-Paddle Camp Grounds	Arnold's Cove	90	NA	Seasonal
Bellevue Beach Park	Bellevue	114	NA	Seasonal
Chance Cove Provincial Park	Chance Cove	NA	NA	NA
Piper's Hole Park	Swift Current	NA	NA	NA

## Social Infrastructure

**Table D-6 Eastern Health Service Facilities and Bed Capacity**

Eastern Health	Acute Care	Critical Care	Long-Term Care	Holding	Beds Total	Hostel
Janeway Children's Health and Rehabilitation Centre	53	25	0	0	78	
General Hospital	312	32	0	0	344	
Leonard A. Miller Centre	58	0	74	0	132	
St. Clare's Mercy Hospital	188	16	0	0	204	
Waterford Hospital	73	0	104	0	177	
Dr. Walter Templeman Health Centre	8	0	12	0	20	
Salvation Army Glenbrook Lodge	0	0	114	0	114	
St. Patrick's Mercy Home	0	0	213	0	213	
Saint Luke's Homes	0	0	127	0	127	
The Agnes Pratt Home	0	0	128	0	128	
Masonic Park Nursing Home	0	0	40	0	40	
Hoyles-Escasoni Complex	0	0	377	0	377	
Carbonear General Hospital	74	6	0	0	80	
Harbour Lodge Nursing Home	0	0	107	0	107	
Carbonear Interfaith Seniors Citizen Home	0	0	54	0	54	
Pentecostal Senior Citizen's Home	0	0	75	0	75	
Placentia Health Centre/Lions Manor Nursing Home	10	0	75	0	85	
Dr. G. B. Cross Memorial Hospital	43	4	15	0	62	
Burin Peninsula Health Care Centre	38	4	0	0	42	
U.S. Memorial Health Centre	0	0	30	2	32	
Bonavista Peninsula Health Centre	10	0	13	0	23	
Golden Heights Manor	0	0	65	0	65	
Dr. William H. Newhook Community Health Centre	0	0	0	3	3	
Dr. A.A. Wilkinson Health Centre	4	0	0	0	4	

Eastern Health	Acute Care	Critical Care	Long-Term Care	Holding	Beds Total	Hostel
Grand Bank Community Health Centre	0	0	0	4	4	
Blue Crest Nursing Home	0	0	61	0	61	
Hostel – Agnes Cowan Hostel						120
Total	871	87	1,684	9	2,651	120

Source:  
Eastern Health, 2007

**Table D-7 Moose and Caribou Licenses issues in the Study Area, 2006**

Species	Management Area	Licenses (2006)
Moose	28 (Black River) 30 (Burin Peninsula, Knee) 31 (Placentia) 38 (Burin Peninsula, Foot) 44 (Bellevue) 47 (Random island)	1,530: 70 less than 2005
Caribou	70 (Merashheen island) 64 (Middle Ridge)  73 (Burin Knee) 74 (Burin Foot)	25: same as 2005 1,100: 100 less than 2005v Extends from Clarenville to Gander and south to Harbour Breton (only a small portion in the Study Area) Closed Closed

Source:  
Newfoundland and Labrador Hunting and Trapping Guide, 2006

**Table D-8 Salmon Fishing Activity on Southern Head, 2005 and 2006**

River	Rod Days		Total Catch	
	2005	2006	2005	2006
Watson's Brook	5	0	0	0
Come By Chance River	423	187	123	29
North Harbour River	375	147	18	18
Total	803	334	141	47

Source:  
Department of Fisheries and Oceans, 2007

## Emergency Response Infrastructure

**Table D-9 Criminal Offences by District**

<b>RCMP - B DIVISION</b>		
<b>CRIMINAL CODE BY DISTRICT - 2006</b>		
	<b>2006 Actual</b>	<b>2006 Reported</b>
<b>Avalon East District</b>		
Total Persons Crimes	183	232
Total Property Crimes	673	763
Other Criminal Code	157	191
<b>Total Criminal Code</b>	<b>1013</b>	<b>1186</b>
<b>Bay St. George District</b>		
Total Persons Crimes	459	596
Total Property Crimes	1360	1518
Other Criminal Code	563	691
<b>Total Criminal Code</b>	<b>2382</b>	<b>2805</b>
<b>Burin Peninsula District</b>		
Total Persons Crimes	283	338
Total Property Crimes	817	895
Other Criminal Code	333	376
<b>Total Criminal Code</b>	<b>1433</b>	<b>1609</b>
<b>Clarenville Bonavista District</b>		
Total Persons Crimes	242	329
Total Property Crimes	491	574
Other Criminal Code	273	326
<b>Total Criminal Code</b>	<b>1006</b>	<b>1229</b>
<b>Deer Lake District</b>		
Total Persons Crimes	276	335
Total Property Crimes	600	690
Other Criminal Code	293	356
<b>Total Criminal Code</b>	<b>1169</b>	<b>1381</b>
<b>Gander Lewisporte District</b>		
Total Persons Crimes	386	469
Total Property Crimes	996	1126
Other Criminal Code	347	407
<b>Total Criminal Code</b>	<b>1729</b>	<b>2002</b>
<b>Grand Falls Windsor District</b>		
Total Persons Crimes	463	540
Total Property Crimes	1382	1487
Other Criminal Code	443	490
<b>Total Criminal Code</b>	<b>2288</b>	<b>2517</b>
<b>Labrador District</b>		
Total Persons Crimes	1592	1276
Total Property Crimes	3206	3548
Other Criminal Code	1764	1867
<b>Total Criminal Code</b>	<b>6562</b>	<b>6691</b>
<b>Northern Peninsula District</b>		
Total Persons Crimes	108	116
Total Property Crimes	186	223
Other Criminal Code	83	98
<b>Total Criminal Code</b>	<b>377</b>	<b>437</b>
<b>Placentia Whitbourne District</b>		
Total Persons Crimes	135	193
Total Property Crimes	408	517
Other Criminal Code	139	186
<b>Total Criminal Code</b>	<b>682</b>	<b>896</b>
<b>Trinity Conception District</b>		
Total Persons Crimes	363	449
Total Property Crimes	956	1093
Other Criminal Code	370	439
<b>Total Criminal Code</b>	<b>1689</b>	<b>1981</b>
<b>DISTRICTS TOTAL CRIMINAL CODE</b>	<b>20330</b>	<b>22734</b>
Numbers represent District workload only. They do not include Specialized Unit files.		
Numbers do not include General Investigation Section Files or Criminal Code Traffic Offences.		
Actual Numbers reflect actual crimes and are a better indicator of crime trends.		
Reported Numbers reflect reported offences and are a more accurate representation of workload.		

**Table D-10 SAR Organizations in the Primary Study Areas**

<b>SAR Organization located in Eastern Newfoundland</b>	<b>Location</b>	<b>Staff/Volunteers</b>	<b>Services G (Ground) M (Marine) A (Air)</b>
Avalon North Wolverines Search and Rescue Team	Bay Roberts	NA	G, M
Burin Peninsula Ground Search and Rescue Team	Marystown	35	G, M
Canadian Coast Guard	St. John's	NA	M
Canadian Coast Guard Auxilliary	St. John's	NA	M
Canadian Coast Guard National Council	Burin Bay Arm	NA	M
Central Avalon Ground Search and Rescue Unit	Holyrood	50	G
Civil Air Search and Rescue Association – Newfoundland	Mount Pearl	125	A, G, M
Dept. of Canadian Heritage – Parks Canada Eastern Newfoundland Field Unit	St. John's	8	G
Lifesaving Society – NL Branch	St. John's	NA	M
Marine Institute – Offshore Survival Centre	St. John's	Training facility	M
Marine Rescue Sub-centre	St. John's	NA	M
Newfoundland and Labrador Emergency Measures Organization (NLEMO)	St. John's (Dept. of Municipal and Provincial Affairs, all other volunteer SAR agencies must register with NLEMO)	12	A, G, M
Newfoundland and Labrador Sailing Association	St. John's	NA	M
Newfoundland and Labrador Search and Rescue Association	Paradise	27 teams across the province with 900+ volunteers	A, G, M
Newfoundland and Labrador Wildlife Federation	St. John's	NA	G
Newfoundland Canoe Association	St. John's	NA	M
Newfoundland Safety	St. John's	NA	G



<b>SAR Organization located in Eastern Newfoundland</b>	<b>Location</b>	<b>Staff/Volunteers</b>	<b>Services G (Ground) M (Marine) A (Air)</b>
Council			
Red Indian Lake Ground Search and Rescue Team Inc.	Buchans	36	G
Royal Canadian Mounted Police (RCMP)	St. John's	NA	A, G, M
St. John Ambulance – Newfoundland Council	St. John's	NA	G
Triple Bay Eagles Ground Search and Rescue Team	Clarenville	36	G, M

**Source:**  
 National Search and Rescue Secretariat, 2007

**Table D-11 Municipal Fire Departments, Staff and Equipment**

<b>Town/Company</b>	<b>Number of Volunteer Firefighters</b>	<b>Equipment</b>	<b>Approximate Number of Annual Responses</b>
Arnold's Cove	33	-1 fire truck -940 gal pumper -1 emergency response vehicle	15
Come By Chance	13	-fire truck -fire van	2
Placentia	35	-3 pumper trucks -1 rescue van -jaws of life -foam system	26
Southern Harbour	28	-pumper truck -truck	4
Sunnyside	25	-pumper truck -rescue truck	10
North Atlantic Refinery	Trained staff on each shift	-foam wagon -hazmat -2 fire trucks	15-20

Town/Company	Number of Volunteer Firefighters	Equipment	Approximate Number of Annual Responses
Clarenville	-1 full-time paid chief -30 volunteers	-3 – 500 gallon pumper trucks, -1800 gallon tanker truck -equipment truck -pick up truck -jaws of life -foam capacity -radio system -breathing apprentices -air compressor -5 inch high volume supply hose	50
Swift Current	14	-NA	NA
North Harbour	12	-NA	NA
Garden Cove	10	-NA	NA
Marystown	25	-3 pumper trucks -2 rescue vehicles -1 pickup truck	NA
Burin	25	-2 pumper trucks -1 emergency van	NA

**Source:**

Jacques Whitford, 2007 and Community Leaders and Fire Chiefs, pers. comm.

**Table D-12 Ambulance Services in the Study Area**

Operator	Location	Vehicles Maintained	Approximate Annual Call Volume	Approximate # of Personnel
Fewer's	Clarenville	7	1,663	43
Smith's	Whitbourne	4	600	16
Power's	Placentia	3	600	13
Marystown	Marystown/Burin	4	835	6 FT; 3-4 PT
Collins	Marystown/Burin	3	NA	5 FT; 3 PT
Total		21	3,698	83 FT; 7 PT

**Source:**

Jacques Whitford, 2007 and Ambulance Operators, pers. comm.

