



Labrador-Island Transmission Link

Environmental Impact Statement

Volume 3

Existing Socioeconomic Environment
Socioeconomic Effects Assessment
Commitments, Sustainability and Conclusions

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NALCOR ENERGY

LABRADOR-ISLAND TRANSMISSION LINK

ENVIRONMENTAL IMPACT STATEMENT

Chapter 15

Existing Socioeconomic Environment

April 2012



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LIST OF ACRONYMS

Acronym	Description
%	percent
<	less than
>	greater than
A.D.	Anno Domini
ACOA	Atlantic Canada Opportunities Agency
ADA	Agricultural Development Areas
AHTF	Aboriginal Health Transition Fund
AMEC	AMEC Earth & Environmental
APEC	Atlantic Provinces Economic Council
ATK	Aboriginal Traditional Knowledge
ATVs	all-terrain vehicles
BBMT	Bay Bulls Marine Terminal
BCMF	British Columbia Ministry of Forestry
BLM	Bureau of Land Management
BMI	body mass index
BP	before present
BWA	Boil Water Advisory
ca.	circa
CAAs	Canadian Airport Authorities
CAM	Conseil Attikamek-Montagnais
CBC	Canadian Broadcasting Corporation
CBPPL	Corner Brook Pulp and Paper Limited
CCG	Canadian Coast Guard
CDLI	Centre for Distance Learning and Innovation
CEAR	Canadian Environmental Assessment Registry
CFB	Canadian Forces Base
CFS	Canadian Forestry Service
CHS	Canadian Hydrographic Service
CLEDB	Central Labrador Economic Development Board
CMA	Caribou Management Area
CMHC	Canadian Mortgage and Housing Corporation
CNA	College of the North Atlantic
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CPU	catch per unit effort
CRTC	Canadian Radio-television and Telecommunications Commission
CTSA	Canadian Tourism Satellite Account

Acronym	Description
DARE	Drug Abuse Resistance Education
DCC	Defence Construction Canada
DFA	Department of Fisheries and Aquaculture, Newfoundland and Labrador
DFO	Fisheries and Oceans Canada
DFTA	Designated Flight Training Area
DLRAAI	Deer Lake Regional Airport Authority Inc.
DND	Department of National Defence
e.g.,	for example
EA	Environmental Assessment
EI	Employment Insurance
EIS	Environmental Impact Assessment
FASD	Fetal Alcohol Spectrum Disorder
FPA	Forest Process Agreement
FPSO	Floating Production, Storage and Offloading
GDP	Gross Domestic Product
GIAAI	Gander International Airport Authority Inc.
GNL	Government of Newfoundland and Labrador
ha	hectare
HNL	Hospitality Newfoundland and Labrador
HROA	Historic Resources Overview Assessment
HRSDC	Human Resources and Skills Development Canada
i.e.,	that is
IAT	International Appalachian Trail
IATNL	International Appalachian Trail Newfoundland and Labrador
IEDE / Jacques Whitford	IED Enterprises in partnership with Jacques Whitford Environment Limited
INAC	Indian and Northern Affairs Canada.
INSIFN	Innu Nation and Sheshatshiu Innu First Nation
KKSN	Katherine Kemp and Shaila Nijhowne Consultants
km	kilometre
km ²	square kilometres
LFA	Lobster Fishing Area
LILCA	Labrador Inuit Lands Claim Agreement
LISA	Labrador Inuit Settlement Area
LMN	Labrador Métis Nation
LOA	length overall
LSA	Local Study Area
LSHDC	Labrador Straits Historical Development Corporation

Acronym	Description
m	metres
m ³	cubic metres
MAINC	Ministère des Affaires Indiennes et du Nord Canada
MBC	Marilyn Butland Communications
MCTS	Marine Communications and Traffic Services
mm	millimetre
MMA	Moose Management Areas
MW	megawatt
NAFO	North Atlantic Fisheries Organization
NAP	National Airports Policy
NAS	National Airports System
NATO	North Atlantic Treaty Organization
NCC	NunatuKavut Community Council
NEDC	Nordic Economic Development Corporation
NEQA	Northeaster Québec Agreement
NEWDOCK	St. John's Dockyard
NFD	National Forestry Database
NLCDLI	Newfoundland and Labrador Centre for Distance Learning and Innovation
NLCHI	Newfoundland and Labrador Centre for Health Information
NLDB	Newfoundland and Labrador Department of Business
NLDE	Newfoundland and Labrador, Department of Education
NLDEC	Newfoundland and Labrador Department of Environment and Conservation
NLDEC and NLDNR	Newfoundland and Labrador Department of Environment and Conservation and Department of Natural Resources
NLDEC-L	Newfoundland and Labrador Department of Environment and Conservation, Lands Division
NLDEC-P	Newfoundland and Labrador Department of Environment and Conservation, Parks Division
NLDEC-W	Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division
NLDF	Newfoundland and Labrador Department of Finance
NLDFA	Newfoundland and Labrador Department of Fisheries and Aquaculture
NLDF-ES	Newfoundland and Labrador Department of Finance, Economics and Statistics Branch
NLDHCS	Newfoundland and Labrador Department of Health and Community Services
NLDHRLE	Newfoundland and Labrador Department of Human Resources, Labour and Employment
NLDMA	Newfoundland and Labrador Department of Municipal Affairs
NLDNR	Newfoundland and Labrador Department of Natural Resources

Acronym	Description
NLDNR and NLDEC	Newfoundland and Labrador Department of Natural Resource and Newfoundland and Labrador Department of Environment and Conservation
NLDNR-A	Newfoundland and Labrador Department of Natural Resources, Agrifoods Division
NLDNR-FS	Newfoundland and Labrador Department of Natural Resources, Forestry Services Branch
NLDNR-ME	Newfoundland and Labrador Department of Natural Resources, Mines and Energy
NLDNR-ML	Newfoundland and Labrador Department of Natural Resources, Mineral Lands Division
NLDTCR	Newfoundland and Labrador Department of Tourism, Culture and Recreation
NLDTCR-S	Newfoundland and Labrador Department of Tourism Culture and Recreation, Tourism Statistics
NLDTW	Newfoundland and Labrador, the Department of Transportation and Works
NLDTW and NLDLAA	Newfoundland and Labrador Department of Transportation and Works and Department of Labrador and Aboriginal Affairs
NLEC	Newfoundland and Labrador Executive Council
NLFES	Newfoundland and Labrador, Fire and Emergency Services
NLH	Newfoundland and Labrador Hydro
NLHC	Newfoundland and Labrador Housing Corporation
NLSA	Newfoundland and Labrador Statistics Agency
NNK	Naskapi Nation of Kawawachikamach
NorPen	Northern Peninsula Regional Service Board
NRCan	Natural Resources Canada
NSF	Newfoundland Snowmobile Federation
NSR	Non-scheduled Rivers
PAL	Provincial Airlines.
PAO	Provincial Archaeology Office
PC	Parks Canada
PRAC	Petroleum Research Atlantic Canada
PROS	Police Reporting and Occurrence System
RCMP	Royal Canadian Mounted Police
RED	Regional Economic Development
RNC	Royal Newfoundland Constabulary
ROW	right-of-way
SARA	<i>Species at Risk Act</i>
SCH	Small Craft Harbours
SGMA	Small Game Management Areas
SIFN	Sheshatshiu Innu First Nation
SJIA	St. John's International Airport
SJIAA	St. John's International Airport Authority

Acronym	Description
SJPA	St. John's Port Authority
Ski NL	Ski Newfoundland and Labrador.
STRIVE	Students Taking Responsibility in Violence Education
t	tonnes
TAC	Total Allowable Catch
TC	Transport Canada
TCH	Trans-Canada Highway
TLH#	Trans-Labrador Highway (where # represents the Phase when present)
UA	Unit Area
UNESCO	United Nations Educational, Scientific and Cultural Organization
USDI	United States Department of the Interior
VBNC	Voisey's Bay Nickel Company Limited
VECs	Valued Environmental Components
VTs	Vessel Traffic Service
WHO	World Health Organization

15 EXISTING SOCIOECONOMIC ENVIRONMENT

15.1 Introduction

5 This chapter describes the existing human environment, including each of its associated and relevant components. In doing so, it establishes the current, baseline environmental conditions from which likely Labrador-Island Transmission Link (Project)-related effects will be assessed and evaluated later in the Environmental Impact Statement (EIS).

The chapter focuses on describing the existing environment that overlaps and may interact with the proposed Project, while also recognizing the larger spatial and temporal dimensions and distributions of these socioeconomic components and systems, as well as ensuring appropriate regional context.

10 Given the nature and extent of the Project, study areas vary by component and are identified in each relevant subsection. For those aspects of the socioeconomic environment that are identified as Valued Environmental Components (VECs), specific Environmental Assessment (EA) study areas are defined later to focus and frame the environmental effects assessment (Chapter 16).

15.2 Historic and Heritage Resources

15 The human occupation of Newfoundland and Labrador is long and complex, dating back at least 8,000 years. The sequence begins in Labrador with an initial late Palaeo-Indian / early Maritime Archaic Amerindian occupation in the Strait of Belle Isle (McGhee and Tuck 1975). The early Maritime Archaic people gradually spread north along the coast to reach northern Labrador by 7,500 years before present (BP) (Fitzhugh 1978a, 1972).

20 After 4,000 BP, coastal Labrador was also populated by Arctic-adapted peoples from the north (Cox 1978), and thereafter, the pre-contact period in Labrador (i.e., the period before the arrival of Europeans in North America and “contact” with Aboriginal people) is characterized by Intermediate Amerindian (Nagle 1978) and Late Pre-contact Amerindian occupations - a people demonstrably ancestral to the modern-day Innu (Fitzhugh 1978b), along with Palaeo-Eskimo peoples (Pre-Dorset, Groswater, Dorset), culminating with the arrival of the
25 Thule, ancestors of the modern Labrador Inuit, approximately 700 BP (Fitzhugh 1994; Kaplan 1983).

After approximately 500 BP, Labrador and the Lower North Shore of Québec also became the focus for European activities, initially whaling by Basques in the 16th century (Tuck and Grenier 1989), and fishing, sealing and fur-trading by people from other European countries (Kennedy 1995; McAleese 1991). Trading contact between Europeans on the one hand, and Innu and Inuit on the other, began in earnest with the
30 establishment of the Postes du Roy and the Seigneurie de Mingan on the Québec Lower North Shore in the 17th century, and Fornel's post at Kissessakiou (Hamilton Inlet) in the 18th century (Mailhot 1997; Trudel 1978; Zimmerly 1975).

Through most of the fur trade period, the Innu spent most of each year moving through central and southern Labrador interior hunting and trapping grounds. Throughout this period, the interior remained remote and
35 relatively unknown to Europeans. In Hamilton Inlet in the 18th century, and continuing through most of the 19th century, the parties involved in the fur trade consisted primarily of European traders on the one hand and Innu hunters and trappers on the other. However, by the closing years of the 19th century, the Settler population (the term used until recently to describe people of mixed Aboriginal (usually Inuit but sometimes Innu) and European ancestry) became increasingly involved in fur trapping for trade, and by the early 20th
40 century had largely usurped Innu trapping grounds along the Churchill, Kenamu, Naskaupi rivers and elsewhere (Kennedy 1995; Goudie 1991; Davis 1987; Burt 1980; Rich and Palliser 1980; Ames 1977; Tanner 1977, 1947; McGee 1961).

Archaeological investigations on the Island of Newfoundland, particularly over the last 25 years, have provided
45 a clear, if not yet entirely complete, understanding of the Island's long-term culture history. The initial occupation appears to have occurred late in the Maritime Archaic period, ca. 5,000 BP. The Maritime Archaic

Amerindian occupation followed, after a hiatus of several centuries, by an Early Palaeo-Eskimo (Groswater) occupation, dating to ca. 3,000 to 2,200 BP. This in turn is followed by a distinct Late Palaeo-Eskimo (Middle Dorset) occupation dating to ca. 2,000 to 1,200 BP. Dorset sites in Newfoundland are both larger and more numerous than those of any other period, and although absolute population estimates are impossible to gauge based on current data, the Dorset occupation appears to have been the most extensive and its population levels were probably the highest in the Island's prehistory. It was also the briefest, apparently ending by ca. 1,000 BP.

The final Recent Amerindian occupation (sometimes referred to as the "Recent Indian", or Late Pre-contact Period) began by at least 1,200 BP (or potentially as early as 2,000 BP; see Hartery 2007), and ended with the historically-documented extinction of the Beothuk early in the 19th century. Beothuk sites of the Early Contact Period (A.D. 1,500 to 1,700) have been identified on the Avalon Peninsula (Gaulton 2001; Gilbert and Reynolds 1989), Bonavista Bay (McLean 1994) and in Notre Dame Bay (Pastore 1992). Later historic Beothuk sites (A.D. 1,700 to 1,829) are limited to the Exploits Valley; the final refuge of the Beothuk prior to their extinction in 1829 (LeBlanc 1973; Devereux 1970, 1965).