**Table D-13 Community Response Plan Components Summary**

Community	Oil Refinery-Related Emergencies Covered in Plan	Summary Details
Arnold's Cove	Peace Time Disaster including: <ul style="list-style-type: none"> <li>- Oil Spills,</li> <li>- Refinery Accidents</li> <li>- Marine Disaster</li> </ul> Dangerous Goods including: Spills, Explosions, contamination	Lists possible effects including: disruption of traffic and community; damage to property, injury and loss of life, evacuation of homes. Provides response tasks and agency responsible for each.  Lists major concerns including: casualties, death, traffic disruption, explosion and fire, etc.  Provides response tasks and agency responsible for each.  Provides a list of emergency response equipment
Come By Chance	Industrial Emergency: <ul style="list-style-type: none"> <li>- Fire and explosions</li> <li>- Toxic release to the atmosphere</li> <li>- Spill of toxic material on land or on water</li> <li>- Accident involving dangerous goods on the highway</li> <li>- Any other catastrophic event with potential to affect the community or citizens</li> </ul>	Includes roles and responsibilities of all individuals and agencies involved (Fire Chief, Mayor, Council, Town Manager, etc.), notification procedures including citizen evacuation if needed, request assistance from NARL for gas testing, requests for environmental response assistance from the Office of the Fire Commissioner, reference to contact list for other services.  Provides location of emergency command centre, evacuation and security procedures.
North Harbour	A resource guide was prepared in March 2006 by One Ocean and the Marine Institute for the community to consider in preparing an Emergency Response Plan. The guide offered suggestions on oil spill emergencies,	Resource guide documents local emergency services resource agencies, equipment, and their contact numbers and their distance from North Harbour. It also documents sensitive areas, oil spill responder agencies and their roles. Provides

Community	Oil Refinery-Related Emergencies Covered in Plan	Summary Details
		information on training of fisheries workers in oil spill countermeasures
Clarenville	Does not contain specific procedures for a refinery emergency. Focuses on potential emergencies within town boundaries and forest fires in the surrounding area.	Provides residents and town officials with a general guideline to an expected initial response to an emergency. Provides an overview of the responsibilities for the town staff.
Placentia	Emergency Response Plan is currently being revised and will not be available the public until June 2007. There are no oil refinery related emergencies covered in the draft of the Plan to date.	NA
Marystown	Operational procedures for major fire, dangerous goods and transportation water-at sea or adjacent to land. Procedures document rates the probability of a hazardous materials incident in the municipality to be moderate.	Includes major possible effects of the disasters, potential actions at the scene with agencies responsible for each, equipment available and the source.

**Source:**  
 Community Leaders

**APPENDIX E  
LAND USE**

**Table E-1 Quarries in the Study Area**

Location	Operator	Type
1 km west of Pipers Hole River off Route 210	Hickeys Contracting (1989) Ltd	Gravel
Pipers Hole, Swift Current	Hickeys Contracting (1989) Ltd	Sand
3km west of Pipers Hole River Bridge	Dennis Hickey	NA
12 km from T.C.H. towards Swift Current on Route	Carew Services Ltd.	Rock
Pipers Hole Pit, Swift Current	Provincial Paving Ltd.	NA
Pipers Hole, Swift Current	10250 Nfld Ltd.	NA
Pipers Hole Pit	Cluetts Construction Ltd.	NA
Pipers Hole Pit	Nortech Construction Ltd.	NA
Behind old Mill Bldg, Come By Chance	Parsons Trucking Ltd.	Gravel
1.2km N.E. Of Refinery	Parsons Trucking Ltd.	Gravel & rock
Pipers Hole	Dean Clarke	NA
1.5km north of Sandy Harbour River	Dean Clarke	NA
Pipers Hole	Goobie Rentals & Contracting	NA
6km from T.C.H. Thorburn Lake Forest Access Rd	J-1 Contracting Ltd.	Gravel
East Side of T.C.H. 2 km East of Clarenville Intersection	J-1 Contracting Ltd.	NA
150m southerly from T.C.H., 600m west of Lower Sho	J-1 Contracting Ltd.	Rock
George's Brook	J-1 Contracting Ltd.	Rock
Northwest Brook	Terra Nova Industries Ltd.	Gravel
ff Baileys Road, Georges Brook	Brookfield Construction Ltd.	Till
At Georges Brook	Brookfield Construction Ltd.	Gravel
1.5km north of Milton Route 230	Woodco Enterprises Ltd.	Gravel
Adjacent to Clarenville Municipal Dump	Cabot Industries Ltd.	NA
0.5km north of Deep Bight.	Cabot Industries Ltd.	NA
Westerly of T.C.H., Northwest Brook	Progress Paving	NA
Long Pond Pit Area, Random Island	Duane Parrott	Gravel & rock
Long Pond Pit, Random Island Area	Duane Parrott	Gravel
Off Baileys Road, Georges Brook	Mike Stanley	Gravel
Westerly of T.C.H., Northern Brook	Cougar Engineering & Construction	Gravel
0.8km south of Clarenville Dump, Deep Bight	Dean Clarke	NA
1 km east of Caplin Cove on Rte 204	Derek Short Equipment Rentals	NA
Long Pond Pit, Random Island	Derek Short Equipment Rentals	NA
North side of Route 205, 2 km beyond Hillview	Derek Short Equipment Rentals	NA
First Left off Dump Road, Deep Bight	Derek Short Equipment Rentals	Gravel
Approx 3km NE of Burgoyne's Cove	Rudy Stanley	Slate
At North West Brook, Approx 1 km from T.C.H.	Fortis Concrete Inc.	Gravel
Northwest Brook, Trinity Bay	Starr Enterprises Ltd.	NA
Milton, Trinity Bay	Gergar Enterprises Limited	Gravel
Caplin Cove Area	Goobie Rentals & Contracting	NA
Northwest Brook, Trinity Bay	Goobie Rentals & Contracting	Gravel

Location	Operator	Type
750m south of Goobies Weigh Scales, off Rte 1	J-1 Contracting Ltd.	Gravel
0.5km north Arnolds Cove Inter & T.C.H.	J-1 Contracting Ltd.	NA
Northeast of T.C.H., near Arnold's Cove Intersection	Terra Nova Industries Ltd.	Gravel
North of Spur Line near Mill Building, Come by Chance	Three R. Enterprises	NA
1/4 mile from Old Mill Building	Town Council of Come by Chance	NA
Come by Chance	William Best	Gravel
Loadstar Pit, 3.5km east of Goobies	Keith Green Ltd.	Gravel
Off Tower Road Arnolds Cove.	Kevin Wareham Ltd.	Rock
West side of T.C.H. 4 km north of Come By Chance	Derek Short Equipment Rentals	NA
1km south of Chance Cove Intersection on Rte 201	Hollett's Construction	Gravel
1km south of Chance Cove Intersection on Rte 201	Hollett's Construction	Gravel
1 km south of inter Rte73 &Rte80, New Harbour	Howard Thorne	Peat
0.3 km north of Route 73 on Route 80, New Harbour	Howard Thorne	Gravel
Approx 0.2km from Hopeall Intersection on Rte 80	Howard Thorne	Gravel
1.5 Km from TCH off Little Hr. Access	Kevin Wareham Ltd.	Rock
3 km East of Chance Cove Intersection	Penney Construction Ltd.	Stockpile
200m from Intersection of Route 80 on Route 73	Don Williams	Gravel
0.5km south of Hopeall Intersection on Route 80	Don Williams	Gravel
3.3 km Northwest of the Normans Cove Intersection	Dept Transp & Works Bellevue	Gravel
Freshwater Pit, 4 km north of Bellevue Intersection	Dept Transp & Works Bellevue	Till
1 km west of Old Shop on Spread Eagle Road	Clifford Cooper	Gravel
1 km from Route 80 towards Old Shop	Clifford Cooper	Gravel
2 Km. West Of Old Shop Near Spread Eagle	Clifford Cooper	Gravel
Hopeall	Clifford Cooper	NA
0.2km from Hopeall Intersection on Rte 80	Clifford Cooper	Gravel
0.4km west of Long Cove Dump	Clifford Cooper	Gravel & rock
Hopeall	Municipal Construction Ltd.	NA
1.6km west Chance Cove Inter left off T.C.H.	Parsons Trucking Ltd.	NA
4 km Southwest of Bellevue Intersection on route 2	George Mercer & Sons	Gravel & rock
Approx 3 km west of Long Cove	George Mercer & Sons	Gravel & rock





**APPENDIX F  
HUMAN HEALTH PROFILE**

# **A Review of the Health Status of the Come by Chance Area, Newfoundland and Labrador**



Prepared for:  
Newfoundland and Labrador Refining Corporation  
PO Box 385  
St. John's, NL A1C 5J9

Prepared by:  
Health Research Unit  
Division of Community Health and Humanities  
Faculty of Medicine  
Memorial University of Newfoundland

June 2007

# TABLE OF CONTENTS

LIST OF TABLES .....	ii
LIST OF FIGURES .....	iv
Acknowledgements .....	v
1.0 INTRODUCTION .....	1
1.1 The Study .....	1
1.2 The Study Team .....	1
2.0 METHODS .....	3
3.0 SUMMARY OF FINDINGS .....	6
3.1 Socio-Demographic and Education .....	6
3.2 Personal Health Practices and Coping Skills .....	6
3.3 Self-Reported Health Status .....	7
3.4 Mortality and Morbidity .....	7
4.0 DATA ANALYSIS .....	9
4.1 Socio-Demographic Environment .....	9
4.2 Education .....	13
4.3 Personal Health Practices and Coping Skills .....	14
4.4 Self-Reported Health Status .....	17
4.5 Mortality and Morbidity .....	24
4.5.1 Mortality .....	24
4.5.2 Morbidity .....	25
5.0 CONCLUSIONS .....	31
BIBLIOGRAPHY .....	32
APPENDICES	
A1: Definitions .....	33
A2: Low Income Cut Offs (LICOs), 2001 .....	36
A3: Income Adequacy Grouping .....	38
A4: Morbidity Technical Notes .....	41

## LIST OF TABLES

Table 1: Census Divisions and Subdivisions Defining Study Area and Eastern Regional Integrated Health Authority .....	3
Table 2: Population by Sex .....	10
Table 3: Age Groups by Sex as Percentage of Total Population .....	10
Table 4: Employment Status .....	11
Table 5: Unemployment Rates.....	11
Table 6: Average Income .....	12
Table 7: Incidence of Low Income .....	12
Table 8: Income Adequacy .....	13
Table 9: Highest Education Level of Population over 20 Years of Age.....	14
Table 10: Smoking Status .....	15
Table 11: Alcohol Consumption .....	15
Table 12: Activity Level .....	16
Table 13: Body Mass Index (BMI).....	17
Table 14: Self Reported Health Status .....	18
Table 15: Satisfaction Level with Medical Care.....	18
Table 16: Number of Self Reported Chronic Conditions.....	19
Table 17: Major Self Reported Chronic Conditions .....	20
Table 18: Degree of Disability .....	21
Table 19: Self Reported Emotional Status .....	21
Table 20: Self Reported Stress Level in Daily Life .....	22
Table 21: Financial Circumstances .....	22
Table 22: Financial Reserves among Those who Responded Very Good, Good, or Satisfactory to Table 20 (Financial Circumstances) .....	23
Table 23: Financial Status Compared to Five Years Ago .....	24
Table 24: Cause Specific Death Rates, All Ages, 1999-2003.....	25
Table 25: Acute Care Hospital Separations by Cause, 1999/00-2003/04.....	26
Table 26: Acute Care Hospital Separations for Diseases of the Respiratory System, 1999/00 - 2003/04 .....	27

Table 27: Acute Care Hospital Separations for Diseases of the Circulatory System, 1999/00-2003/04 .....	28
Table 28: Acute Care Hospital Separations for Endocrine, Metabolic and Immune Diseases, 1999/00-2003/04 .....	29
Table 29: Acute Care Hospital Separations for Malignant Neoplasms 1999/00-2003/04 .....	30
Table A2.1: 2001 Poverty Lines .....	37
Table A3.1 Household Income Groups Used to Define Income Adequacy Variable (1996).....	39
Table A3.2 Differences in LICOs between 1996 and 2001 .....	39
Table A3.3 Household Income Groups Used to Define Income Adequacy Variable (2001).....	40
Table A4.1: ICD-9 and ICD-10-CA Codes for Disease Categories .....	42
Table A4.2: ICD-9 and ICD-10-CA Codes for Respiratory Disease Categories .....	43
Table A4.3: ICD-9 and ICD-10-CA Codes for Circulatory Disease Categories .....	43
Table A4.4: ICD-9 and ICD-10-CA Codes for Endocrine, Nutritional and Metabolic Disease and Immunity Disorder Categories .....	43
Table A4.5: ICD-9 and ICD-10-CA Codes for Malignant Neoplasm Categories .....	44
Table A4.6: SGC Codes for Study Area Census Divisions .....	45

## LIST OF FIGURES

Figure 1:	Map of Study Area.....	4
Figure 2:	Map of Eastern Regional Integrated Health Authority .....	5

## **ACKNOWLEDGEMENTS**

Our thanks go to Don MacDonald, Kerry LeFresne and Donna Murphy of the Newfoundland and Labrador Centre for Health Information for providing the morbidity and mortality data included in this report.

# 1.0 INTRODUCTION

## 1.1 *The Study*

The Health Research Unit (HRU), Division of Community Health and Humanities, Faculty of Medicine, Memorial University of Newfoundland, was retained by Newfoundland and Labrador Refining Corporation (NLRC) to prepare a report on the health status of the residents of an area within approximately 50km radius from the proposed oil refinery location at Southern Head, situated between North Harbour and Come by Chance Bay, Placentia Bay. This baseline data on the health status of the local population will be of value in determining the potential impact from future operations.

For the purposes of this study, an approximately 50 km radius area around Southern Head<sup>1</sup> is identified as the “Study Area”. This includes Clarenville, the bottom of the Bonavista Peninsula, the area immediately adjacent to the project site on the northern Burin Peninsula, and Random Island. The decision to add the surrounding area was taken in consultation with the NLRC environmental assessment consultants (the 50 km radius is the same area being considered in the other socio-economic studies for the project’s environmental assessment), and the combined area is large enough to provide meaningful summary statistics. This Study Area will be compared to the Eastern Regional Health Authority, the Province of Newfoundland and Labrador, and Canada where the data permits these comparisons.

In describing health status for an area, it is important to include the factors that affect the health of the population – i.e. the Determinants of Health (Public Health Agency of Canada, 2003). Thus, in addition to reporting information on illness and death (morbidity and mortality), we have included information on the socio-demographic, lifestyle and economic environment of the residents of the region. Our results reflect the conditions which prevailed at the time the reviewed studies were conducted. Migration, either immigration or emigration, may have affected the health status of the residents of the region since the reviewed studies were conducted.

## 1.2 *The Study Team*

**Veeresh Gadag**, MPhil, PhD, Professor of Biostatistics and Director of the Health Research Unit, has expertise in population health, population epidemiology, statistical modelling, survey methodology, and biostatistics & data analysis.

**Ann Ryan**, MSc, Manager, Health Research Unit, has over ten years experience in coordinating research studies, project design and instrument development, evaluation and needs assessment and health services research.

**Alison Edwards**, MSc, Medical Researcher, Division of Community Health and Humanities, has over twenty years experience in survey methodology, questionnaire development, database development/management and data analysis.

---

<sup>1</sup> Consolidated census subdivisions 1A, 2K, 7K, 7L and 7M



**The Health Research Unit (HRU)** within the Division of Community Health and Humanities was formed in 1992 to carry out research with an emphasis on promoting health and preventing disease. The goal of the HRU is to make available the professionals skills and research experience in the Division of Community Health and Humanities to communities, organizations, government and industry. The faculty within the Division of Community Health and Humanities has expertise in a wide variety of health research areas including: measuring health knowledge and behaviours, developing strategies for health promotion, assessing the need for new health programs and technologies, studying patterns of disease, designing and evaluating health programs, developing and managing health information systems, etc.

For more information please see the HRU website: [www.med.mun.ca/hru](http://www.med.mun.ca/hru)

For more information on the proposed refinery project, please see [www.nlrefining.com](http://www.nlrefining.com)

## 2.0 METHODS

The current study is based upon information already available (secondary data) on the health status for the region surrounding the Southern Head area at the head of Placentia Bay in the Province of Newfoundland and Labrador. It will be compared to the corresponding information of the Eastern Regional Integrated Health Authority (referred to as Eastern RIHA), the province and Canada wherever possible.

The sources of information used in this report include, the

- 1) Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency;
- 2) Statistics Canada Census, 2001; and
- 3) Canadian Institute for Health Information (5-year average mortality and morbidity data, 1999-00 to 2003-04; morbidity data for Canada for the year 2000-01).

Two of our main reference sources for this report are the 2001 Census data from Statistics Canada, and the Newfoundland Adult and Community Health Survey, 2001. Therefore, to be consistent with this time frame other data sources used were from the same era (1999-2003/4). Due to the low occurrence of some mortality and morbidity events, rates are given as an average of five years of collected data for the Study Area, Eastern RIHA and the province. For Canada, however, the values given are for one fiscal year.

While data from the Canadian Community Health Survey (2003) are readily available, we have not included it in this report for two reasons: 1) with its smaller sample size it can only be analyzed at the health region, province, or Canada level, and 2) the CCHS data collection timeframe falls on the periphery of the timeframe chosen for this report.

Ethics approval was obtained for this project through the Human Investigation Committee, as per Memorial University guidelines.

We used Census Divisions and Census Subdivisions to define the Study Area (consolidated census subdivisions 1A, 2K, 7K, 7L and 7M). The specific divisions and subdivisions used to define the Study Area and the Eastern RIHA are shown in Table 1. A map of the Study Area is given in Figure 1. A map of the area covered by the Eastern RIHA is given in Figure 2.

Table 1: Census Divisions and Subdivisions Defining Study Area and Eastern Regional Integrated Health Authority	
	Census Divisions (CD) and Subdivisions (CSD)
<b>Study Area</b>	CSDs 1001259, 1001263, 1001267, 1001270, 1001274, 1001277, 1001281, 1001285, 1001289, 1002048, 1007001, 1007006, 1007009, 1007013
<b>Eastern Regional Integrated Health Authority</b>	CD1, CD2, CSDs 1007001, 1007006, 1007009, 1007013, 1007014, 1007015, 1007016, 1007017, 1007018, 1007019, 1007020, 1007021, 1007023, 1007024, 1007025, 1007026, 1007027, 1007028, 1007029, 1007030, 1007031, 1007032, 1007036, 1007064

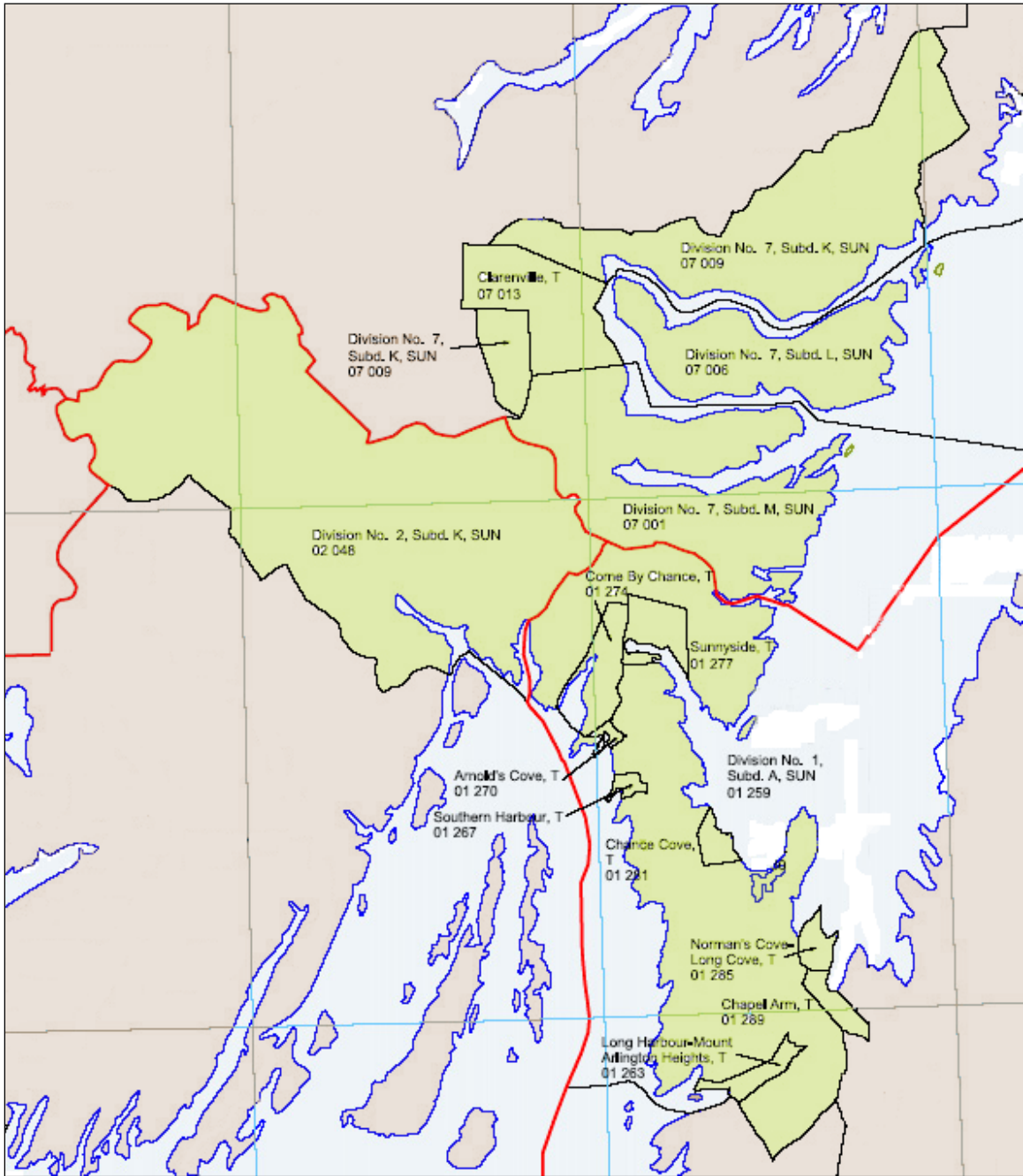


Figure 1: Map of Study Area



Figure 2: Map of Eastern Regional Integrated Health Authority

The Newfoundland Adult and Community Health Survey, 2001 was a follow up to the 1995 Adult Health Survey (Segovia et al, 1996). The 2001 survey consisted of a telephone survey of almost 8,000 individuals 18 years of age or older living in private households with telephones in Newfoundland. Those residing in Labrador or the tip of the Northern Peninsula, specifically, all residents of Census Division 10 and residents of Consolidated Census Subdivisions 9C, 9D and 9F, were excluded. Consequently, this is referred to in tables of this report as “Island Portion of Province”. All tables from this survey show weighted percentages.

Demographic data and information on income, employment and education were extracted from Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census. We retrieved this data for the Study Area, Eastern RIHA, the province of Newfoundland and Labrador, and Canada.