Newfoundland has had a long history of European settlement, with the earliest being the Norse site at L'Anse aux Meadows, dated ca. 1,000 BP (Ingstad 1970, 1969), a period that archaeologists still generally regard as "pre-historic" in Newfoundland. The intensive European migratory fishery that developed and expanded through the 16th century is well documented by the Basque remains at Red Bay (Tuck and Grenier 1989). The 17th century has recently become a focus of investigation (Gilbert 2000; Tuck 1996). Outside of the Avalon Peninsula, this century is still sparsely documented archaeologically, though there are likely many sites of this period along the coast, pertaining to the English, French and Basque migratory fisheries. Possible 17th century Basque material has been recovered in surveys on the west coast (Schwarz 1994). The 18th century, a period which saw considerable growth in the resident population of Newfoundland, is well-represented at archaeological sites across the Island (Skanes 2004a, 2004b, 1997; Skanes and Reynolds 1996), including Lower Sandy Point, a frontier salmon fishing and trapping station in the Bay of Exploits (Schwarz 1995). The 19th century is similarly well represented but this period, like the 20th century, has yet to attract detailed archaeological investigation. As with archaeology of the Pre-contact Period, and for many of the same reasons, research in historic archaeology has been strongly focused on the coast. Historic European activities in the interior, such as trapping (Schwarz 1995; Pastore 1987) and "winterhousing" (Smith 1987), have not been investigated archaeologically.

For the purposes of this EIS, Historic and Heritage Resources include pre-contact and historic archaeological sites, structural remains and objects, palaeontological materials (i.e., fossils), architectural sites and buildings, and historic and natural sites, as well as burial, cultural, spiritual and other heritage sites and resources.

15.2.1 Study Area

The Study Area for Historic and Heritage Resources focuses on the 2 km wide proposed transmission corridor extending from Muskrat Falls on the Churchill River to the Strait of Belle Isle in southern Labrador, the proposed 500 m wide submarine cable corridor across the Strait of Belle Isle, and the 2 km wide transmission corridor from the landing point on the Northern Peninsula of Newfoundland to Soldiers Pond on the Avalon Peninsula, as well as considering the location of other Project-related components and activities (e.g., access, camps, electrode sites, converter stations). Also included in the Study Area are expanded areas on either side of the Strait of Belle Isle in recognition of their Historic and Heritage Resources potential (Stantec 2010a) (Figure 15.2.1-1). In addition, the larger regional context of the Historic and Heritage Resources, as defined in the previous section, of the province was generally and integrally considered in describing the existing environment for Historic and Heritage Resources, particularly in the vicinity of the Project components.

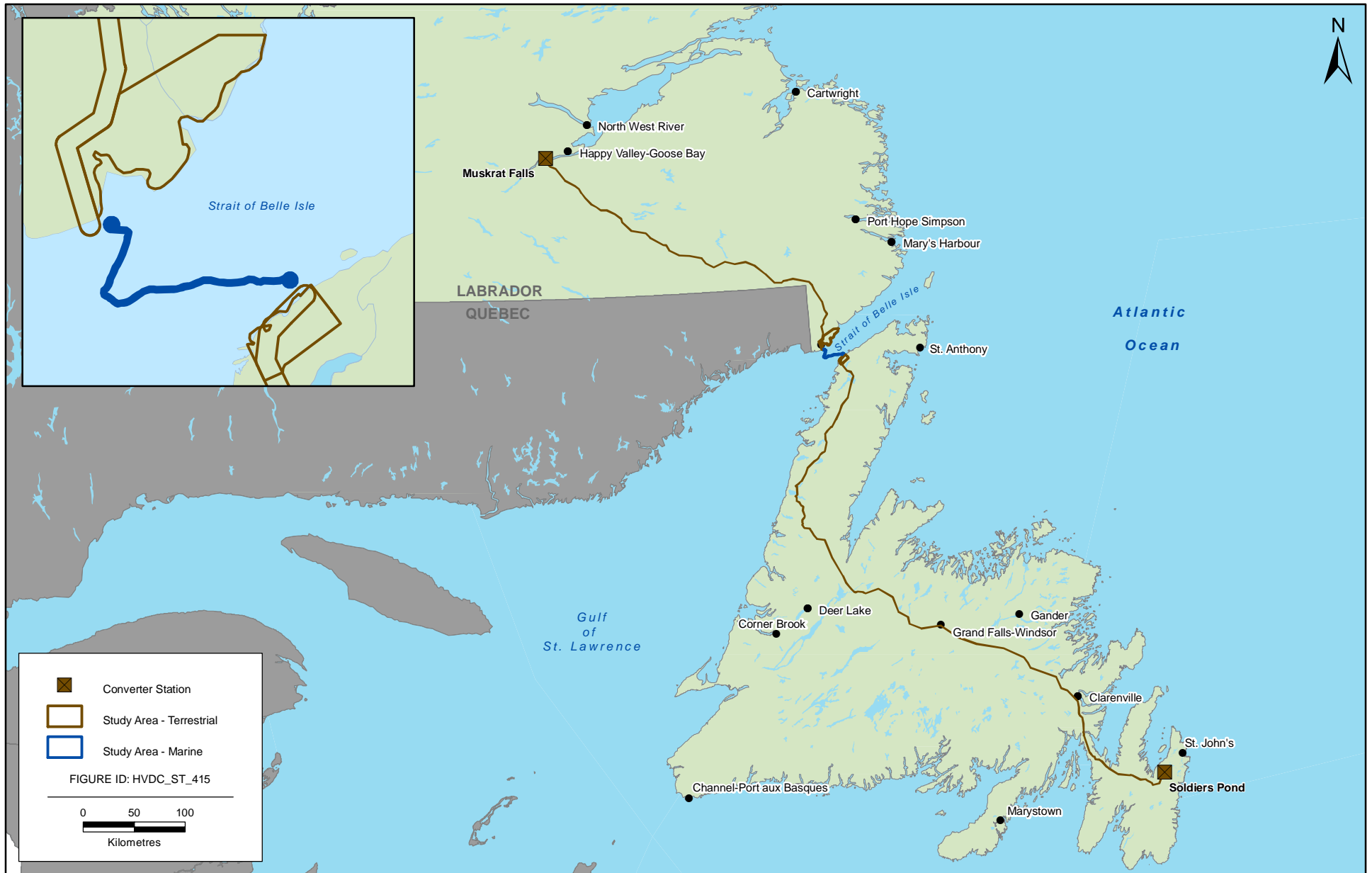


FIGURE 15.2.1-1

15.2.2 Information Sources and Data Collection**15.2.2.1 Archaeological Resources**

The following sources were used to compile information related to Archaeological Resources within the Study Area:

- 5 • the *Historic and Heritage Resources Component Study* (Stantec 2010a), which includes archaeological potential mapping of the Study Area as well as references for all sources consulted;
- the *Historic and Heritage Resources Component Study Supplementary Report* (Stantec 2011a), which updates the information contained in the above noted Component Study to accommodate changes in the corridor within the Labrador portion of the Study Area, beginning at Muskrat Falls;
- 10 • the *2011 Historic and Heritage Resources Assessment and Potential Mapping: Strait of Belle Isle Cable Landing Sites and Shore Electrode Locations* (Stantec 2011b);
- published and unpublished archaeological reports and historical sources, including Stopp (2000), Auger and Stopp (1989), Renouf (1977, 1976), Madden (1976), McGhee and Tuck (1975), and Harp (1963);
- 15 • the Archaeological Site Record Inventory and Site Record Forms at the Provincial Archaeology Office (PAO) used to gather data regarding any sites registered for (or adjacent to) the Study Area;
- Project mapping and aerial photography used to identify areas of Historic and Heritage Resources potential for subsequent ground testing; and
- field surveys of the Study Area, undertaken by Nalcor Energy (Nalcor) in relation to the Project, as well as in relation to the proposed Lower Churchill Hydroelectric Generation Project, specifically:
 - 20 – *Historic and Heritage Study Pre-Fieldwork Overview Assessment*. (Jacques Whitford 2008): this study outlines research results of a Pre-Fieldwork Overview Assessment undertaken to identify and assess the Historic and Heritage Resources potential of the Study Area (as defined at that time), and to help plan fieldwork activities scheduled for that year. Preparation of the overview assessment report involved a review of archaeological, ethnographic, ethnohistoric, historic, theoretical literature and topographic mapping. Based on the results of the research, which included a review of relevant data
 - 25 gathered as part of the Lower Churchill Hydroelectric Generation Project, it was determined that little new fieldwork would be required for the current Project in Labrador. The 2008 field study therefore focused on the portions of the transmission corridor in Newfoundland. In addition, a study of the palaeontological potential of the Study Area in Labrador and Newfoundland was completed.
 - 30 – *Background Information Related to Proposed Geotechnical Drilling Program, Strait of Belle Isle, Newfoundland and Labrador* (Stantec 2009): this study involved a review of background information related to locations where geo-technical drilling was proposed to occur along the Strait of Belle Isle in southern Labrador and on the Northern Peninsula of Newfoundland.
 - *Final Report, Stage 1 Historic and Archaeological Resources Assessment, Strait of Belle Isle Area* (Stantec 2010b): this report discussed the archaeological findings of a Stage 1 Assessment completed
 - 35 at six locations in the Strait of Belle Isle for proposed drilling activities, including Point Amour and Fox Cove in southern Labrador; and Green Island Cove, Shoal Cove, Savage Cove and Yankee Point on the Northern Peninsula of Newfoundland. At Fox Cove, archaeological remains dating to the Pre-contact Period were identified. Findings included chipping debris from stone tool manufacture and what appeared to be the working end of a ground stone tool. Also identified at Fox Cove were remains of a
 - 40 stone quarry possibly associated with construction of the Pointe Amour lighthouse in the 1850s. On the Northern Peninsula, one historic site of possible 19th century origin was identified at Green Island Cove.
 - *Churchill River Power Project 1998 Environmental Studies-Historic Resources Overview Assessment, Labrador Component (LHP 98-17)* (IEDE / Jacques Whitford 2000): this effort had a widely-defined
 - 45

study region that encompassed all of southern and central Labrador and portions of adjacent Québec. Research included reviews of archaeological, historic, ethnographic and ethnohistoric literature and data, as well as data on Labrador Innu land-use and geomorphology. Site inventory analysis was undertaken in 1998 in order to identify strategic, high-potential locations. Field surveys were also completed.

- 2006 *Historic Resources Overview and Impact Assessment of Muskrat Falls Generating Facility and Reservoir and Muskrat Falls to Gull Island Transmission Line Corridor* (LCP 535865 / 866) (Minaskuat Inc. 2008): this study presents information collected as part of the Lower Churchill Hydroelectric Generation Project, but is directly applicable to the current Project in that it includes discussion of testing locations lying within or in close proximity to the proposed transmission corridor.

Data collection methods used in relation to Archaeological Resources extends over a 13-year period (1998 to 2011) and includes:

- a literature review of published and unpublished sources, including archaeological reports and ethnographic, ethnohistoric, historic and theoretical literature;
- a review of contemporary and historic land-use data;
- a review of the Archaeological Site Record Inventory on file with the Provincial Archaeology Office (PAO);
- land-form analysis, including aerial photograph and topographic map analyses;
- geomorphologic research;
- archaeological potential mapping;
- archaeological field surveys and assessments within the Study Area in Labrador and Newfoundland (as referenced in the previous section); and
- surveys of the seabed corridor and electrode sites in the Strait of Belle Isle in 2007, 2008, 2009 and 2011 for the purpose of assessing and quantifying marine fauna, flora and fish habitat characteristics as well as to identify any materials of anthropogenic origin and / or significance.

A Stage 1 Historic Resources Overview Assessment (Stage 1 HROA) was completed for the Project (Jacques Whitford 2008). The primary objectives of the Stage 1 HROA were to undertake background research, field surveys and archaeological potential mapping to build on existing data (Penney 2002; Tuck 1979) and augment the information for the Study Area to meet all requirements for the EA of the Project. The Stage 1 HROA was carried out under permit from the PAO and in accordance with provincial guidelines (Government of Newfoundland and Labrador (GNL) 1992), and focused on identifying and assessing the Historic and Heritage Resources potential or sensitivity in the Study Area (Stantec 2011b, 2010a) (see Section 16.2 for maps). For the archaeological potential mapping, empirical data on archaeological testing effort and site frequency were employed to map defined zones of High, Medium and Low potential within the Study Area. The results of the field surveys and archaeological potential mapping of the Study Area are used in the EA and will be used in planning the final routing and placement of Project components, including the eventual selection of a specific route for the proposed transmission and electrode lines.

Field surveys completed between 1998 and 2009 on behalf of Nalcor and as referenced above, investigated 457 testing locations, of which 436 with archaeological potential were assessed on the ground. Twenty-one areas originally selected for ground survey were assessed by aerial inspection only, as topographic conditions (i.e., sloped, boggy) downgraded the archaeological potential to Low and no testpitting was warranted. Of those assessed on the ground, 119 were investigated by visual inspection only, and 15,095 test pits were excavated at the remaining 317 testing locations, for an average of 48 test pits per sub-surface testing location. Of this total, 3,695 testpits and 199 ground testing locations were within the current Study Area (Stantec 2010a).

All field surveys undertaken for the Project were completed with the necessary permitting in place from the PAO. In accordance with PAO guidelines, Site Record Forms were filed for all archaeological and ethnographic sites identified, and reports on the research were completed and submitted to the PAO as required under conditions of the Archaeological Investigation Permit.