Morbidity data is based on information provided by the Canadian Institute for Health Information (CIHI). Mortality data is provided through the Newfoundland and Labrador Centre for Health Information. Both data sets were extracted for the years around the census collection time.

## **3.0 SUMMARY OF FINDINGS**

In this report the Study Area is compared with the regional health authority (Eastern RIHA) of which it is a part, the province as a whole or the island portion of the province, and Canada. While the Eastern RIHA has a large rural component, it also encompasses the largest urban portion of the province, the St. John's Metropolitan area. As St. John's area population demographics (such as age, employment, income and education) are closer to the Canadian average than the provincial average, this likely influences much of the health data for the Eastern RIHA as a whole.

### **3.1 *Socio-Demographic and Education***

Socioeconomic information collected in the 2001 Canada Census and the Newfoundland Adult and Community Health Survey shows that the Study Area had:

- ▶ 3% more residents in the 45 and over age group compared to Eastern RIHA and the province.
- ▶ 1% more seniors (65 years or older) compared to Eastern RIHA and the province.
- ▶ an average income per family or household which is close to that in the Eastern RIHA and higher than the provincial average.
- ▶ 8% fewer adults in the two lowest income adequacy categories combined than the island and 5% less than the Eastern RIHA.
- ▶ a considerably higher rate of unemployment in the 15-24 year age group than Eastern RIHA and the province.
- ▶ slightly more self-employed persons and students compared to Eastern RIHA and the island.
- ▶ 11% more adults without a high school graduation certificate compared with Eastern RIHA and 5% more than the province.

### **3.2 *Personal Health Practices and Coping Skills***

It should be noted that self reporting has inherent limitations compared to direct measurement. Personal health practice indicators collected through the Newfoundland Adult and Community Health Survey, 2001 shows that the Study Area had:

- ▶ 5% fewer current smokers than Eastern RIHA and the island.
- ▶ similar rates of alcohol consumption compared to Eastern RIHA and the island.
- ▶ 6% more adults could be classified as either overweight or obese (BMI value of 25 and over) compared to Eastern RIHA and the island.

- ▶ approximately 2% more adult residents reporting a sedentary or low activity lifestyle compared to Eastern RIHA and the island.

### **3.3 Self-Reported Health Status**

Indicators of health status collected through the Newfoundland Adult and Community Health Survey, 2001, shows that the Study Area had:

- ▶ 4% more individuals who rate their health as ‘excellent’ or ‘very good’ compared with Eastern RIHA and 5% more than the island.
- ▶ 5% more individuals are ‘somewhat’ or ‘very’ dissatisfied with their medical care than either Eastern RIHA or the province.
- ▶ lower or similar rate of number and type of self-reported chronic conditions compared to Eastern RIHA and the island.
- ▶ similar percentages of persons reporting their emotional health status as ‘excellent’ or ‘good’ compared to Eastern RIHA and the island.
- ▶ almost 25% fewer people report high stress levels in daily life compared to Eastern RIHA and the island.
- ▶ 10% more respondents felt ‘good’ or ‘very good’ about their financial circumstances compared to Eastern RIHA and the island.
- ▶ 5% more of those who felt very good, good, or satisfactory about their financial circumstances felt they could ‘easily cope’ or ‘could cope, but would have to cut back’ if their primary sources of income were to stop for three months compared to Eastern RIHA, and 6% more compared to the island.

### **3.4 Mortality and Morbidity**

Mortality (death) and morbidity (acute care hospital separation) rates are indicators of the general health in a population. It should also be noted that for conditions with low incidence, small numbers may produce large changes in rates and must be interpreted accordingly.

Mortality and morbidity indicators show that compared to the Eastern RIHA and the Province, the Study Area had:

- ▶ the same three major causes of death – diseases of the circulatory system, cancer and diseases of the respiratory system.

- ▶ similar mortality rates for most causes with a few exceptions:
  - females in the Study Area had the lowest mortality rate for cancers, diseases of the respiratory or nervous system, but the highest for diseases of the endocrine, nutritional, metabolic and immune systems;
  - males in the Study Area had the lowest mortality rate for diseases of the endocrine, nutritional, metabolic and immune systems.
- ▶ the same three major causes of hospitalizations (not including pregnancy and childbirth) – diseases of the circulatory system, the digestive system, and the respiratory system.
- ▶ lowest rates of hospitalization for all grouped causes.
- ▶ more than sixty percent less hospitalizations for mental disorders.
- ▶ considerably lower rates of hospitalization for chronic obstructive pulmonary disease (COPD) and asthma.
- ▶ almost half the hospitalization rate for diseases of the respiratory and genitourinary systems, infectious and parasitic diseases, and skin diseases.
- ▶ considerably fewer hospitalizations for all subgroups within circulatory diseases, particularly for atherosclerosis in females.
- ▶ much lower rate for diabetes mellitus related hospitalizations, 55% lower in females and more than 65% in males when compared to other areas.
- ▶ lower hospitalization rates for nearly all types of malignant neoplasms (cancers):
  - males had the lowest rates for all cancers listed.
  - for females, most rates were lower with the exception of ‘other skin’ and cervical cancers, which were higher.
- ▶ considerably lower rates for uterine, ovarian, prostate, testicular, bladder and other cancers.

## 4.0 DATA ANALYSIS

The following data are organized based upon the determinants of health, including

- Socio-demographic environment (population, age, sex, income and employment)
- Education
- Personal Health Practices (exercise, body weight, smoking, drinking) and Coping Skills

In addition the section reports data on Mortality and Morbidity (death and illness).

### 4.1 *Socio-Demographic Environment*

The availability of health and social resources in a community is one of the ‘determinants of health’ for the population of that community.

Health care facilities available to the Study Area include the G.B. Cross Memorial Hospital in Clarenville which has 24 hour emergency care, 49 in-patient beds and 14 long-term and 2 respite beds. In addition there is a dialysis clinic, three general practice (doctor) clinics, and two private practice psychologists’ clinics. A long term health care facility for the region is under construction on the site of the G.B. Cross Memorial Hospital.

The Study Area has Tetra/telemedicine sites at Long Harbour and Clarenville. Other health and social resources include:

- Schools in the towns of Clarenville, Arnold’s Cove, Chapel Arm, Swift Current, Little Heart’s Ease;
- Public libraries at Southern Harbour, Arnold’s Cove and Clarenville;
- College of the North Atlantic campus and a Keyin College campus in Clarenville; and
- RCMP detachment in Clarenville.

Major employers include: the oil refinery and transshipment company at Come By Chance, municipal government in most communities; provincial government offices at Bellevue, Goobies and Clarenville; fish plants at Clarenville, Fairhaven, Arnold’s Cove, Southern Harbour, Chance Cove, Long Cove, Hickman’s Harbour (snow crab) and Clarenville (shrimp plant); aquaculture ventures (blue mussels and cod) at Southern Harbour, Gooseberry Cove, Southport, Lower Lance Cove and Petley on Random island; and a variety of local businesses.

For a more complete scan of the municipal, provincial and federal infrastructure, services and local businesses please see the relevant section in the Socio-Economic section of the Environmental Impact Statement (2007).

Table 2 shows that the population of the Study Area at the time of the 2001 census was 8,010 males and 7,960 females (Total: 15,970); Eastern RIHA: 141,590 males, 150,050 females (Total: 291,640); the Province: 250,965 males, 261,965 females (Total: 512,930); and Canada: 14,706,850 males, 15,300,245 females (Total: 30,007,095).



Table 2: Population by Sex				
Sex	Study Area	Eastern RIHA	Province	Canada
Males	8,010	141,590	250,965	14,706,850
Females	7,960	150,050	261,965	15,300,245
Total	15,970	291,640	512,930	30,007,095

*Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.*

The age distribution of the population under study is also an important determinant of health. Table 3 shows that the Study Area had a slightly older population than the Eastern RIHA, the province and Canada, with 13.4% 65 years of age or over, compared to 12.0% for Eastern RIHA, 12.3% for the province and 12.9% for Canada. When combining those over the age of 45 the difference is accentuated; 41.5% for the Study Area, 37.9% for Eastern RIHA, 38.9% for the province and 37.2% for Canada.

Table 3: Age Groups by Sex as Percentage of Total Population								
Location	Study Area		Eastern RIHA		Province		Canada	
Sex	M	F	M	F	M	F	M	F
<i>Age Group</i>	<i>Percentage of Population</i>							
0-14	8.5	7.7	8.8	8.4	8.9	8.4	9.8	9.3
15-24	7.0	6.7	7.4	7.4	7.2	7.1	6.8	6.6
25-34	6.1	6.7	6.4	7.0	6.2	6.8	6.6	6.8
35-44	7.7	8.1	8.0	8.6	8.0	8.6	8.4	8.6
45-54	8.5	8.2	7.8	8.1	8.0	8.2	7.3	7.4
55-64	5.9	5.5	5.0	5.0	5.2	5.2	4.7	4.9
65+	6.5	6.9	5.1	6.9	5.5	6.8	5.5	7.4

*Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.*

Employment and income are among the most important determinants of health. Table 4 gives an overall picture of the employment status of the population in the Study Area, Eastern RIHA and

the island portion of the province. The Study Area had the highest percentage of self employed individuals and students, and the lowest percentage of individuals employed by a company/organization.

Table 4: Employment Status			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Self-employed	8.0	6.0	5.6
Employed by company/organization	37.8	41.5	38.7
Not employed for pay	25.5	25.1	28.0
Retired	21.5	20.7	21.5
Student	7.3	6.6	6.2
Total sampled	278	3957	7932
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Unemployment rates for the 15 to 24 age group (Table 5) were much higher in the Study Area than in Eastern RIHA, the province, and particularly Canada. For the age group 25 and older, the Study Area unemployment rate falls between the values for Eastern RIHA and the province, but are still triple that of Canada.

Table 5: Unemployment Rates				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Unemployment Rate (%), both Sexes</i>			
Age 15-24	37.1	29.0	33.1	13.7
Age 25+	17.3	15.1	19.9	6.2
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				

Average income per family and per household in the Study Area fell between the average income in the Eastern RIHA and the province, but both were considerably below the average for Canada (Table 6).

Table 6: Average Income				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Average Income</i>			
per Family <sup>1</sup>	\$52,193	\$53,823	\$49,679	\$66,160
per Household <sup>2</sup>	\$48,798	\$49,185	\$46,290	\$58,360
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				
<sup>1&amp;2</sup> Please see Appendix F-1 for definitions of Census Family and Census Household				

Table 7 shows that 40.4% of unattached individuals in the Study Area fell below the Low Income Cut Offs<sup>2</sup>. This is lower than the figures for Eastern RIHA (46.3%), the province (46.6%), but slightly higher than Canada (38.0%). However, the percentage of households that fell below the LICO was less in the Study Area (13.7%) compared to Eastern RIHA (18.4%), the province (18.8%) and nationally (16.2%).

Table 7: Incidence of Low Income <sup>1</sup>				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Percentage of Population</i>			
In unattached individuals <sup>2</sup> 15 years and over	40.4	46.3	46.6	38.0
In population in private households <sup>3</sup>	13.7	18.4	18.8	16.2
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				
<sup>1,2&amp;3</sup> Please see Appendix F-1 for definition of Incidence of Low Income, Unattached Individuals and Private Households				

Income adequacy assesses household income with respect to the total number of people within the household. For example, a *very low* income adequacy for a household of 1 would be \$15,000 or less, but a household size of 4 or more it would be \$20,000 or less. A high income adequacy for a household size of 1 would be \$45,001 or more, but for a household size of 4 or more it would be \$100,001 or more. Table 8 indicates that a lower proportion of the Study Area fell within the combined income adequacy categories of 'very low' and 'low' than Eastern RIHA or the island (33.4%, 38.1%, and 41.2% respectively). Income adequacy groupings are based on those used in the 1995 Adult Health Survey (Segovia, 1996, page 68)<sup>3</sup> with modifications to reflect LICO values of 2001.