5 In addition to the above, in 2007, Fugro Jacques Geosurveys Inc. conducted a detailed bathymetric survey of the Strait of Belle Isle on behalf of Nalcor to verify the seabed conditions and aid in the eventual planning and design of the submarine cable corridors. Prior to survey operations, information on the natural and human environments in and around the Strait of Belle Isle was identified and compiled. The objective was to bring together all known existing information concerning the geology, bathymetry, oceanography, ecology, fisheries, archaeology and other aspects of the Strait of Belle Isle. This study also involved mapping these and other environmental phenomena and constraints, including known and suspected historic resources and shipwrecks in the Strait of Belle Isle. Following completion of the desktop analyses, detailed sub-sea sonar surveys of the general crossing area and identified corridors were undertaken in the fall of 2007, including side-scan sonar, multi-beam and sub-bottom profile surveys. The 2007 sonar surveys provided detailed information on two proposed 500 m-wide sub-sea High Volume direct current (HVdc) cable corridors. The survey operation was carried out by an offshore vessel travelling over a pre-selected survey grid with appropriate line spacing. A total of 840 km of geophysical survey lines were surveyed.

Side-scan mosaics were generated at 1 m (nearshore) and 2 m (offshore) spatial resolutions for interpretation and corridor analysis. Interpretations were validated against original side scan data at full resolution using Caris SIPS software so that, on average, objects of approximately 0.5 m in size could be identified. All survey results were analyzed and processed, and geologists formulated a description of the sub-sea corridor conditions by interpreting the findings of all three different survey results. In addition, registered archaeological remains situated along the shoreline within the Study Area were plotted on Project constraints mapping, as were the general locations of a number of shipwrecks reported for the Strait of Belle Isle.

25 In 2008, AMEC Earth & Environmental (AMEC) conducted a marine field study to collect information on the seafloor characteristics along two proposed Strait of Belle Isle submarine cable crossing corridors. The 2008 marine survey was completed using a 55' longliner vessel from which a drop video system was deployed. The drop video was used to collect video footage of the seafloor along pre-determined transects within each of the two submarine cable corridors. Due to the shallow depths of the nearshore area on the Newfoundland side, the drop video system was not able to be used. For this shallow (<30 m depth) nearshore area, a 2009 underwater video survey was performed with a smaller vessel and a team of surface-supply divers covering an additional 2.8 km within the two corridors on the Newfoundland side of the Strait. The underwater video resulting from the 2008 and 2009 marine surveys was subsequently reviewed and analyzed in detail for the purpose of assessing and quantifying marine fauna, flora and fish habitat characteristics along the proposed submarine cable corridors, as well as to determine if any objects of anthropogenic origin and significance were detectable within the corridors.

Underwater surveys were conducted by Sikumiut Environmental Management Ltd. at two proposed shore electrode sites at L'Anse au Diable and Dowden's Point, and the corridor segment to Shoal Cove (Sikumiut 2011a and 2011b). Both of these surveys were completed using a drop video system. The video was reviewed and analyzed in detail for marine flora and fauna, and fish habitat characteristics. It was also reviewed to determine if any objects of anthropogenic origin and importance were present.

45 In 2011, Stantec Consulting Ltd. conducted a detailed historic and heritage resource assessment at the proposed Strait of Belle Isle cable landing sites at Forteau Point (Labrador) and Shoal Cove (Newfoundland), and at the identified shore electrode locations at L'Anse au Diable (Labrador) and Dowden's Point (Newfoundland). Field assessment involved compiling data on previously recorded archaeological and contemporary sites, as well as visual reconnaissance and sub-surface testing and concluded with archaeological potential mapping. The results of the surveys and archaeological potential mapping are used in the EA and will be used in planning the final routing and placement of Project components.

15.2.2.2 Palaeontological Resources

The following sources were used to compile information related to Palaeontological Resources within the Study Area:

- *Historic and Heritage Resources Component Study* (Stantec 2010a);
- 5 • *Historic and Heritage Resources Component Study Supplementary Report* (Stantec 2011a);
- literature and resources, including Handcock and Skinner (2000), Bergstrom et al. (1997), Landing and Benus (1994) and Barnes (1988); and
- digital geological mapping of the Study Area obtained from Newfoundland and Labrador Geoscience Atlas (Newfoundland and Labrador Department of Natural Resources (NLDNR) 2010a, internet site).

10 Under the current regulatory framework, no fieldwork was required or completed for the Palaeontological Resources component of the *Historic and Heritage Resources Component Study* (Stantec 2010a). Therefore, to assess the likelihood of Project interactions with any resources that might be present within the Study Area, a review of published and unpublished sources and the relevant geological mapping (superimposed over 1:50,000-scale Project mapping) was completed to help establish the palaeontological (i.e., fossils) potential of the transmission and potential electrode line corridors, and the regional areas on either side of the Strait of Belle Isle.

To predict areas of potential for Palaeontological Resources within the Study Area, data from detailed studies of known geological outcrops, which have laid the foundation for knowledge of the age and structure of the geology in Newfoundland and Labrador, were examined. In particular, this included:

- 20 • the study of the structure of Newfoundland in the development of the Theory of Plate Tectonics where fossils determined which fault system was the suture in the Iapetus Ocean (Handcock and Skinner 2000); and
- the identification of the position of the World-wide Gold Spike at the systemic boundary between the PreCambrian and Cambrian systems (Landing and Benus 1994) and the Gold Spike at the boundary between the Cambrian and the Ordovician systems (Bergstrom et al. 1997; Barnes 1988).

30 These studies were used to demonstrate how and where major fossils have been found and the potential for them to occur within the Study Area. The Study Area traverses inland portions of the province for major sections of the corridor. Inland portions of the province are not as well mapped or studied for Palaeontological Resources unless they are adjacent to areas of natural outcrops such as riverbeds, outcrops exposed as a result of human activity (i.e., road construction and other excavations), or have been the object of geological mapping. Therefore, targeting locations within the Study Area that hold particular potential for Palaeontological Resources was based on knowledge of similar geological formations in other areas of the province that are known to support fossils.

35 The results of the Palaeontological Resources research are presented in Section 3.4 of the *Historic and Heritage Resources Component Study* (Stantec 2010a).

15.2.2.3 Architectural Resources

The Newfoundland and Labrador's Registered Heritage Structures digital information collection maintained by the Heritage Foundation of Newfoundland and Labrador was searched for registered sites (Newfoundland and Labrador's Registered Heritage Structures 2010, internet site).

40 15.2.3 Archaeological Resources

Archaeological Resources are those of historic, cultural, spiritual, natural, scientific and aesthetic importance. This includes, for example, campsites, stone tool workshops and burial sites dating to the Pre-contact Period, as well

as sites from the Historic Period associated with the fishery, fortifications or trading. Archaeological Resources are non-renewable and, in many cases, the resources themselves and the information and cultural importance they contain cannot be replaced if damaged or destroyed. Archaeological Resources are valued intrinsically and for the information they can provide on Pre-contact and historic human activities in the province.

- 5 The protection and management of Archaeological Resources in Newfoundland and Labrador is the responsibility of the PAO of the Newfoundland and Labrador Department of Tourism, Culture and Recreation (NLDTCR). The PAO administers its mandate through the Newfoundland and Labrador *Historic Resources Act* (1985), which has its own distinct regulatory requirements.

On-land Archaeological Sites – Labrador

- 10 The 115 archaeological sites that are registered with the PAO within the Study Area in Central and Southeastern Labrador are presented in Figure 15.2.3-1. Twelve of these sites were identified during field surveys conducted by Nalcor between 1998 and 2011: four are likely campsites and seven sites of unconfirmed function (but appear to be locations where stone tools were manufactured) dating to the Pre-contact Period. Evidence indicates that the twelfth site dates to the Historic Period (i.e., the 19th century) and results from rock
- 15 quarrying required for construction of the Pointe Amour Lighthouse (see Figure 15.2.3-1). Ten of the twelve sites identified by Nalcor are situated along the coast of the Strait of Belle Isle in a region long known for its high archaeological potential (McGhee and Tuck 1975). The remaining 92 sites in the Study Area at the Strait of Belle Isle (the majority of which contain Pre-contact Period Aboriginal artifacts) were registered by other researchers not connected with the Project. Details regarding all the archaeological sites identified by Nalcor's
- 20 study team are provided in the *Historic and Heritage Resources Component Study* (Stantec 2010a) and the *Historic and Heritage Resources Component Study Supplementary Report* (Stantec 2011a). There is no background information or archaeological evidence of cultural or spiritual sites for the Study Area in Labrador (Armitage 2010), although one Maritime Archaic Amerindian burial dating to ca. 7,500 BP is known for the Study Area at Pointe Amour (McGhee and Tuck 1975).

25 Marine Archaeological Sites

Within the Strait of Belle Isle, only one marine archaeological site – the remains of the HMS Raleigh – had been registered with the PAO. This site (EiBf-30) is scattered along at least 1 km of shoreline and large segments of the wreckage are situated within the Study Area (Figure 15.2.3-2). Other shipwrecks in the Strait have not been registered by the PAO as archaeological sites (PAO Site Record Inventory).

30 On-land Archaeological Sites – Newfoundland

- In Newfoundland, there are eleven archaeological sites registered with the PAO within the Study Area (Figure 15.2.3-3). Seven of these were identified during field surveys commissioned by Nalcor between 1998 and 2011: two sites date to the Historic Period, four are Pre-contact Period Aboriginal sites, and one is of an undetermined period and cultural affiliation (Stantec 2010a). The remaining four sites situated within the
- 35 Newfoundland Study Area were discovered by other researchers (e.g., Ingstad 1970) and include two Pre-contact Period sites and two sites dating to the Historic Period (for a description of these sites see Stantec 2011b, 2010a).

- Archaeological potential was mapped and presented in Stantec (2011a, 2010a) for the transmission corridor. Additional archaeological potential mapping is presented in Stantec (2011b) for the proposed cable landing
- 40 sites and the shore electrode sites. The potential mapping will be used in planning the final routing and placement of Project components.