<sup>2</sup> See **Appendix F-2** for explanation of Low Income Cut Offs (LICOs).

<sup>3</sup> See **Appendix F-3**: Income Adequacy Groupings

Table 8: Income Adequacy			
Location	Study Area	Eastern RIHA	Island Portion of Province
<i>Adequacy</i>	<i>Percentage of Respondents</i>		
Very low	10.4	17.0	18.8
Low	23.0	21.1	22.4
Lower middle	32.4	28.0	29.3
Upper middle	19.8	18.3	16.7
High	14.4	15.7	12.8
Total sampled <sup>1</sup>	226	3254	6553
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> <sup>1</sup> percentages calculated for those who responded to income question			

## 4.2 Education

Table 9 shows education levels of the population of the Study Area tended to be lower than for the Eastern RIHA, the province and Canada. Although a greater percentage of the Study Area had a trades certificate or diploma (19.7%) than Eastern RIHA (18.5%), the province (18.5%), or Canada (11.8%), 45.1% of the Study Area did not have a high school graduation certificate compared with 34.2% of Eastern, 39.6% of the province and 27.9% of Canada.

Table 9: Highest Education Level of Population over 20 Years of Age				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Percentage of Population</i>			
Without high school graduation certificate	45.1	34.2	39.6	27.9
With high school certificate	8.5	8.9	9.1	13.9
Trades with certificate or diploma	19.7	18.5	18.5	11.8
College without certificate or diploma	4.0	4.3	4.0	6.4
College with certificate or diploma	10.6	13.0	11.9	16.2
University without degree	6.3	7.8	6.5	7.0
University with bachelor's degree or higher	7.3	13.3	10.5	16.9

*Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.*

### **4.3 Personal Health Practices and Coping Skills**

Personal health practices influence the health status of an individual and a population. Such practices include smoking, alcohol consumption, and exercise. Also, because of the health consequences of being overweight we have included information on body mass index as an indicator of obesity. Table 10 shows that the Study Area had a higher percentage of those who report never smoking (48.2%) compared with Eastern (43.9%) and the Island portion of the province (43.7%). The Study Area also had the smallest percentage of self-reported current smokers.

Table 10: Smoking Status			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Never smoked	48.2	43.9	43.7
Former smoker	30.6	30.0	30.1
Current smoker	21.2	26.1	26.2
Total sampled	279	3965	7942
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

In Table 11, occasional drinkers are defined as those who report drinking less than once a month, and current drinkers are those who report drinking more than once a month. Looking at occasional and current drinkers, alcohol consumption in the Study Area was slightly less than consumption in Eastern and the island portion of the province.

Table 11: Alcohol Consumption			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Never drink	22.2	20.2	22.3
Ex-drinker	9.8	7.1	8.0
Occasional drinker	13.1	14.4	14.2
Current drinker	54.9	58.3	55.5
Total sampled	276	3889	7792
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Information on the exercise undertaken by the individual was collected by asking ‘how many times in a 2 week period do you usually do any of the following exercise or recreational activities?’ This was followed by a list of 17 activity examples each with a METS score<sup>4</sup> associated with it. These were used together with the frequency per week and average duration of each period to produce a score for each activity. The numeric sum of all exercise reported was then classified

<sup>4</sup> METS - multiples of the resting metabolic rate. Examples: walking = 2 METS; jogging = 10 METS

into five levels ‘sedentary’, ‘light activity’, ‘moderately active’, ‘active’ and ‘very active’. ‘Sedentary’ is equivalent to exercise up to (in two weeks) three walks of 10 minutes, one game of bowling of 20 minutes and one mowing grass of 20 minutes; ‘light activity’ is equivalent of up to four walks of 20 minutes, two games of bowling of 20 minutes and one snow shoveling of 20 minutes; ‘moderate activity’ is equivalent of up to six dances of 20 minutes and two snow shoveling of 20 minutes; ‘active’ is equivalent of up to eight jogs of 20 minutes and two aerobic sessions of 20 minutes; and ‘very active’ is equivalent to at least 10 jogs of 20 minutes.

The Study Area had a slightly higher percentage of the population who lead a sedentary or low activity lifestyle compared with Eastern RIHA and the island portion of the province (Table 12).

Table 12: Activity Level			
Location	Study Area	Eastern RIHA	Island Portion of Province
<i>Degree of Activity</i>	<i>Percentage of Respondents</i>		
Sedentary	4.2	3.2	3.2
Light activity	6.8	6.0	6.3
Moderate activity	15.9	15.2	16.6
Active	23.9	25.0	25.2
Very active	49.2	50.6	48.8
Total sampled	263	3762	7515
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Self reported height and weight were used to calculate the Body Mass Index (BMI) which is divided into 6 groupings according to Health Canada’s guidelines<sup>5</sup>. Table 13 shows that a higher proportion of adults in the Study Area fell above the recommended weight for their height (67.3%; total of overweight and obese categories) than the Eastern RIHA (60.5%) and the island portion of the province (61.5%).

<sup>5</sup> See **Appendix F-1: Definitions**

Table 13: Body Mass Index (BMI)			
Location	Study Area	Eastern RIHA	Island Portion of Province
<i>BMI</i>	<i>Percentage of Respondents</i>		
<18.5 (underweight)	1.1	1.4	1.4
18.5-24.9 (normal weight)	31.6	38.0	37.0
25-29.9 (overweight)	49.2	41.5	41.2
30-34.9 (obese class I)	15.8	14.8	15.5
35-39.9 (obese class II)	1.5	2.9	3.4
≥40 (obese class III)	0.8	1.3	1.4
Total sampled	267	3817	7682
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

#### 4.4 Self-Reported Health Status

Health status can be measured by a number of indicators including self reported health or emotional status, number or types of chronic conditions and level of disability. We have also included satisfaction with medical care, daily levels of stress and financial circumstances as all these can have an effect on a person's reported health and well being.

If the categories of 'excellent' and 'very good' are combined in Table 14 a greater percentage in the Study Area rated their health as 'excellent' or 'very good' (63.5%) compared to Eastern RIHA (59.7%) or the island portion of the province (58.5%).



Table 14: Self Reported Health Status			
Location	Study Area	Eastern RIHA	Island Portion of Province
Rating	<i>Percentage of Respondents</i>		
Excellent	13.0	13.5	12.8
Very good	50.5	46.2	45.7
Good	24.5	27.4	27.6
Fair	11.2	10.2	11.1
Poor	0.7	2.7	2.8
Total sampled	279	3962	7932
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Levels of satisfaction with medical care are given in Table 15. If the categories ‘somewhat satisfied’ and ‘very satisfied’ are combined, the Study Area had a slightly smaller percentage of residents who were satisfied with their medical care (64.5%) than Eastern (67.8%) or the island portion of the province (68.4%).

Table 15: Satisfaction Level with Medical Care			
Location	Study Area	Eastern RIHA	Island Portion of Province
Rating	<i>Percentage of Respondents</i>		
Very satisfied	24.3	27.1	27.3
Somewhat satisfied	40.2	40.7	41.1
Neither satisfied nor dissatisfied	4.3	6.2	5.8
Somewhat dissatisfied	19.6	16.2	16.0
Very dissatisfied	11.6	9.7	9.9
Total sampled	276	3927	7874
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Table 16 indicates the Study Area had slightly fewer people not reporting any chronic conditions (30.3%) than the other two areas (31.6% Eastern; 32.1% Island).

Table 16: Number of Self Reported Chronic Conditions			
Location	Study Area	Eastern RIHA	Island Portion of Province
Number	<i>Percentage of Respondents</i>		
None	37.4	31.6	32.1
One	22.5	25.5	25.0
Two	15.4	18.5	17.7
Three or more	24.7	24.4	25.2
Total sampled	238	3966	7945
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Table 17 shows that the most often reported chronic conditions were arthritis and rheumatism, recurring backaches, allergies and high blood pressure. The Study Area shows similar percentages to Eastern RIHA and the province for most conditions listed, with allergies being slightly lower than Eastern RIHA and the province.

It is known that certain refinery emissions can be a health concern. The emissions of particular interest for the proposed refinery are sulphur dioxide, nitrogen oxides, volatile organic compounds, particulate matter and carbon monoxide. As a group they are referred to as ‘criteria air contaminants’ and on their release into the atmosphere where they react with other pollutants can cause smog and acid rain.

Sulphur and nitrogen dioxides, along with their transformation products on reaction with elements in the air, can cause or exacerbate diseases of the respiratory system such as chronic obstructive pulmonary disease (COPD) and asthma. Studies have shown that exposure to poor air quality, particularly when combined with exercise, may aggravate COPD or asthma and lead to an increase in the number of emergency room visits and hospitalizations for these diseases.

Cardiac diseases can also be exacerbated by pollution, directly or indirectly by the worsening of other systems, e.g. respiratory diseases.

Health Canada states that “The elderly, people with existing respiratory and cardiovascular problems, and children are particularly vulnerable (*to air pollution*). Health effects caused by air pollutants may range from subtle physiological changes to difficulty breathing, wheezing, coughing, and aggravation of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and even premature death. Children are often at increased risk from exposure to toxic substances because they are not fully developed and can be more susceptible to injury.

Greater air intake relative to body weight, compared with adults, also increases a child's potential for excessive exposure to air pollution.“ (Health Canada, 2007).

Our analysis of the data available for the chosen time frame shows that self reported asthma was slightly increased in both Eastern RIHA and the province, but allergies (of any kind) were slightly reduced (Table 17) compared to the Study Area. Hospitalizations for COPD and asthma were lower in the Study Area than either Eastern RIHA or the province.

Given the association between emissions and cardiac and respiratory diseases, morbidity and mortality data for these diseases should be monitored, particularly for children and older residents in the area. Note that caution must be exercised in the collection and reporting of these data due to the small numbers involved and all rate calculations should be averaged over several years.

Table 17: Major Self Reported Chronic Conditions			
Location	Study Area	Eastern RIHA	Island Portion of Province
Condition	<i>Percentage of Respondents</i>		
Arthritis, rheumatism	22.0	23.3	24.5
Backaches (recurring)	22.1	20.0	19.8
Allergy (of any kind)	17.8	20.2	19.8
High blood pressure	17.2	15.8	16.9
Headaches (recurring)	13.5	12.1	12.2
Asthma	9.1	8.4	8.1
Diabetes	6.5	6.7	7.1
Heart disease	6.1	6.6	6.7
No condition reported	30.3	31.6	32.1
Total sampled	279	3966	7945
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

The degree of self reported disability (Table 18) was similar between the Study Area, the Eastern RIHA and the island portion of the province.

Table 18: Degree of Disability			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
No disability	85.9	85.9	86.0
Temporary disability	2.2	3.0	2.8
Permanent disability	11.9	11.2	11.2
Total sampled	279	3966	7943
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			

Ratings for self reported emotional status were slightly lower in the Study Area than in either the Eastern RIHA or the island portion of the province (Table 19), but over 90 percent in all areas have the rating of either ‘excellent’ or ‘good’.

Table 19: Self Reported Emotional Status <sup>1</sup>			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Rating			
Excellent	39.9	43.6	43.0
Good	52.5	47.8	48.2
Fair	6.8	7.9	8.1
Poor	0.7	0.7	0.7
Total sampled	279	3966	7945
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>			
<sup>1</sup> see Appendix F-1 for the question and grouping levels			

Combining the categories ‘quite a bit stressful’ or ‘extremely stressful’ in Table 20, a smaller percentage of people in the Study Area reported stress in their daily lives than Eastern RIHA and the island portion of the province (12.2% versus 16.1% and 15.6% respectively).

Table 20: Self Reported Stress Level in Daily Life <sup>1</sup>			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Not at all stressful	16.8	15.4	15.9
Not very stressful	26.5	23.2	23.9
A bit stressful	44.4	45.3	44.5
Quite a bit stressful	8.6	13.0	12.6
Extremely stressful	3.6	3.1	3.0
Total sampled	279	3959	7933
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> <sup>1</sup> <i>Thinking about the amount of stress in your life, would you say that most days are...?</i>			

One of the major stressors of daily life is coping with finances. Further to this, Table 21 shows a higher percentage of respondents in the Study Area felt ‘very good’ or ‘good’ about their financial circumstances (54.0%) as compared with Eastern RIHA (44.4%) and the island portion of the province (44.1%).

Table 21: Financial Circumstances <sup>1</sup>			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Very good	23.6	18.1	18.3
Good	30.4	26.3	25.8
Satisfactory	27.5	31.0	30.3
Just getting by	17.0	23.0	24.0
Can’t cope	1.4	1.5	1.6
Total sampled	277	3943	7911
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> <sup>1</sup> <i>“Given your annual household income and considering your monthly expenditures on food, car, housing etc., would you consider your financial circumstances to be....”</i>			

Those who responded ‘very good’, ‘good’, or ‘satisfactory’ to Table 21, were also asked about their financial reserves. Table 22 shows that a slightly greater percentage of respondents in the Study Area (63.7%) thought they ‘could easily cope’ or ‘could cope, but would have to cut back’ if they had to live off their financial reserves for 3 months compared to Eastern RIHA (58.9%) and the island portion of the province (57.7%).

Table 22: Financial Reserves <sup>1</sup> Among Those who Responded Very Good, Good, or Satisfactory to Table 20 (Financial Circumstances)			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Could easily cope	20.2	18.1	17.3
Could cope, but would have to cut back	43.5	40.8	40.4
Could just manage	20.6	22.7	23.0
Would have to borrow to survive	10.3	10.0	9.9
Couldn't cope	5.4	8.4	9.4
Total sampled	222	2901	5724
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> <sup>1</sup> <i>“If your primary sources of income (from employment, E.I., pensions etc.) were to stop for 3 months, then which statement would likely best describe your situation. Would it be...”</i>			

When asked, “*Considering everything, would you say that your household is better off, worse off, or about the same financially today as compared to 5 years ago?*” Table 23 shows that the Study Area was on a similar level (41.0%) as Eastern RIHA (40.0%) and both were slightly higher than the island portion of the province (38.7%).

The Study Area had a much lower percentage of people who considered themselves ‘worse off’ than Eastern RIHA and the island percentages (14.3% versus 21.3% and 21.2% respectively).

Table 23: Financial Status Compared to Five Years Ago <sup>1</sup>			
Location	Study Area	Eastern RIHA	Island Portion of Province
	<i>Percentage of Respondents</i>		
Better off	41.0	40.0	38.7
About the same	44.7	38.7	40.0
Worse off	14.3	21.3	21.2
Total sampled	270	3900	7814
<p><i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i></p> <p><sup>1</sup> <i>“Considering everything, would you say that your household is better off, worse off, or about the same financially today as compared to 5 years ago?”</i></p>			

## 4.5 Mortality and Morbidity

Mortality and Morbidity data are key to understanding the frequency and type of disease and causes of death in the target area.

### 4.5.1 Mortality

The top two major causes of death in all areas (the Study Area, Eastern RIHA, the province and Canada) were diseases of the circulatory system and cancer, with diseases of the respiratory system in third place (Table 24).

Mortality rates were similar across the areas being compared with a few exceptions:

- females in the Study Area had the lowest mortality rate for cancers, diseases of the respiratory or nervous system, but the highest for diseases of the endocrine, nutritional, metabolic and immune systems;
- males in the Study Area had the lowest mortality rate for diseases of the endocrine, nutritional, metabolic and immune systems.

Table 24: Cause Specific Death Rates, All Ages, 1999-2003

(Deaths/ 1,000 Population)								
Location	Study Area		Eastern RIHA		Province		Canada	
	M	F	M	F	M	F	M	F
Infectious & Parasitic Diseases	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
All Malignant Neoplasms <sup>1</sup>	2.7	1.6	2.6	2.0	2.6	1.9	2.2	1.9
Endocrine, Nutritional, Metabolic and Immune	0.2	0.6	0.4	0.4	0.4	0.5	0.3	0.3
Diseases of the Nervous System	0.3	0.2	0.4	0.5	0.3	0.4	0.3	0.4
Diseases of the Circulatory System	3.3	2.6	3.3	3.0	3.3	2.9	2.5	2.4
Diseases of the Respiratory System	0.6	0.3	0.7	0.5	0.7	0.5	0.6	0.6
Diseases of the Digestive System	0.1	0.3	0.2	0.2	0.2	0.2	0.3	0.3
Disease of the Genitourinary System	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Injury and Poisoning	0.4	0.1	0.4	0.2	0.5	0.2	0.6	0.3

*Source: Statistics Canada, Annual Mortality File, 1999-2003  
 Statistics Canada, Canadian Vital Statistics, Death Database, 2000-2003  
 Statistics Canada, Causes of Death, Shelf Tables, 1999  
 Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada  
 Statistics Canada, Demography Division, 2001*

<sup>1</sup> Neoplasms include all cancers

#### 4.5.2 Morbidity

Morbidity data is based on hospitalizations for various causes, including clinical data collected on all acute and surgical day care patients, as well as some long-term and medical day care patients. In this report we focus on acute care hospitalizations<sup>6</sup>. The variation in hospitalization rates between the Study Area and the other areas was considerable in some cases but it must be remembered that the population in the Study Area was relatively small (16,000) and minor deviations in the number of hospitalizations for any cause can make a noticeable difference in rates when quoted for 100,000 population, as is the convention. Hospital separations<sup>7</sup> are recorded based on the person's residence, not on the hospital visited.

The top three causes of hospitalizations (not including pregnancy and childbirth) for all areas of residence were (Table 25): diseases of the circulatory system, the digestive system and the respiratory system. Rates of hospitalizations for the top three causes were highest for the

<sup>6</sup> See **Appendix F-4: Morbidity Technical Notes** for an explanation of the following morbidity tables

<sup>7</sup> See **Appendix F-1: Definitions** for an explanation of the term 'hospital separation' and **Appendix F-4: Morbidity Technical Notes** for details on the coding groups



province as a whole, followed by Eastern RIHA and Canada, and lowest for the Study Area. The Study Area had the lowest rates of hospitalizations for all causes, as grouped in Table 25, often showing considerably fewer hospitalizations when compared to Eastern RIHA. For example there were more than sixty percent fewer hospitalizations for mental disorders and almost fifty percent fewer for diseases of the respiratory and genitourinary systems, infectious and parasitic diseases, and skin diseases.

Table 25: Acute Care Hospital Separations by Cause <sup>1</sup> , 1999/00-2003/04								
Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada <sup>2</sup>	
	M	F	M	F	M	F	M	F
Infectious & Parasitic Diseases	58.5	69.7	129.5	127.4	126.0	126.2	147	145
All Malignant Neoplasms	377.7	375.7	583.8	517.7	622.9	535.7	563	537
Endocrine, Nutritional, Metabolic Diseases and Immunity Disorders	107.2	166.7	287.1	307.7	293.7	334.8	190	231
Diseases of Blood and Blood-Forming Organs	85.3	92.1	110.6	137.9	123.6	140.5	74	89
Mental Disorders	177.9	181.6	643.2	579.9	643.0	613.7	496	574
Diseases of the Nervous System and Sense Organs	112.1	104.5	173.6	174.9	203.0	209.2	188	201
Diseases of the Circulatory System	1464.6	995.3	1831.0	1342.8	1996.4	1484.9	1656	1249
Diseases of the Respiratory System	584.9	522.5	1074.3	928.9	1215.9	1049.4	884	780
Diseases of the Digestive System	757.9	719.1	1082.8	1194.0	1238.1	1417.8	1016	1070
Diseases of the Genitourinary System	202.3	507.6	385.9	927.9	474.1	1000.4	397	743
Diseases of the Skin and Subcutaneous Tissue	56.0	67.2	120.4	115.9	144.7	134.8	107	95
Diseases of the Musculoskeletal System and Connective Tissue	292.4	236.4	356.0	364.4	406.7	420.2	389	449
Congenital Anomalies	56.0	27.4	63.8	40.7	69.0	46.4	57	44
Injury and Poisoning (nature)	382.6	303.6	708.4	632.0	830.7	706.4	835	744
Pregnancy and Childbirth	0	1109.7	0	2210.6	0	2202.7	0	2555

Source: Clinical Database Management System 1999/00 to 2003/04; Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at <http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>

<sup>1</sup> Based on the most responsible diagnosis

<sup>2</sup> Rates are for fiscal year 2000/1

As stated earlier, certain diseases of the respiratory system are more likely to be aggravated by emissions from refineries. Those of particular concern are Chronic Obstructive Pulmonary Disease (COPD) and asthma. Table 26 shows that over the years 1999 to 2004 the Study Area had lower rates of hospitalization for COPD and asthma than Eastern RIHA, the province or Canada. Rates for bronchitis and emphysema (a subgroup within COPD) in the Study Area show similar values for males, but lower for females, when compared to Eastern RIHA, the province, or Canada.

**Table 26: Acute Care Hospital Separations for Diseases of the Respiratory System<sup>1</sup>, 1999/00 - 2003/04**

Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada <sup>2</sup>	
	M	F	M	F	M	F	M	F
All Respiratory Diseases	584.9	522.5	1074.3	928.9	1215.9	1049.4	884	780
Chronic Obstructive Pulmonary Disease (COPD)	160.8	129.4	295.1	233.7	336.9	237.6	288	275
Bronchitis and Emphysema	21.9	5.0	20.3	19.4	26.7	25.3	111	102
Asthma	43.9	77.1	84.9	110.7	98.3	110.2	98	103
Other respiratory	404.5	350.8	728.7	634.3	823.2	747.9	595	505

*Source: Clinical Database Management System 1999/00 to 2003/04; Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at <http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>*

<sup>1</sup> Based on the most responsible diagnosis

<sup>2</sup> Rates are for fiscal year 2000/1

There were higher rates of hospitalizations for all diseases of the circulatory system in the province compared to Eastern RIHA and the Study Area, with one exception: rates of hospitalizations for atherosclerosis were highest for Eastern RIHA (Table 27). Males had higher hospitalization rates for all circulatory diseases in all areas.