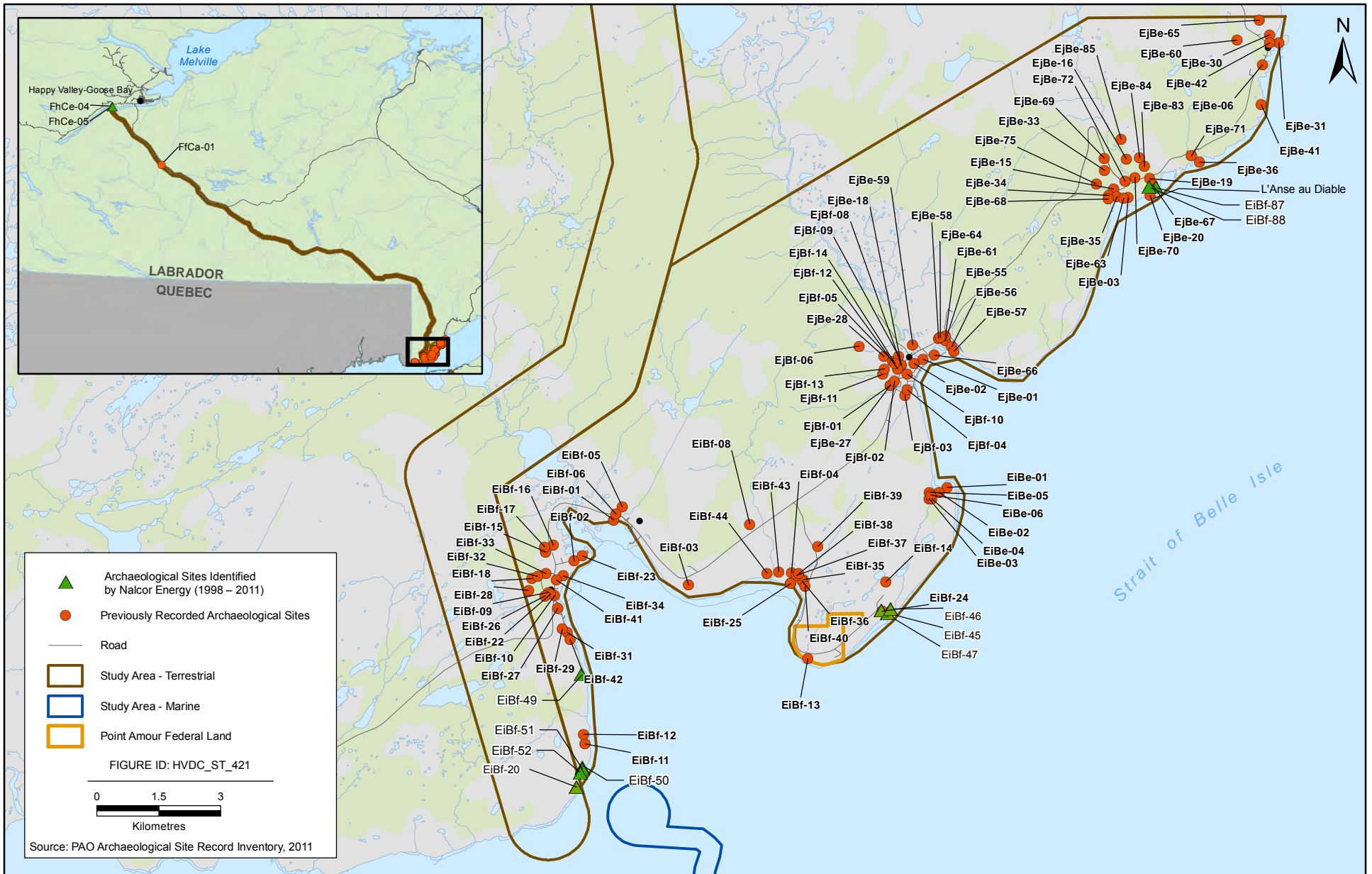


FIGURE 15.2.3-1



Archaeological Resources: Study Area, Labrador

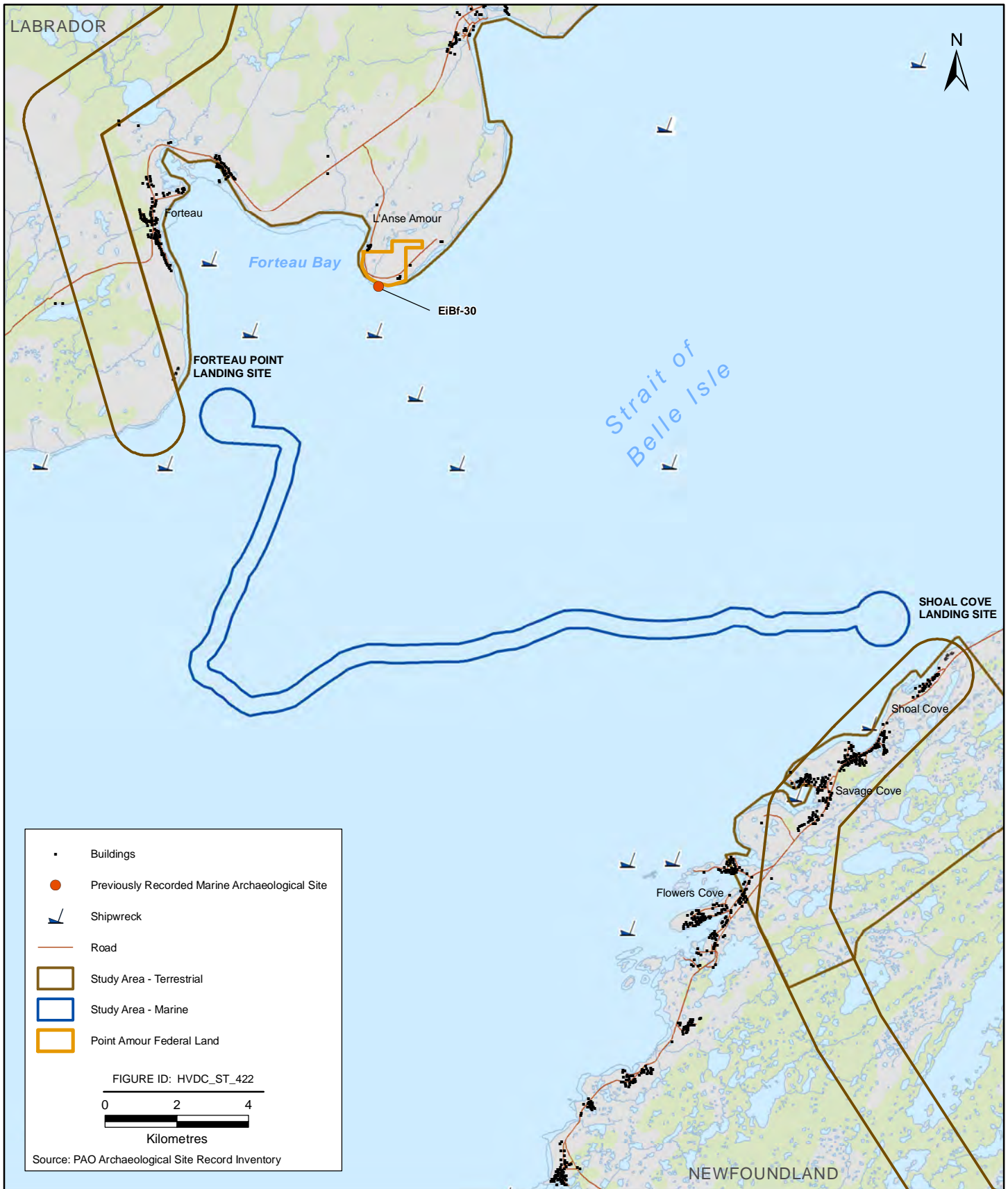


FIGURE 15.2.3-2

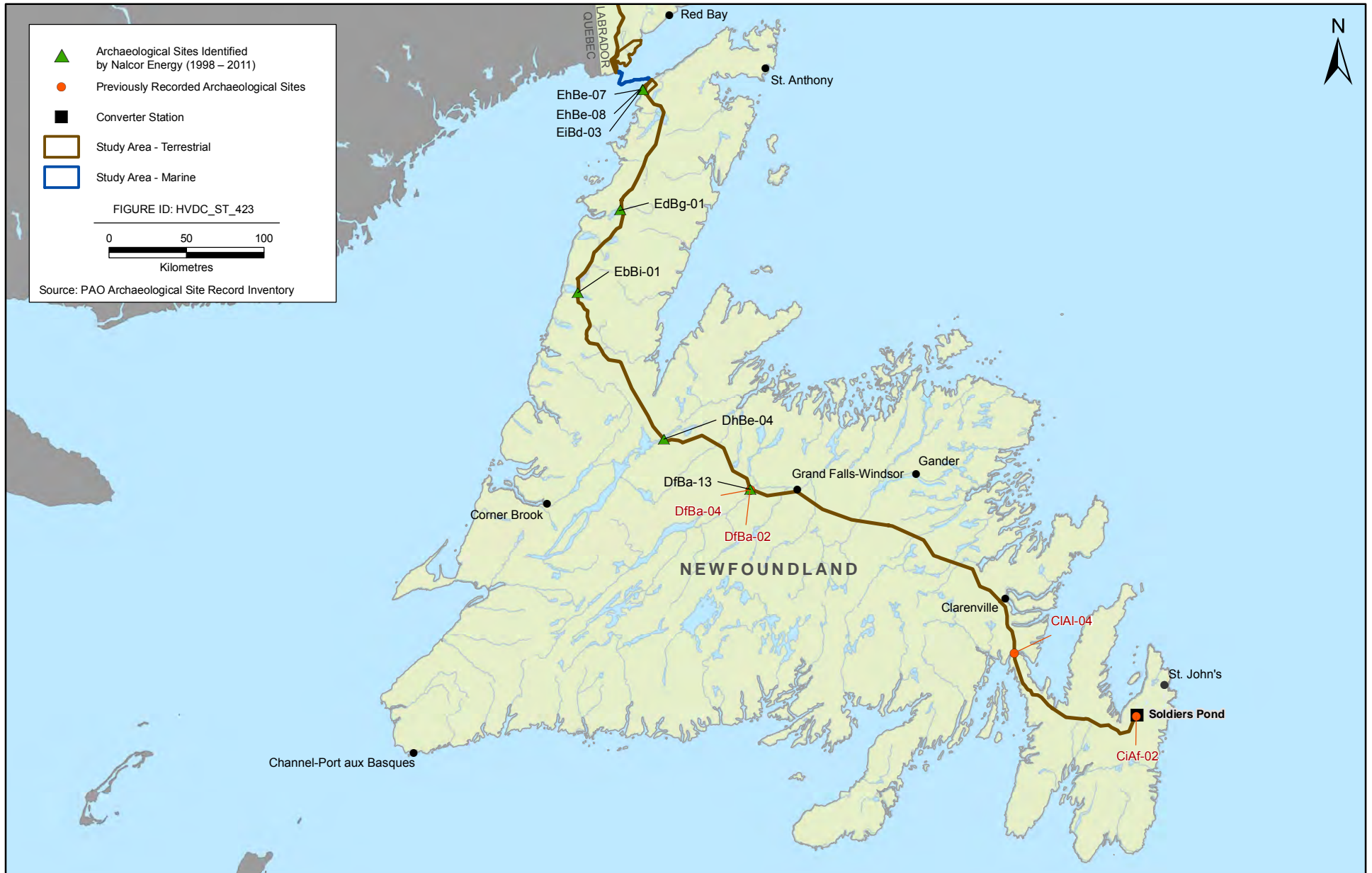


FIGURE 15.2.3-3



Archaeological Resources: Study Area, Island of Newfoundland

Archaeological potential for the transmission corridor was mapped and is presented in the environmental assessment reports (Stantec 2011a, 2010a). In Labrador, areas with High archaeological potential along the corridor were identified and included the crossings of several streams, including the Traverspine, Kenamu and St. Augustine rivers, as well as several large ponds. Two of these ponds have known Innu toponyms: *Mush-nipi* and *Tshiashku-nipi*. *Mush-nipi* has served as an Innu Outpost Program camp location. Areas of High archaeological potential were also identified in the Muskrat Falls area and the Strait of Belle Isle area.

In Newfoundland, several areas of High archaeological potential were identified along the transmission corridor. Areas of High archaeological potential were highest in strategic locations on the banks of major rivers, preserved marine or riverine terraces in strategic locations and along coastal plains, including on the Northern Peninsula, in the Strait of Belle Isle area. Detailed mapping of archaeological potential is provided in the component studies (Stantec 2011a, 2010a).

Archaeological potential was mapped for the Study Area at the two proposed cable landing sites and the shore electrode locations. Forteau Point and L'Anse au Diable study areas both contain areas of High and Moderate archaeological potential. The Shoal Cove study area contains small areas of High and Moderate Potential and the study area at Dowden's Point was rated as Low potential (Stantec 2011b).

Sites of Cultural and Spiritual Importance

As part of the *Historic and Heritage Resources Component Studies* (Stantec 2010a, b), no background information or archaeological evidence of burial, cultural or spiritual sites for the Study Area in Newfoundland were identified. However, areas of special significance have been identified in Labrador based on ongoing consultation activities with Aboriginal groups. Information on areas of Cultural Significance in either the transmission corridor or in the Study Area, have been identified for Innu Nation and Pakua Shipi. Any information and data obtained from ongoing mapping and the finalization of reports from NunatuKavut Community Council (NCC) and Unamen Shipu will be considered and incorporated, where relevant, including the potential for mitigation and adaptive management during detailed design and routing.

Armitage (2010) described places of Cultural Significance to Innu Nation, including birth, burial, death and gathering places, places of religious significance, one place of historical significance, shaking tent ceremony locations and the location of the Land-based Family Treatment Programme camp.

Three features fall within the Study Area, and potentially within the proposed transmission corridor. *Manitu-utshu*, or the rock knoll, located on the north side of Muskrat Falls and within the proposed transmission corridor, is considered by Innu Elders to be the home of giant otter-like beings known as *Uenitshikumishiteu*. One birth place was recorded within about 10 km of Muskrat Falls. The location of a former shaking tent ceremony was at Muskrat Falls. The last shaking tent ceremony took place in 1969.

Birth and gathering places, shaking tent locations and one place of religious significance were recorded along the Churchill River between Gull Island and Muskrat Falls. In the Happy Valley-Goose Bay and Mud Lake areas, death and gathering places, burial grounds as well as one place of religious significance and one shaking tent location were noted. Approximately 65 km east the transmission corridor, near Carter Basin and Gibeon Point in Happy Valley-Goose Bay, Armitage (2010) recorded birth and death places, burial grounds, places of religious significance and a shaking tent location. East and south of this area many birth places and burial grounds were recorded, as well as one location marking a death, one shaking tent location and three places of religious significance. Another place of religious significance was situated further south and east, approximately 30 km the transmission corridor (Armitage 2010).

Other places of religious importance, gathering places, birth places and shaking tent locations were recorded between Sheshatshiu and Happy Valley-Goose Bay, along the Trans-Labrador Highway Phase 1 (TLH1) toward Churchill Falls, and near Muskrat Falls (Armitage 2010; Armitage 2008).

Place names are an important part of the use, occupation, history and meaning of a landscape, as they act as links between physical landforms and cultural events passed down in oral traditions including myths, cultural

histories and personal biographies (Armitage 2010). In addition to the ponds noted above, the Labrador Innu have many place names for topographic features situated throughout their traditional territory (Armitage 2010, Innu Nation and Sheshatshiu Innu First Nation (INSIFN) 2008) which have been noted on Map 15 of the Armitage (2010) Report.

5 During the interviews conducted with Pakua Shipi community members in 2010, four birth places and five burial grounds were identified. One of the burial grounds identified is located near the area where the St. Paul River overlaps with the transmission corridor in the Study Area. This polygon is identified as a cultural site on the map of Current Land and Resource Use in the Aboriginal Communities and Land Use Component Study.
10 Two other places of Cultural Significance which fall within the Study Area are northeast of the St. Augustin River, just east of the transmission corridor in the Study Area. Additional data on places of cultural significance are being collected as part of the Phase II Agreement and will be considered, as relevant, once available.

Places of cultural significance identified during interviews with members of NCC during 2011 as a part of the Phase II Community Engagement Agreement were not near the transmission corridor or other Project-related components (see Section 15.5.7, Figure 15.5.7-3a).

15 15.2.4 Palaeontological Resources

Palaeontological Resources refer to any fossilized traces or imprints of organisms preserved in or on the Earth's crust that provide information about early life on Earth. They are non-renewable and are of both scientific and educational value. The ability to assess and seek to avoid negative interactions with Palaeontological Resources is contingent upon the understanding of their occurrences and distribution, both
20 geologically and geographically. Palaeontology enhances the knowledge and understanding of the history of the environment by interpretation of the evolutionary relationships of organisms and ultimately a deeper understanding of biodiversity. The study compliments the understanding of Historic and Heritage Resources by providing information and data to place fossilized remains in a biological and geological context (Stantec 2010a). Similar to Archaeological Resources, the protection and management of Palaeontological Resources in
25 Newfoundland and Labrador is the responsibility of the PAO of the NLDTCR. The PAO administers its mandate through the Newfoundland and Labrador *Historic Resources Act* (1985).