**Table 27: Acute Care Hospital Separations for Diseases of the Circulatory System<sup>1</sup>, 1999/00 - 2003/04**

Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada <sup>2</sup>	
	M	F	M	F	M	F	M	F
All Circulatory Diseases	1464.6	995.3	1831.0	1342.8	1996.4	1484.9	1656	1249
Diseases of Heart	1103.7	761.4	1388.0	1012.8	1524.1	1127.5	1282	921
Ischemic Heart	740.8	405.6	849.4	505.5	963.6	575.1	790	433
Other Heart	389.9	355.8	538.6	507.3	560.5	552.5	492	488
Cerebrovascular	151.1	136.8	192.2	158.9	211.7	177.8	210	204
Atherosclerosis	63.4	17.4	88.5	45.2	73.3	34.6	28	18
Other Circulatory	119.4	79.6	162.3	125.9	187.3	144.9	135	105

*Source: Clinical Database Management System 1999/00 to 2003/04; Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at <http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>*

<sup>1</sup> Based on the most responsible diagnosis

<sup>2</sup> Rates are for fiscal year 2000/1

Hospitalizations for all endocrine, nutritional, metabolic diseases and immunity disorders (Table 28) were lower in the Study Area than for Eastern RIHA, the province, or Canada. The Study Area showed a much lower rate for diabetes mellitus related hospitalizations, 55% lower in females and more than 65% in males when compared to Eastern RIHA.

Table 28: Acute Care Hospital Separations for Endocrine, Metabolic and Immune Diseases <sup>1</sup> , 1999/00-2003/04								
Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada <sup>2</sup>	
	M	F	M	F	M	F	M	F
All Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders	107.2	166.7	287.1	307.7	293.7	334.8	190	231
Diabetes Mellitus	63.4	74.6	192.1	169.5	196.2	194.4	104	91
Other Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders	43.9	92.1	95.1	138.2	97.5	140.4	85	141

*Source: Clinical Database Management System 1999/00 to 2003/04; Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at <http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>*

<sup>1</sup> *Based on the most responsible diagnosis*

<sup>2</sup> *Rates are for fiscal year 2000/1*

Hospitalization rates for nearly all types of malignant neoplasms (cancers) were lower for the Study Area than for all other areas (Table 29). Many cancers (for example, uterine, ovarian, prostate, testicular, and bladder cancers) were considerably lower in the Study Area than in Eastern RIHA, the province, or Canada. For males, hospitalization rates for all cancers listed were lowest in the Study Area. For females, most rates were lower in the Study Area with the exception of 'other skin cancers' which was twice that of Eastern RIHA and the province, and cervical cancer which was sixty percent higher in the Study Area compared to Eastern RIHA and the province and double that of Canada as a whole.

**Table 29: Acute Care Hospital Separations for Malignant Neoplasms<sup>1</sup>  
1999/00-2003/04**

Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada <sup>2</sup>	
	M	F	M	F	M	F	M	F
All Malignant Neoplasms	377.7	375.7	583.8	517.7	622.9	535.7	563	537
Stomach Cancer	17.1	7.5	21.2	9.1	27.1	11.7	16	8
Colon Cancer	43.9	44.8	62.8	55.9	68.6	56.8	45	44
Pancreatic Cancer	9.7	7.5	11.4	8.0	11.6	9.5	14	13
Lung Cancer	43.9	19.9	72.1	32.7	85.2	38.4	86	58
Melanoma of the Skin <sup>3</sup>	0	0	2.8	2.5	3.0	2.9	8	5
Other Skin Cancer <sup>3</sup>	4.9	7.5	7.0	3.7	7.6	3.8		
Breast Cancer	0	99.5	0.8	113.9	0.8	117.0	1	114
Uterine Cancer	0	14.9	0	26.1	0	25.8	0	25
Cervical Cancer	0	24.9	0	15.3	0	15.4	0	12
Ovarian Cancer	0	10.0	0	18.6	0	22.4	0	22
Prostate Cancer	53.6	0	71.1	0	74.1	0	82	0
Testicular Cancer	0	0	4.0	0	3.5	0	3	0
Bladder Cancer	19.5	5.0	61.0	15.0	58.0	13.1	52	15
Kidney Cancer	7.3	7.5	17.5	9.6	20.9	12.0	17	11
Brain Cancer	12.2	5.0	20.3	12.0	19.8	11.1	16	11
Non-Hodgkin's Lymphoma <sup>4</sup>	9.7	5.0	15.3	9.4	15.9	9.0	N/A	N/A
Leukemia	7.3	5.0	13.9	9.5	15.3	12.3	21	15
Other Neoplasms	148.7	112.0	202.5	176.4	211.5	174.5	202	184

*Source: Clinical Database Management System 1999/00 to 2003/04; Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at <http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>*

<sup>1</sup> *Based on the most responsible diagnosis*

<sup>2</sup> *Rates are for fiscal year 2000/1*

<sup>3</sup> *Separate values not available for Canada*

<sup>4</sup> *Values not available for Canada*

## 5.0 Conclusions

The objective of this report is to provide relevant data on the health status of the residents of the potential impact area for the proposed oil refinery location at Southern Head, Placentia Bay. When the refinery is built and in operation it will be important to monitor the health status of the local population, particularly in relation to health problems that may either develop or be exacerbated by refinery emissions. These are known to affect those with existing respiratory and cardiovascular problems and those who spend more of their time outdoors either for work or leisure (Health Canada, 2007).

Overall, the Study Area did not show any large discrepancies when compared to the Eastern RIHA and the province for most indicators included in this report. Residents of the Study Area was marginally older (which might account for them being slightly better off financially) had fewer smokers, lower stress levels, lower rates of almost all cancers and less hospitalizations for mental disorders. But on the other hand the Study Area had a higher rate of unemployment in the 15-24 age group and more adults who had not completed high school certification. It also had more adults above the recommended BMI value and reporting a non-active lifestyle.

The variation in hospitalization rates between the Study Area and the other areas was considerable in some cases but it must be remembered that the population in the Study Area was relatively small (16,000) and minor deviations in the number of hospitalizations for any cause can make a noticeable difference in rates when quoted for 100,000 population, as is the convention.

Conditions reported here are those which prevailed at the time of the reviewed studies (1999 – 2004). Changes in the population demographics since that time may affect the current health status of the residents in the area.

## BIBLIOGRAPHY

Canadian Council on Social Development. 2002. 2001 Poverty Lines.  
[http://www.ccsd.ca/factsheets/fs\\_lic01.htm](http://www.ccsd.ca/factsheets/fs_lic01.htm)

Clinical Database Management System (CDMS) 1999/00 to 2003/04.

Community Accounts, Economics and Statistics, Department of Finance, Government of Newfoundland and Labrador: <http://www.communityaccounts.ca>

Health Canada, 2007. [http://www.ec.gc.ca/cleanair-airpur/Health\\_Concerns-WSC8A1FE65-1\\_En.htm](http://www.ec.gc.ca/cleanair-airpur/Health_Concerns-WSC8A1FE65-1_En.htm)

Newfoundland and Labrador Statistics Agency. 2001. Newfoundland Adult and Community Health Survey.

Project Registration (in accordance with the Newfoundland and Labrador Environmental Protection Act) for Newfoundland and Labrador Refinery Project at Southern Head at the Head of Placentia Bay, October 16 2006.

Public Health Agency of Canada. 2003. What determines health?  
<http://www.phac-aspc.gc.ca/ph-sp/phdd/determinants/index.html>

Segovia, J., A.C. Edwards., R.F. Bartlett. 1996. Newfoundland Panel on Health and Medical Care; Adult Health Survey 1995 – Methodology and Descriptive Results. Health and Medical Care Research Group, Memorial University of Newfoundland.  
(<http://www.med.mun.ca/hmc/acrobat/methodology%20rep.pdf>)

Segovia, J., R. West, L. Longrich, A. C. Edwards. 1997. A Review of the Health Status of the Placentia area, Newfoundland. Health Research Unit, Memorial University of Newfoundland.

Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.

Statistics Canada, Annual Mortality File, 1999-2003.

Statistics Canada, Canadian Vital Statistics, Death Database, 2000-2003.

Statistics Canada, Causes of Death, Shelf Tables, 1999.

Statistics Canada, Population Estimates for Census Subdivisions (based on 2001 Census).

Statistics Canada, Demography Division, 2001.

**APPENDIX F-1**  
**Definitions**



**Body Mass Index (BMI)** is a method of classifying body weight according to health risk. According to World Health Organisation (WHO) and Health Canada guidelines, health risk levels are associated with each of the following BMI categories: normal weight = least health risk; underweight and overweight = increased health risk; obese class I = high health risk; obese class II = very high health risk; obese class III = extremely high health risk.

BMI is calculated as follows: weight in kilograms divided by height in metres squared.

The index is: under 18.5 (underweight); 18.5-24.9 (normal weight); 25.0-29.9 (overweight); 30.0-34.9 (obese-Class I); 35.0-39.9 (obese-Class II); 40 or greater (obese - Class III). The index is calculated for those aged 18 and over excluding pregnant women and persons less than 3 feet (0.914 metres) tall or greater than 6 feet 11 inches (2.108 metres).

Source: Statistics Canada, Canadian Community Health Survey, 2003, 2000/01, health file; Statistics Canada, National Population Health Survey, 1994/1995, 1996/1997 and 1998/1999 cross sectional sample, health file and North component.  
<http://www.statcan.ca/english/freepub/82-221-XIE/2005001/defin1.htm#4>

**Census family:** Refers to a married couple (with or without children of either or both spouses), a couple living common-law (with or without children of either or both partners) or a lone parent of any marital status, with at least one child living in the same dwelling. A couple living common-law may be of opposite or same sex. 'Children' in a census family include grandchildren living with their grandparent(s) but with no parents present.

**Census household:** Refers to a person or a group of persons (other than foreign residents), who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada. It may consist of a family group (census family) with or without other non-family persons, of two or more families sharing a dwelling, of a group of unrelated persons, or of one person living alone. Household members who are temporarily absent on Census Day (e.g. temporary residents elsewhere) are considered as part of their usual household. For census purposes, every person is a member of one and only one household. Unless otherwise specified, all data in household reports are for private households only. Households are classified into three groups: private households, collective households and households outside Canada.

**Hospital separation:** The end point of a patient's hospital contact (death, discharge, sign out against medical advice, or transfer), which consists of one or several days of care. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because hospital abstracts for inpatient care are based on information gathered at the time of separation. It should be noted that the number of separations presented in the tables does not necessarily represent unique patients as a unique patient may have had more than one separation within a fiscal year, and that separations are recorded based on the person's residence, not on the hospital visited.

**Incidence of Low Income:** The incidence of low income is the proportion or percentage of economic families or unattached individuals in a given classification below the low income cut-offs. These incidence rates are calculated from un-rounded estimates of economic families and unattached individuals 15 years of age and over.

**Private Household:** Refers to a person or a group of persons (other than foreign residents) who occupy a private dwelling and do not have a usual place of residence elsewhere in Canada.

**Self reported emotional status:** The two questions were:

Here is a list that describes some of the ways people feel at different times. Please tell me if you have the feeling often, sometimes or never. During the past few weeks, how often have you felt...(READ LIST) Would you say... Often...Sometimes...Never

- ... On the top of the world? (1,2,3)
- ... Very lonely or remote from other people? (3,2,1)
- ... Particularly excited or interested in something? (1,2,3)
- ... Depressed or very unhappy? (3,2,1)
- ... Pleased about having accomplished something? (1,2,3)

During the past few weeks, how often have you felt...