Fossils are normally found in sedimentary rocks (Blatt and Tracy 1994) because, unlike most igneous and metamorphic rocks, they form at temperatures and pressures that do not destroy the original organic material. The sedimentary rocks of Newfoundland and Labrador, often fossiliferous, were deposited during the late
30 Precambrian and Paleozoic eras, between approximately 585 and 280 million years ago (Blatt and Tracy 1994).

Unlike archaeological materials that are typically localized and exist at or near the surface, fossils are distributed throughout geological formations that frequently cover vast areas. As there may be vast fossil-free areas within a given fossil-bearing deposit, and since fossiliferous materials may be buried beneath metres of glacial overburden and vegetation (and sometimes other rock), surface disturbance in an area of high potential
35 may not encounter fossil remains.

As a result of these factors, it is difficult to determine if a rock type within the Study Area has the potential to contain fossils. For example, even though segments of the Study Area on the Northern Peninsula cross fossil-bearing sedimentary rock types, without previous palaeontological field studies or incidental disturbance in the area occasioned by road construction for example, it is not possible to state that specific locations contain
40 fossils. However, details provided above and in the *Historic and Heritage Resources Component Study* (Stantec 2010a) on the geological parameters that are conducive to the formation of fossils were used to indicate where within the Study Area there is "potential" for their occurrence.

15.2.4.1 Labrador

45 Consideration of the potential for Palaeontological Resources to occur in the Study Area in Central and Southeastern Labrador is based largely on Wardle et al. (1997). The Study Area includes lands underlain by igneous rocks that make up the core of the North American continent. The only sedimentary rocks (i.e., those

- with some potential for Palaeontological Resources) within the portion of the Study Area near the Churchill River are sandstone and conglomerate strata of the Neoproterozoic Double Mer Formation. The Double Mer Formation is a continental deposit in which a massive amount of material accumulated quickly in a rift valley. As all evidence of early life is restricted to ocean contexts, the palaeontological potential of this continental deposit is negligible and fossils have not been recorded here (Gower 1986; Williams et al. 1985, internet site) and the likelihood that such resources are present is low. Other than stromatolites that are formed by cyanobacteria and are found through most of the PreCambrian deposits, the only fossils reported from this area of Labrador are those of Cretaceous cover rocks found in the Labrador Trough, well to the north of the Study Area (Wardle et al. 1997).
- 10 With the exception of the sedimentary rocks near the Churchill River, the portion of the Study Area from Muskrat Falls to the south Labrador coast passes over Precambrian or very early Cambrian rocks. Bedrock along the transmission corridor is comprised mainly of coarse-grained intrusive igneous and high-grade metamorphic rocks, generally described as granites and gneisses, respectively (Gower 1986). These rocks are not considered to be a fossil host.
- 15 Where the Study Area crosses the south Labrador coast, it passes through the Forteau Formation near L'Anse Amour. Outcrops of red limestone situated along the cliffs at the upper end of the beach and just offshore at L'Anse Amour are the site of rare reef-building fossils referred to as Archeocyathids (Dubrenne and James 1981; James and Dubrenne 1980a; Fong 1967) (Figure 15.2.4-1). Archeocyathids are an extinct group of sponges that diversified into hundreds of species during the Lower Cambrian period, with some of these species contributing greatly to the creation of the first reefs. They are the first reef-building fossils to appear in geological time other than cyanobacteria (James and Dubrenne 1980b; James and Kobluk 1978). The Archeocyathids at L'Anse Amour are of additional importance because, as opposed to other locations in the world where these fossils have been found, they occur in southern Labrador in the same position in shallow water just offshore in which they would have originally grown (Dubrenne and James 1981; James and Dubrenne 1980a; Fong 1967). Note that for the most part, these fossils occur on federal land, and there is overlap with the Study Area past the eastern boundary of federal government property (Figure 15.2.4-1).
- 20
- 25

15.2.4.2 Newfoundland

- On the Northern Peninsula of Newfoundland, approximately 5 km south of the Study Area at Flower's Cove, there are outcrops of thrombolites (large algal mounds) that can be seen on both sides of this bay (Colman-Sadd and Scott 1994; Kennard and James 1986). The Study Area inland of the Strait of Belle Isle crosses many areas covered by bog, where no fossils have been reported (Stantec 2010a).
- 30

In Central and Eastern Newfoundland, the Study Area crosses mostly metamorphosed quartz-rich siliciclastic and intrusive igneous rock formations. These formations rarely contain fossils and a search of the literature produced no evidence of fossils near the Study Area (Stantec 2010a).

- 35 Near the community of Chapel Arm on the Avalon Peninsula and within the Study Area (Figure 15.2.4-2), there is an outcrop containing "small shelly fossils" of unknown affinity (Landing et al. 1988). Although other outcrops of fossils occur on the Avalon Peninsula, including the well-known Precambrian fossils of Mistaken Point, they are far outside the Study Area (Misra 1969).

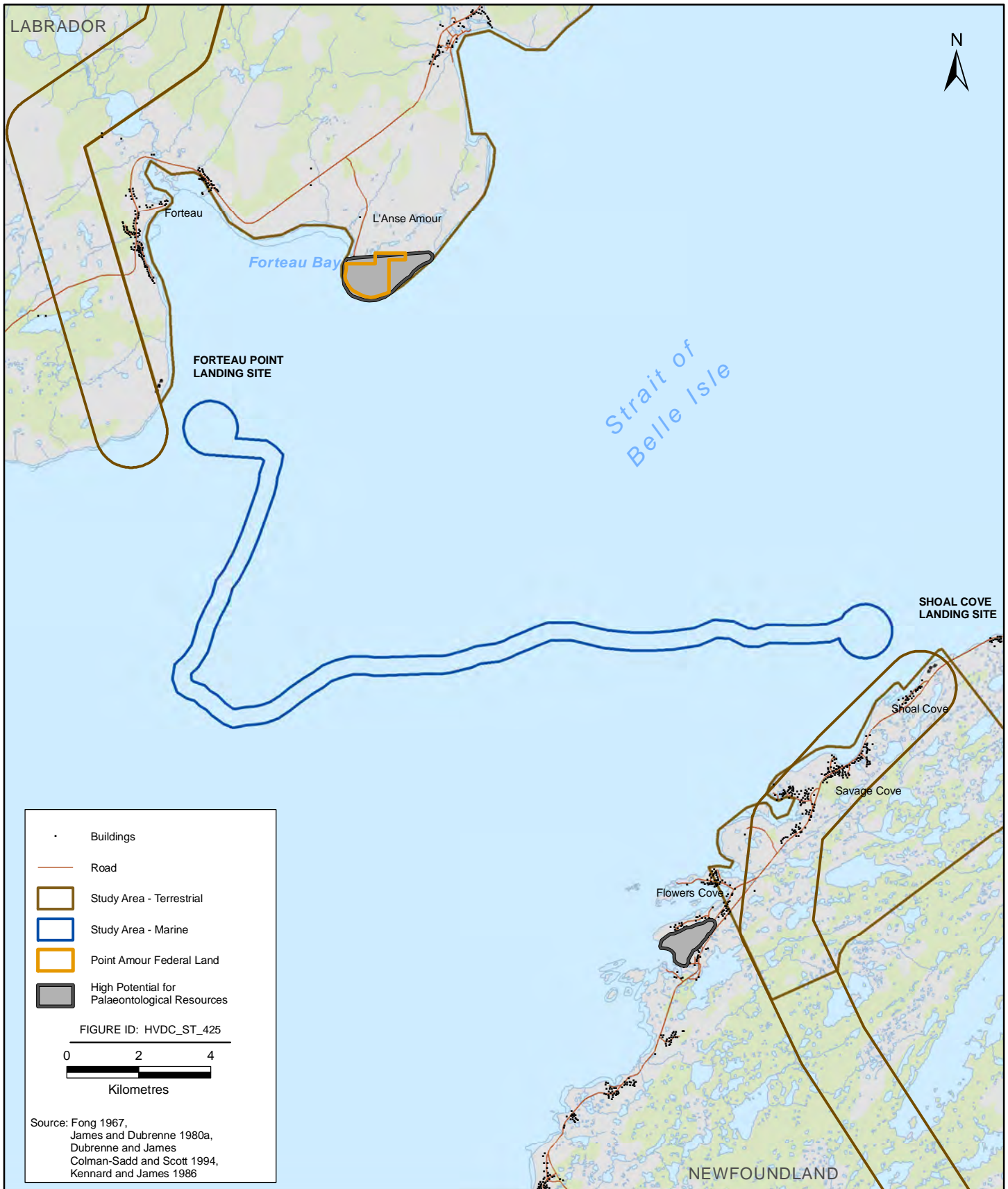


FIGURE 15.2.4-1

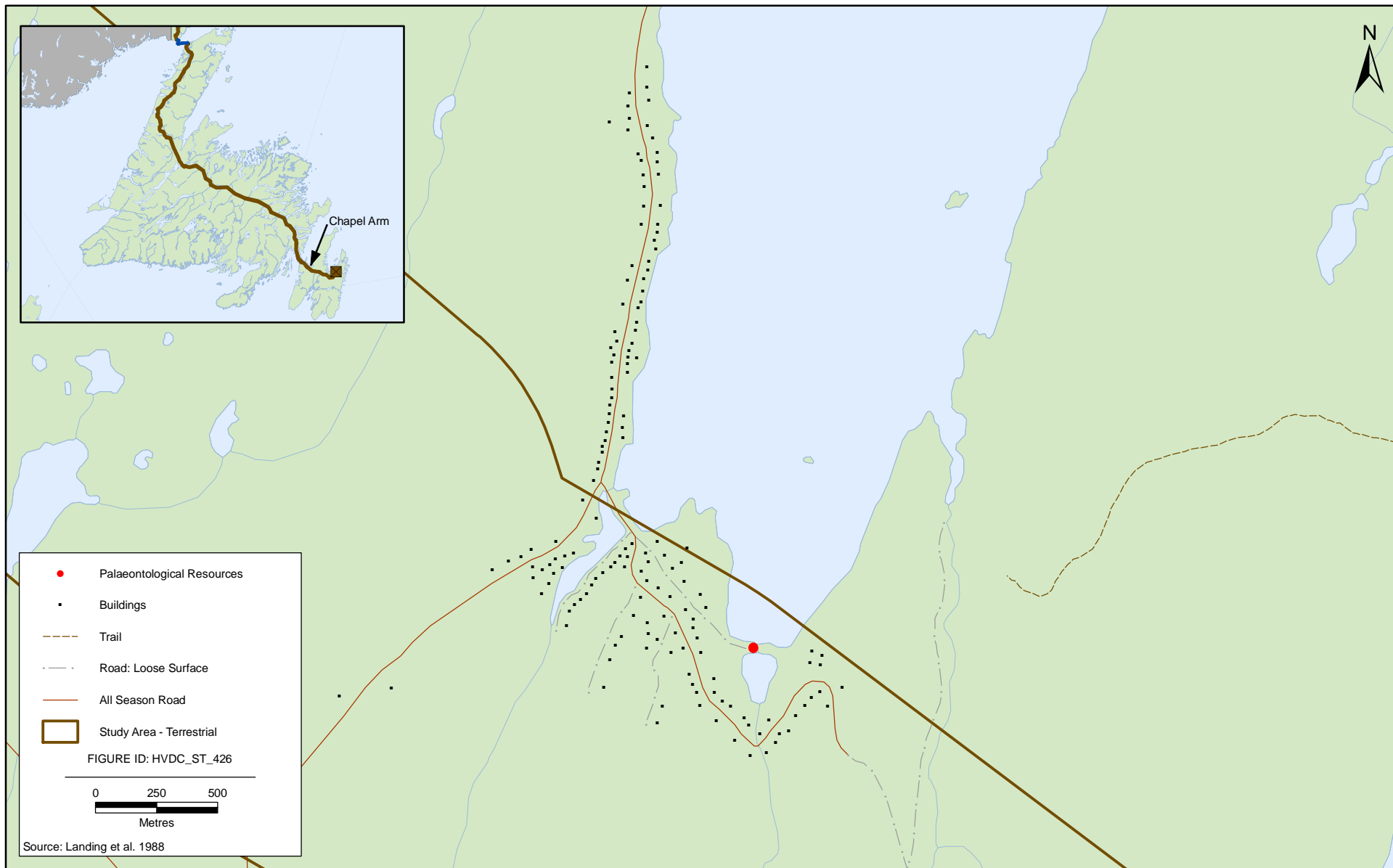


FIGURE 15.2.4-2



Palaeontological Resources Study Area and Recorded Resources: Island of Newfoundland

15.2.5 Architectural Resources

5 Architectural Resources include buildings, monuments or other structures, and parcels of land or landscapes considered to be of historical or architectural significance (*Historic Resources Act* (1985)). Architectural Resources are valued by the public at large for their unique architectural characteristics and evidence they provide on the use of local building materials and local expertise. They are also valued for the contribution they make to architectural studies and tourism based on built heritage.

10 Architectural Resources are not protected under provincial legislation, although there are provisions in the *Historic Resources Act* (1985) to protect buildings and / or landscapes designated as Provincial Historic Sites (*Historic Resources Act* (1985): available on PAO internet site). Even though buildings, structure or sites can be commemorated and registered with the Heritage Foundation of Newfoundland and Labrador, there is still no protection under provincial legislation. However, under certain circumstances, the Lieutenant-Governor in Council may, on the recommendation of the Minister of the Department of Tourism, Culture and Recreation, designate a site, after which it is accorded all appropriate protection through government. To be considered a Heritage Structure, an application listing all the various historic assets and characteristics of the building as well as its age factors considered to be unique must be drafted and submitted to the Heritage Foundation of Newfoundland and Labrador for review.