- ... Bored? (3,2,1)
- ... Proud because someone complimented you on something you had done? (1,2,3)
- ... So restless you couldn't sit long in a chair? (3,2,1)
- ... That things were going your way? (1,2,3)
- ... Upset because someone criticized you? (3,2,1)

Responses to these questions were averaged using 1 point for the best response, 2 for the middle and 3 for the worst response. The values are shown next to the question. The mean values were then grouped to give four levels 'excellent' (1-1.5), 'good' (1.6-2.0), 'fair' (2.1-2.5), and poor (2.6-3.0).

**Unattached individuals:** Refers to household members who are not members of an economic family. Persons living alone are included in this category.

**APPENDIX F-2**  
**Low Income Cut Offs (LICOs), 2001**

## Table A2.1: 2001 Poverty Lines

November 29, 2002

The LICOs are published by Statistics Canada. Persons and families living below these income levels are considered to be living in "straitened circumstances." There are 35 different LICOs, varying according to family size and size of community. The LICOs are more popularly known as Canada's **poverty lines**.

Low-Income Cut-Offs (LICOs), 2001					
	Population of Community of Residence				
Family Size	500,000 +	100,000-499,999	30,000-99,999	Less than 30,000*	Rural
1	\$18,841	\$16,160	\$16,048	\$14,933	\$13,021
2	\$23,551	\$20,200	\$20,060	\$18,666	\$16,275
3	\$29,290	\$25,123	\$24,948	\$23,214	\$20,242
4	\$35,455	\$30,411	\$30,200	\$28,101	\$24,502
5	\$39,633	\$33,995	\$33,758	\$31,412	\$27,390
6	\$43,811	\$37,579	\$37,317	\$34,722	\$30,278
7 +	\$47,988	\$41,163	\$40,875	\$38,033	\$33,166

Notes: This table uses the 1992 base. Income refers to total pre-tax, post-transfer household income.

\*Includes cities with a population between 15,000 and 30,000 and small urban areas (under 15,000).

Source: Prepared by the Canadian Council on Social Development using Statistics Canada's Low Income Cut-Offs, from *Low income cut-offs from 1992 to 2001* Catalogue # 75F0002MIE-2002005, November 2002.

### Reading this table

Example: A family of four living in a very large Canadian city with an income (after transfers and before taxes) of less than \$35,455 in 2001, would have been living below the poverty line. A similar family living in a village would not have been below the poverty line, unless their income was less than \$24,502.

Source: [http://www.ccsd.ca/factsheets/fs\\_lic01.htm](http://www.ccsd.ca/factsheets/fs_lic01.htm)

**APPENDIX F-3**  
**Income Adequacy Grouping**

### Justification for income adequacy groupings:

In 1995, the research team of the 1995 Adult Health Survey contacted Statistics Canada for assistance in producing an income adequacy variable. Statistics Canada produced a table (Table A3.1) of income levels by the number of persons in a household that was suitable for Newfoundland and used the income categories that had been collected in the survey. The subsequent income adequacy variable had levels of: very low, low, lower middle, upper middle, and high income adequacy.

Table A3.1 Household Income Groups Used to Define Income Adequacy Variable (1996)					
Household Income Group	Household Size				
	1	2	3	4	5 or more
Very low	Less than \$10,000	Less than \$10,000	Less than \$10,000	Less than \$15,000	Less than \$15,000
Low	\$10,000 to \$14,999	\$10,000 to \$19,999	\$10,000 to \$19,999	\$15,000 to \$29,999	\$15,000 to \$29,999
Lower middle	\$15,000 to \$29,999	\$20,000 to \$39,999	\$20,000 to \$39,999	\$30,000 to \$49,999	\$30,000 to \$59,999
Upper middle	\$30,000 to \$39,999	\$40,000 to \$49,999	\$40,000 to \$59,999	\$50,000 to \$79,999	\$60,000 to \$79,999
High	\$40,000 or more	\$50,000 or more	\$60,000 or more	\$80,000 or more	\$80,000 or more

Comparing the low-income cut-offs (LICOs) for a community of size 30,000-99,999 (taken as the average value for Newfoundland) and for the years 1996 and 2001 we see the differences shown in Table A3.2.

Table A3.2 Differences in LICOs Between 1996 and 2001			
Family Size	1996 LICOs	2001 LICOs	Difference
1	\$14,591	\$16,048	\$1,457
2	\$18,239	\$20,060	\$1,821
3	\$22,684	\$24,948	\$2,264
4	\$27,459	\$30,200	\$2,741
5	\$30,695	\$33,758	\$3,063
6	\$33,930	\$37,317	\$3,387
7+	\$37,166	\$40,875	\$3,709

Since the income information collected in the 2001 Adult Health Survey is in \$5000 (or multiples of \$5000) bands, the ranges of incomes in the 1995 income adequacy table were increased by \$5000. In some cases the range had to be adjusted for it to match an income range from the questionnaire. The final table is shown in Table A3.3.

Table A3.3 Household Income Groups Used to Define Income Adequacy Variable (2001)					
Household Income Group	Household Size				
	1	2	3	4	5 or more
Very low	\$15,000 or less	\$15,000 or less	\$15,000 or less	\$20,000 or less	\$20,000 or less
Low	\$15,001 to \$20,000	\$15,001 to \$25,000	\$15,001 to \$25,000	\$20,001 to \$35,000	\$20,001 to \$35,000
Lower middle	\$20,001 to \$35,000	\$25,001 to \$45,000	\$25,001 to \$45,000	\$35,001 to \$55,000	\$35,001 to \$75,000
Upper middle	\$35,001 to \$45,000	\$45,001 to \$55,000	\$45,001 to \$75,000	\$55,001 to \$100,000	\$75,001 to \$100,000
High	\$45,001 or more	\$55,001 or more	\$75,001 or more	\$100,001 or more	\$100,001 or more

**APPENDIX F-4**  
**Morbidity Technical Notes**



## MORBIDITY TECHNICAL NOTES:

In April 2001, reporting facilities in the province of Newfoundland and Labrador implemented the *International Statistical Classification of Diseases and Related Health Problems – 10<sup>th</sup> revision, enhanced Canadian version/Canadian Classification of Interventions (ICD-10-CA/CCI)* as the coding system for diagnoses and interventions related to hospital morbidity and mortalities. This replaced the *International Classification of Diseases – 9<sup>th</sup> revision/Canadian Classification of Procedures (ICD-9/CCP)*. Because of differences in the coding systems, direct comparison is not always possible or recommended. The following tables indicate how records were assigned to “cause” categories based on most responsible diagnosis codes.

Table A4.1: ICD-9 and ICD-10-CA Codes for Disease Categories		
Cause	ICD-9 Codes	ICD-10-CA Codes
Infectious & Parasitic Diseases	001-139	A00-B99
All Malignant Neoplasms	140-208	C00-C99
Endocrine, Nutritional, Metabolic Diseases and Immunity Disorders	240-279	E00-E90
Diseases of Blood and Blood-Forming Organs	280-289	D50-D89
Mental Disorders	290-319	F00-F99
Diseases of the Nervous System and Sense Organs	320-389	G00-G99
Diseases of the Circulatory System	390-459	I00-I99
Diseases of the Respiratory System	460-519	J00-J99
Diseases of the Digestive System	520-579	K00-K93
Diseases of the Genitourinary System	580-629	N00-N99
Diseases of the Skin and Subcutaneous Tissue	680-709	L00-L99
Diseases of the Musculoskeletal System and Connective Tissue	710-739	M00-M99
Congenital Anomalies	740-759	Q00-Q99
Injury and Poisoning (nature)	800-999	V01-Y98
Pregnancy and Childbirth	630-679	O00-O99

**Table A4.2: ICD-9 and ICD-10-CA Codes for Respiratory Disease Categories**

<b>Cause</b>	<b>ICD-9 Codes</b>	<b>ICD-10-CA Codes</b>
All Respiratory Diseases	460-519	J00-J99
Chronic Obstructive Pulmonary Disease (COPD)	491.2; 492-496	J41-J44
Bronchitis and Emphysema	490-492	J40-J43
Asthma	493	J45
Other Respiratory	460-487, 500-519	J00-J39, J60-J99

**Table A4.3: ICD-9 and ICD-10-CA Codes for Circulatory Disease Categories**

<b>Cause</b>	<b>ICD-9 Codes</b>	<b>ICD-10-CA Codes</b>
All Circulatory Diseases	390-459	I00-I99
Diseases of Heart	390-429	I00-I52
Ischemic Heart	410-414	I20-I25
Other Heart	390-409; 415-429	I00-I19; I26-I52
Cerebrovascular	430-438	I60-I69
Atherosclerosis	440	I70
Other Circulatory	441-459	I71-I99

**Table A4.4: ICD-9 and ICD-10-CA Codes for Endocrine, Nutritional and Metabolic Disease and Immunity Disorder Categories**

<b>Cause</b>	<b>ICD-9 Codes</b>	<b>ICD-10-CA Codes</b>
All Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders	240-279	E00-E90
Diabetes Mellitus	250	E10-E14
Other Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders	240-249; 251-279	E00-E09; E15-E90

Table A4.5: ICD-9 and ICD-10-CA Codes for Malignant Neoplasm Categories		
Cause	ICD-9 Codes	ICD-10-CA Codes
All Malignant Neoplasms	140-208	C00-C97
Stomach Cancer	151	C16
Colon Cancer	153	C18
Pancreatic Cancer	157	C25
Lung Cancer	162	C33-C34
Melanoma of Skin	172	C43
Other Skin Cancer	173	C44
Breast Cancer	174-175	C50
Uterine Cancer	179, 181-182	C54-C55
Cervical Cancer	180	C53
Ovarian Cancer	183	C56
Prostate Cancer	185	C61
Testicular Cancer	186	C62
Bladder Cancer	188	C67
Kidney Cancer	189	C64
Brain Cancer	191	C71
Non-Hodgkin's Lymphoma	202	C82-C83
Leukemia	204-208	C91-C95
Other Neoplasms	140-150, 152, 154-156, 158-161, 163-169, 170-171, 176-178, 184, 187, 190, 192-201, 203	C00-C15; C17, C19, C20-24, C26-C29, C30-C32, C35-C39, C40-C42, C45-C49, C51-C52, C60, C63, C65-C66, C68-69, C70, C72-C79, C80-C81, C84-C89, C90, C96-C99, C200-C201, C203

1. The number of hospitalizations presented in the tables do not necessarily represent unique patients, a patient may have had more than one separation within a fiscal year.

- Rates were calculated using the five year average and then dividing by the 2001 population estimate for the given catchment area and gender.

$$\frac{(\text{Sum of Total Hospitalizations 1999/00 to 2003/05}) / 5}{2001 \text{ Population Estimate}} \times 100,000$$

- Population information was from Population Estimates for Census Subdivisions (based on 2001 Census) and Statistics Canada, Demography Division, 2001.
- Only acute care hospitalizations were included in the analysis.
- Geographic codes used to identify Study Area records:

Table A4.6: SGC Codes for Study Area Census Divisions	
Census Subdivision	Standard Geographical Classification (SGC) Code
1A	1001270, 1001281, 1001289, 1001274, 1001263, 1001285, 1001267, 1001277, 1001259
2K	1002048
7K	1007009, 1007013
7L	1007006
7M	1007001

- All analyses were based on place of residence.
- Eastern region refers to the new Eastern Regional Integrated Health Authority (RIHA)