15 A review of the assembled data for the Study Area (Stantec 2010a) indicates that there is one building, structures or sites meeting the criteria for protection on provincial lands within the Study Area. The registered historic structure is the 19th century Point Amour Lighthouse within the Study Area in southern Labrador (Figure 15.2.5-1).

15.3 Communities

25 This section provides a description of the existing socioeconomic environment including demographic characteristics, physical and social infrastructure and services, and health and well-being of people in the communities that comprise the Study Area Regions. The following subsections discuss community elements that include consideration of demographics, community services and infrastructure (e.g., health services and social programs), human health, community health, family life, safety, culture, education and training, housing and accommodation, and property value (e.g., housing prices) and land use. In addition, the reader is referred to other sections of this chapter (e.g., Section 15.4 Economy, Employment and Business; Section 15.5 Land and Resource Use (Subsection 15.5.7 Aboriginal Contemporary Traditional Land Use) for additional information that relates to to the community elements.

15.3.1 Study Area

The discussion of existing baseline conditions for Communities includes consideration of those regions that contain, are crossed by, or lie in close proximity to Project components, as well as the province as a whole. The regional discussions consider the Regional Economic Zones (see Figure 15.3.1-1), as outlined below:

- 35
- Central and Southeastern Labrador (Economic Zones 3, 4 and 5);
 - Northern Peninsula (Economic Zones 6, 7 and 8);
 - Central and Eastern Newfoundland (Economic Zones 11, 12, 14 and 15); and
 - Avalon Peninsula (Economic Zones 17, 18, 19 and 20).

40 Where the Economic Zones do not match the Project regions, data from regions that are as comparable as possible are used. In cases where data are not available for each region, these data are consolidated and discussed for the regions as a whole. In addition, the Study Area includes relevant Aboriginal communities in Québec.

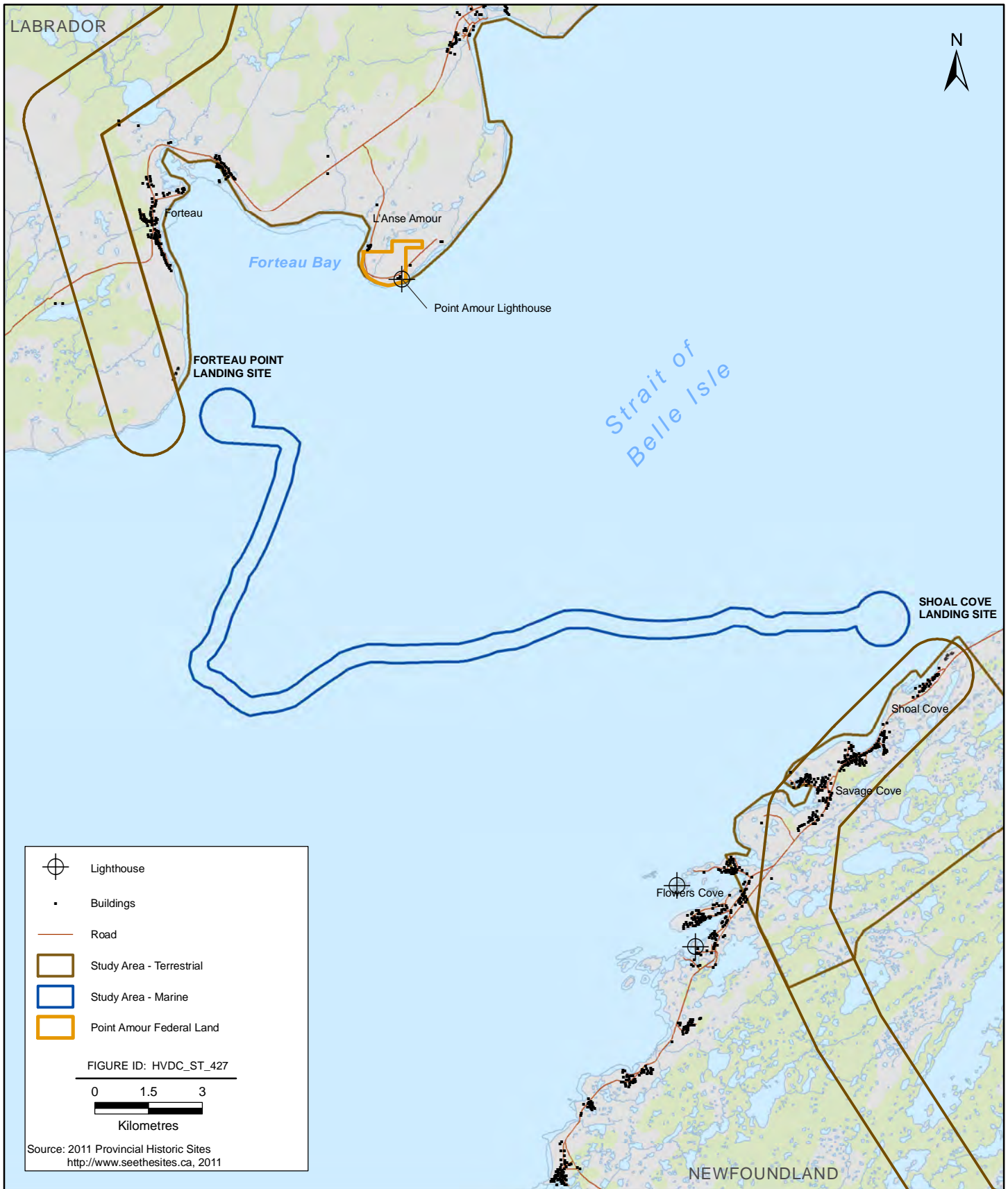


FIGURE 15.2.5-1

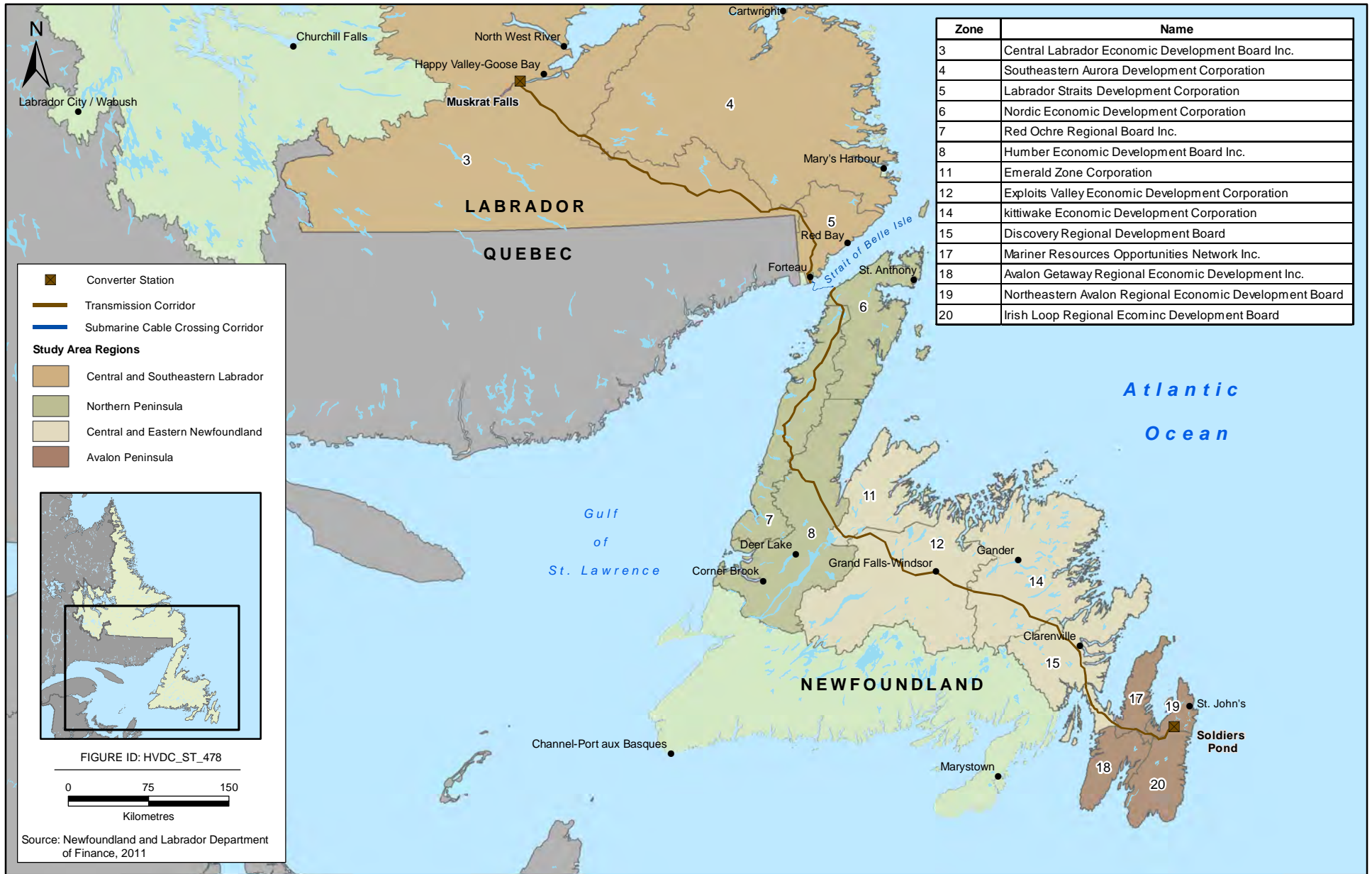


FIGURE 15.3.1-1



Study Area Regions and Regional Economic Development Zones of Newfoundland and Labrador

15.3.2 Information Sources and Data Collection

Existing and available secondary source data form the basis for the description of the existing environment, supplemented by primary data and information collected from agencies and organizations within the province with responsibility for the infrastructure, service or community characteristics discussed.

5 The current or the most recent available data are provided and, where appropriate and available, trends with respect to the nature, capacity and use of these components are presented. Sources from which the baseline data are drawn include:

- Statistics Canada and other departments and agencies of the Government of Canada;
- 10 • Newfoundland and Labrador Statistics Agency (Community Accounts) and other departments and agencies of the GNL;
- Economic Development Boards; and
- Municipal governments and local and regional authorities (Health Boards, Education Boards, etc.).

Additional information was collected through interviews with a range of organizations and agencies at the community, regional and provincial levels. A full list of references and sources is provided.

15 The information available through these sources provides a description of the existing socioeconomic environment for the purpose of the environmental assessment.

15.3.3 Regions and Communities

20 Table 15.3.3-1 summarizes the regional and community characteristics for each of the Study Area Regions, which are then discussed individually. As indicated, most of the population is concentrated in the Avalon Peninsula region and it is here that most of the larger cities and towns in the province are found. It is also the only region to show a growth in population in the 2001 to 2006 period.

Table 15.3.3-1 Region and Community Characteristics (2001 and 2006)

Study Region	Total Population (2006)	Total Population (2001)	Population Change (%)	Number of Communities	Community Population Range
Central and Southeastern Labrador	13,615	14,360	-5.2	18	<100-8,000
Northern Peninsula	58,875	60,550	-2.8	78	<100-20,000
Central and Eastern Newfoundland	115,905	121,245	-4.4	191	<100-14,000
Avalon Peninsula	243,835	238,020	+2.4	134	<100-100,000

Source: Statistics Canada 2006a.

15.3.3.1 Central and Southeastern Labrador

25 The Central and Southeastern Labrador Study Region encompasses communities in the Upper Lake Melville area of Labrador - Happy Valley-Goose Bay, North West River, Mud Lake and Sheshatshiu (Economic Zone 3, the Central Labrador Economic Development Board Inc. (CLEDB 2009, internet site)), together with the communities along the Labrador South Coast (Zone 4, the Southeastern Aurora Development Corporation (Southeastern Aurora Development Corporation 2008)) and in the Labrador Straits area (Zone 5, the Labrador Straits Development Corporation (Labrador Straits Development Corporation 2008, internet site))

30 (Figure 15.3.1-1). The total population of the Region in 2006 was 13,615, a decline of 5.2 percent (%) since

2001 (Table 15.3.3-1). Most of the communities in the region have populations of less than 500, with the main concentration of population in the Upper Lake Melville area and specifically in Happy Valley-Goose Bay.

15.3.3.2 Northern Peninsula

5 There are approximately 80 communities in the Northern Peninsula Study Region (Figure 15.3.1-1), from St. Anthony at the northern tip, south to Corner Brook on the west coast. This Region is made up of three Regional Economic Development (RED) boards: the Nordic Economic Development Corporation (Zone 6) (NEDC 2009, internet site), the Red Ochre Regional Board Inc. (Zone 7) (Red Ochre Regional Board Inc. 2009, internet site), and the Humber Economic Development Board Inc. (Zone 8) (Humber Economic Development Board 2009, internet site). The total population of the Region in 2006 was 58,875, a decline of 2.8% since 2001
10 (Table 15.3.3-1), with the City of Corner Brook the largest community in the region.

15.3.3.3 Central and Eastern Newfoundland

15 The Central and Eastern Newfoundland Study Area Region is located to the southeast of the Northern Peninsula, through the north-central portion of the Island, and southeast as far as the Isthmus of Avalon. It is made up of the Emerald Zone Corporation (Zone 11) (Emerald Zone Corporation 2009, internet site), the Exploits Valley Economic Development Corporation (Zone 12) (Exploits Valley Economic Development Corporation 2009, internet site), the Kittiwake Economic Development Corporation (Zone 14) (Kittiwake Economic Development Corporation 2009, internet site), and the Discovery Regional Development Board (Zone 15) (Discovery Regional Development Board 2009, internet site) (Figure 15.3.1-1). In 2006 the population
20 of the Region was 115,905, a decline of 4.4% since 2001 (Table 14.5-1). There are approximately 200 communities in the Region, of which Grand Falls-Windsor, Gander and Clarenville are among the largest.

15.3.3.4 Avalon Peninsula

25 The Avalon Study Area Region (Figure. 15.3-1) includes approximately 140 communities ranging from the larger cities of St. John's and Mount Pearl and towns such as Conception Bay South, Paradise and Bay Roberts, to small rural communities in the south, southwestern and northwestern parts of the region. The Region is comprised of four RED Boards: the Mariner Resource Opportunities Network Inc. (Zone 17) (Mariner Resource Opportunities Network Inc. 2009, internet site), Avalon Gateway RED Inc. (Zone 18), the Northeast Avalon RED Board (Zone 19) (Northeast Avalon RED Board 2009, internet site), and the Irish loop RED Board (Zone 20). The population increased by 2.4% over the 2001 to 2006 period to 243,835 (Table 15.3.3-1), which represents approximately 48% of the total provincial population.

30 15.3.4 Population and Demographics

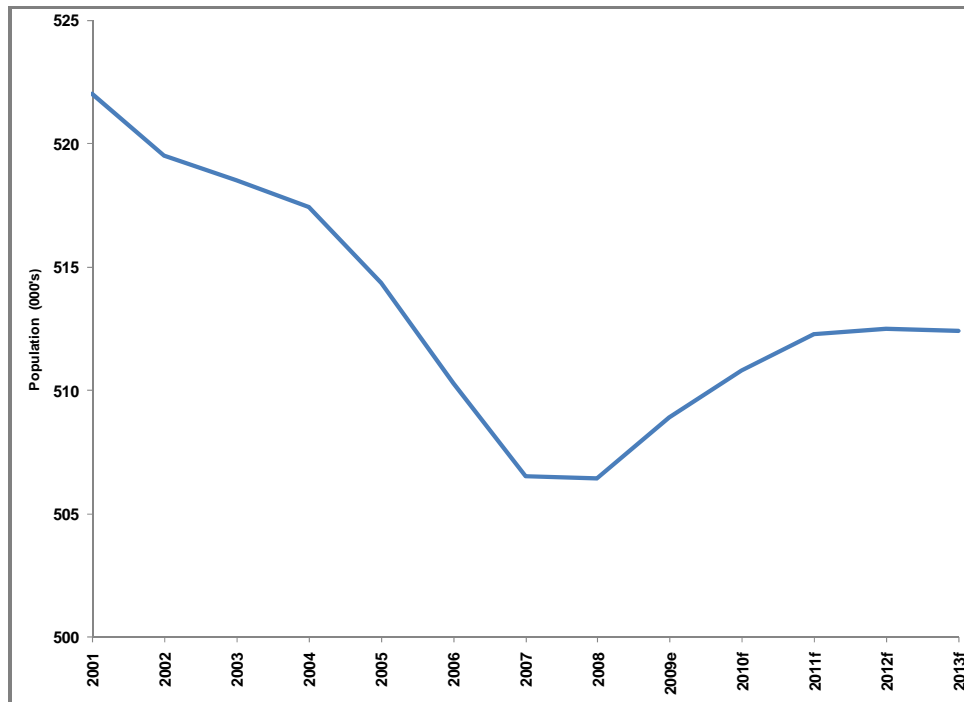
15.3.4.1 The Province of Newfoundland and Labrador

35 The population of Newfoundland and Labrador in January 2010 was estimated at 510,805 persons, an increase of 2,510 (0.5%) since July 2009 (NLDF 2010a, internet site). The 2006 census reported a total population of 505,469, although the provincial government currently uses a figure of 510,313 (Figure 15.3.4-1). This represents the first year-over-year population increase since 1992 (NLDF 2009a, internet site).

40 Net migration to the province in 2008-2009 was positive (Figure 15.3.4-2). This was the first time that this has been the case since 1982-1983 and it helped offset natural losses and was sufficient to generate a small overall increase. In 2010, population growth was the result of positive net-migration of almost 2,000, which offset a natural population decline (NLDF 2010a, internet site). Deaths now exceed births in the province and the natural increase component of population has had a negative value since 2006-2007 (Figure 15.3.4-3).

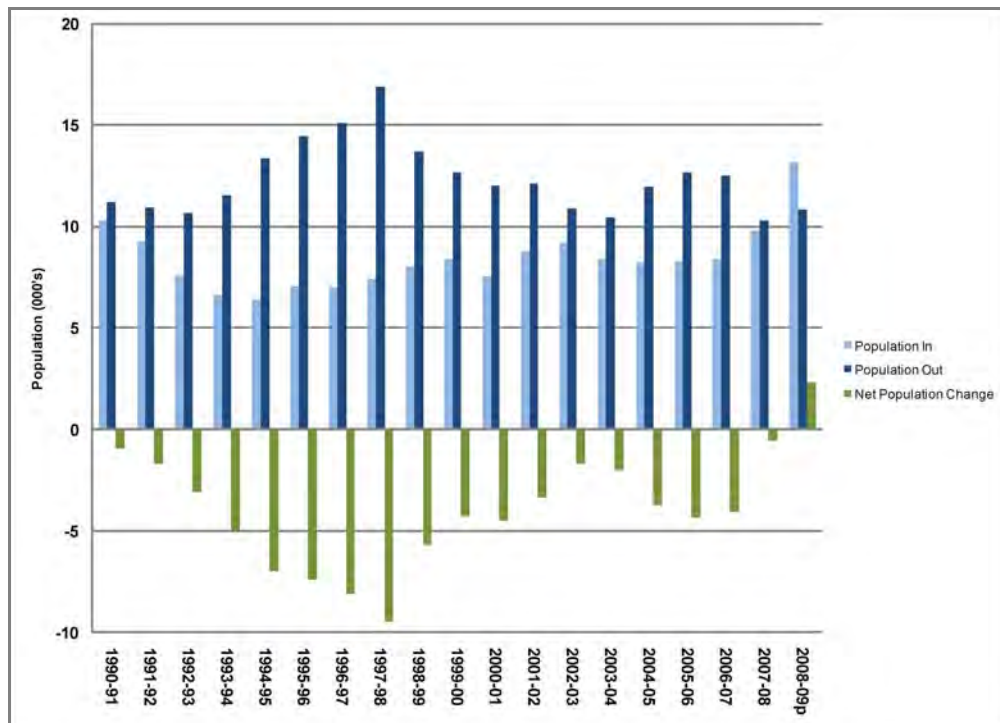
Positive net migration can be attributed in part to the strong performance of the provincial economy, but also to the fact that there were fewer jobs elsewhere in Canada, the global recession in 2008-2009 reducing the number of jobs in Alberta and Ontario in particular (NLDF 2010b, internet site).

Figure 15.3.4-1 Provincial Population as of July 1 (000s)



Source: NLDF 2009a, internet site.

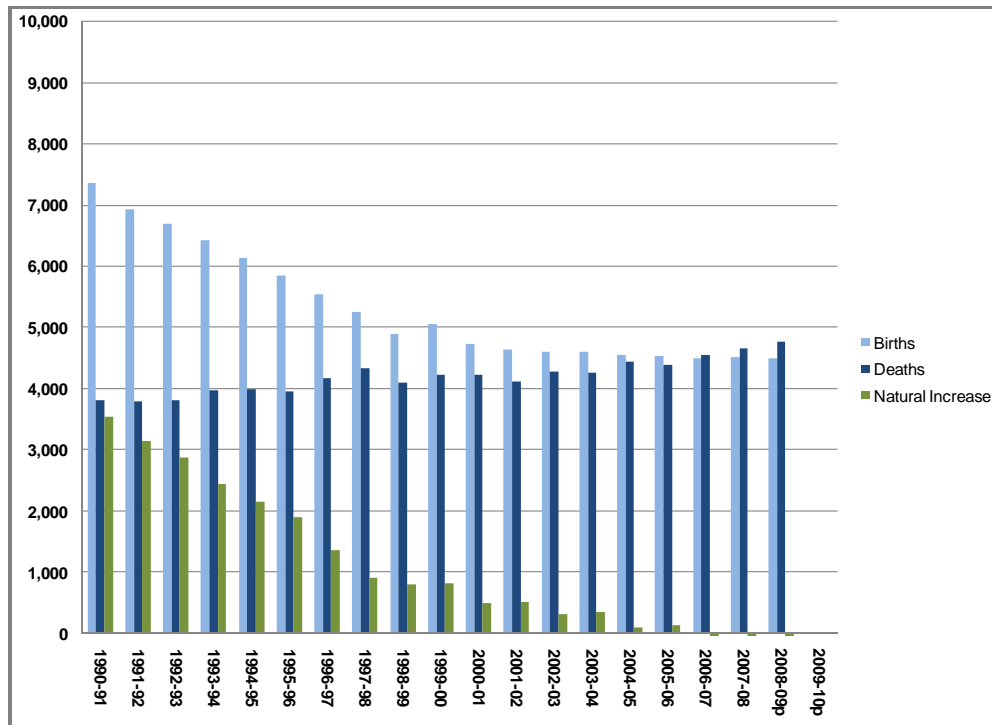
Figure 15.3.4-2 Inter-provincial Migration, Newfoundland and Labrador, 1991 to 2008



Source: NLDF 2009a, internet site

Note: "P" following year = preliminary

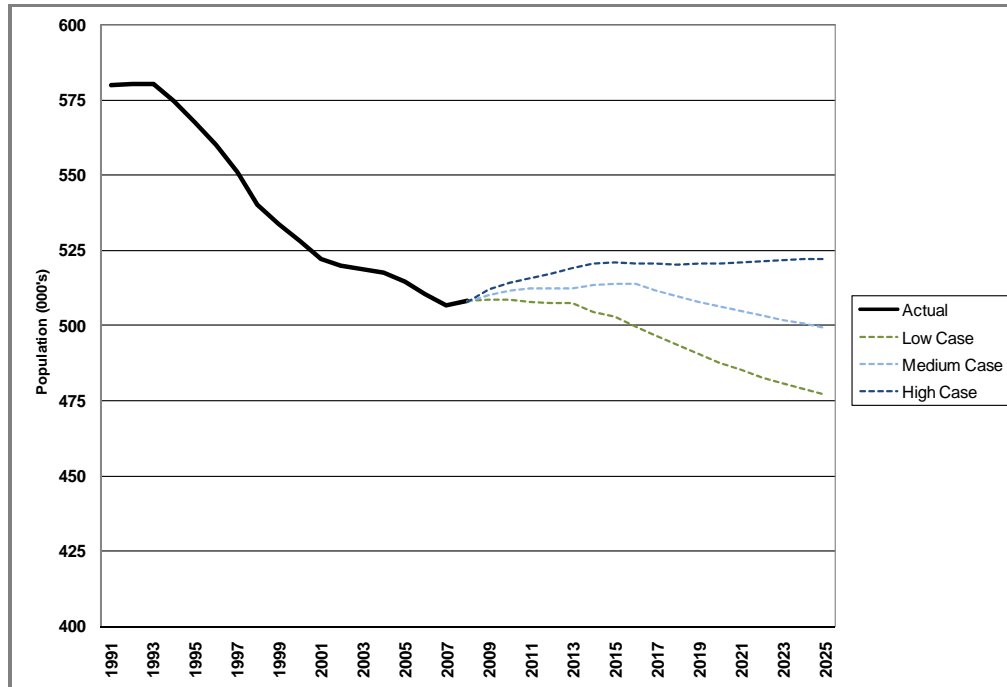
Figure 15.3.4-3 Natural Increase Components of Growth Newfoundland and Labrador, 1991 to 2010



Source: NLDF 2009a, internet site.

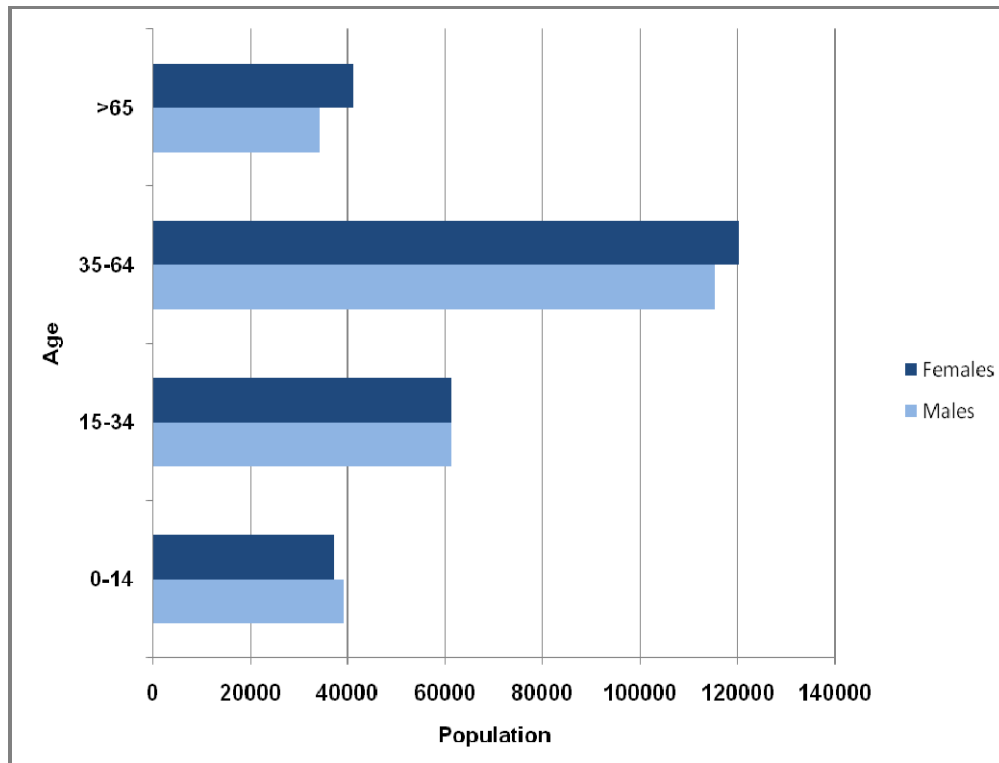
- 5 The most recent population projections, to 2025, indicate that the total Newfoundland and Labrador population could reach 521,750 under a 'High Scenario' set of assumptions, 499,200 under a 'Medium Scenario' and 476,800 under a 'Low Scenario' (NLDF 2009b, internet site) (Figure 15.3.4-4). The Low and Medium scenarios would see an overall decline in total population between 2006 and 2025 of 6.6% and 2.2%, respectively. The High Scenario would see the population increase by 2.2% to return to approximately the 2001 level by 2025 (NLDF 2009b, internet site).
- 10 In 2006, the provincial population was comprised of 49% males and 51% females, with more females in the 35 years and over categories (Figure 15.3.4-5) (NLSA / Community Accounts 2011, internet site). The population is aging and the median age is expected to increase from 41.3 years in 2006 to approximately 49 years by 2021 (NLDF 2006, internet site).

Figure 15.3.4-4 Population Projections (000s) Newfoundland and Labrador, 1992 to 2025



Source: NLDF 2009b, internet site.

Figure 15.3.4-5 Population by Gender and Age Group, Newfoundland and Labrador, 2009

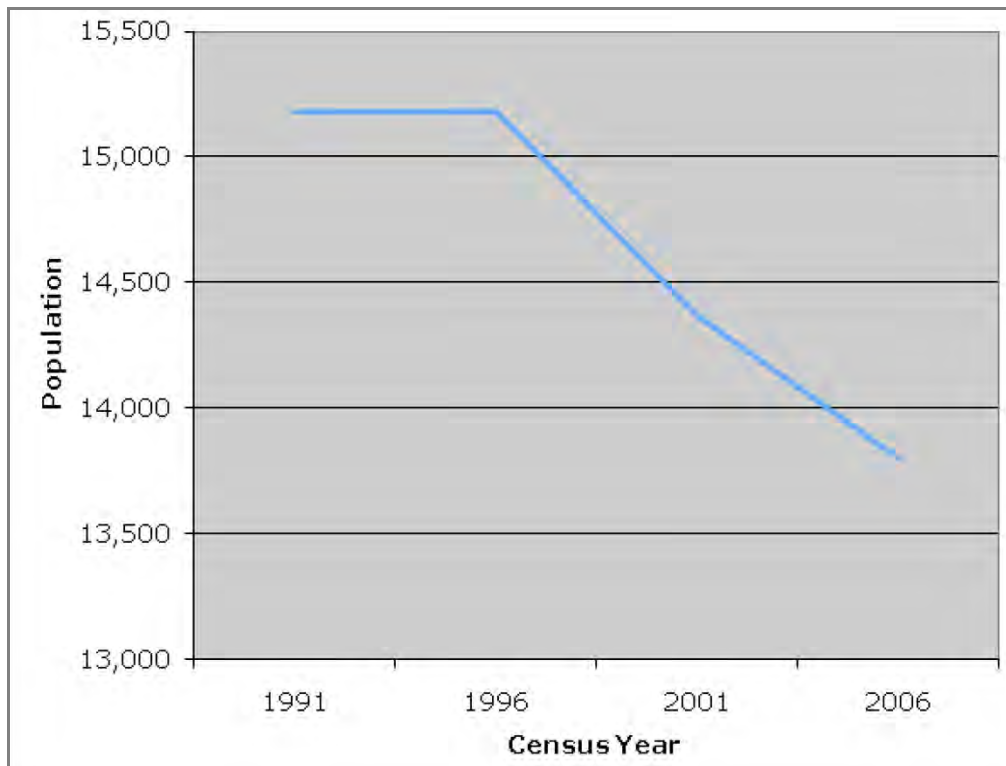


Source: NLSA / Community Accounts 2011, internet site.

15.3.4.2 Central and Southeastern Labrador

Central and Southeastern Labrador is the smallest of the four Study Area Regions in terms of total population. The population of this Region was 13,797 in 2006, down 9.1% from 15,182 in 2001 (NLSA / Community Accounts 2011, internet site) (Figure 15.3.4-6). Most communities in this Region have fewer than 500 people, although Happy Valley-Goose Bay, the largest town in the Region, had close to 8,000 residents in 2006. In 2006, men and women each represented approximately half of the Region’s population (50.2% and 49.8%, respectively) (NLSA / Community Accounts 2011, internet site).

Figure 15.3.4-6 Population, Central and Southeastern Labrador Region, 1991 to 2006



10

There are number of Aboriginal communities and organizations in Labrador and Québec several of which are located within, and / or which claim Aboriginal right to, portions of the Central and Southeastern Labrador Study Region. The demographic characteristics of these communities and organizations are summarized below.

15 Approximately one third of people living in Labrador are of Aboriginal descent, self-identifying as Innu, Inuit or NunatuKavut Community Council (formerly the Labrador Métis Nation). In Census Division 10 (all of Labrador excluding Nunatsiavut), there were 7,760 Aboriginal persons in 2006, of whom 51% self-identified as Métis, 24% as Innu and 23% as Inuit (Statistics Canada 2006b, internet site).

20 Within the Study Area Region the Aboriginal population varies. In Economic Zone 3 Aboriginal people represented some 43% of the population in this Zone in 2001, of whom approximately 39% were Métis, 32% Inuit and 25% Innu (NLSA / Community Accounts 2011, internet site). In the Upper Lake Melville area (Happy Valley-Goose Bay, Sheshatshiu, Northwest River and Mud Lake) the total Aboriginal population increased from 2,035 to 4,130 between 1991 and 2001 before declining to 4,095 in (Statistics Canada 2006b, internet site; Statistics Canada 2001, 1991).

In Economic Zone 4 the Aboriginal population (510) represented 67% of the total population in 2001 with most (92%) self-identifying at the time as Métis. The Aboriginal component of the population of Zone 5 was much smaller at just over 7%; of these, the majority (86%) self-identified as Métis (NLSA / Community Accounts 2011, internet site).

5 Labrador Innu

Most Labrador Innu live in the communities of Sheshatshiu (Sheshatshiu Innu First Nation) and Natuashish (Mushuau Innu First Nation). Sheshatshiu, which is approximately 40 km northeast of Happy Valley-Goose Bay, is the largest Innu community in Labrador. Natuashish is a smaller community on the northern coast of Labrador. As of July 2010, there were approximately 1,325 Innu living in Sheshatshiu and 750 Innu living in Natuashish (Indian and Northern Affairs Canada (INAC) 2010, internet site).

The Innu population is relatively young. Census data for 2006 for Sheshatshiu and North West River indicate that 49% of the population was under 24 years of age, while only 5% were 65 and older (NLSA / Community Accounts 2011, internet site).

Labrador Inuit

There are five communities within the Labrador Inuit Settlement Area (LISA) on the Labrador North Coast; Nain, Hopedale, Makkovik, Postville and Rigolet. Some Inuit are resident in other communities in Labrador, including Happy Valley-Goose Bay, North West River and Mud Lake. In September 2009, there were 4,932 Labrador Inuit beneficiaries living in the eight communities listed above, 53% of whom lived in the five Inuit Communities (LISA Regional Planning Authority 2010). Between 1996 and 2006, the population of the Inuit Communities grew by approximately 3% (Statistics Canada 2006b, internet site).

The Labrador Inuit population is also relatively young and the age distribution is very similar to that of the Innu. Of the total Labrador Inuit population, 49% were under 24 years of age in 2006 while 46% were aged 25 to 64 years and only 5% were over the age of 65 (Statistics Canada 2006b, internet site).

NunatuKavut Community Council

The NunatuKavut Community Council (NCC) states that its 6,000 members live in 23 Labrador communities, seventeen of which are on the southeast coast from Paradise River to L'Anse au Clair. It also indicates that members reside in six other communities in central and western Labrador, including Happy Valley-Goose Bay and Labrador City (NunatuKavut 2011, internet site). Census data are not available specifically for NCC members.

30 Québec Innu

In eastern Québec there are a number of various First Nations that claim Aboriginal rights and / or title to portions of the Central and Southeastern Labrador Region (see Figure 3.1-1). Table 15.3.4-1 provides demographic data for these Québec Innu communities.

The total population of the six communities is approximately 7,600. The largest of these is Uashat mak Mani-Utenam and the smallest is Pakua Shipi. Most Québec Innu live on the reserve and the population is young, with people under the age of 25 years comprising almost half of the population in most of these communities (MAINC 2009; Hydro-Québec 2007).

Table 15.3.4-1 Demographics of Québec Innu Communities

Demographic Characteristics	Pakua Shipi	Unamen Shipu	Nutashkuan	Ekuanitshit	Uashat mak Mani-Utenam	Matimekush-Lac John
Total population	322	1,088	984	556	3,805	845
On Reserve	n/a	1,038	923	532	3,114	760
Off Reserve	n/a	50	61	24	691	85
Men	164	541	510	257	1,883	430
Women	158	547	474	299	1,922	415
Youth (15-24 years)	79	213	227	114	745	156

Source: Hydro-Québec 2007; MAINC 2009.

n/a Not applicable.

Québec Naskapi

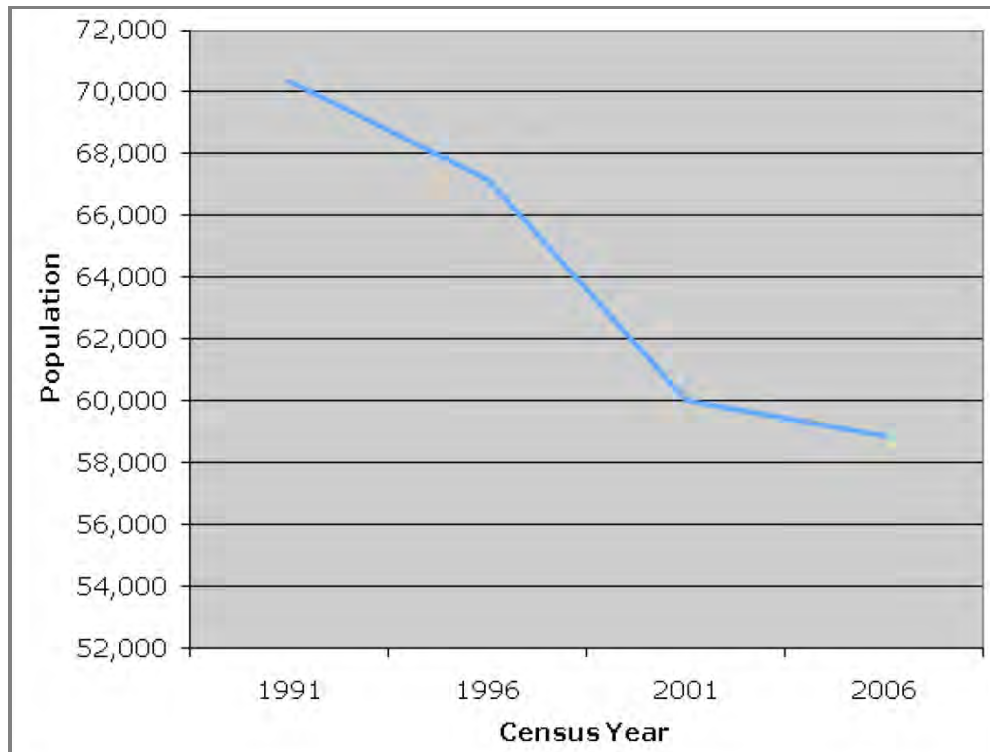
5 In March 31, 2007 there were 965 members of the Naskapi Nation of Kawawachikamach, a number that had increased to 1,024 by March 31, 2008. The average annual rate of increase of the population between 1986 and 2007 was 5.3%, such that during this period the population approximately doubled. In 2008, 59.6% of Naskapi members were under 30 years of age. The relative lack of Elders reflects the high mortality that occurred among Naskapi infants and children in the early 1950s (New Millennium Capital Corp. 2009, internet site).
10

15.3.4.3 Northern Peninsula

15 Many communities in the Northern Peninsula Study Region have fewer than 300 residents, but the largest urban centre, the City of Corner Brook, had a 2006 population of 20,083. As indicated in Figure 15.3.4-7, the population of the region declined from 70,336 to 58,889 between 1991 and 2006 (16.3%). In 2006, females comprised just over half (51.5%) of the Region’s population (NLSA / Community Accounts 2011, internet site).

The populations of smaller communities are generally declining at a faster rate than those of the larger communities. In addition, the population of the region is aging, with the median age increasing from 29 years in the early 1990s to 49 in 2007 (NLDF 2007, internet site).

Figure 15.3.4-7 Population, Northern Peninsula Region, 1991 to 2006

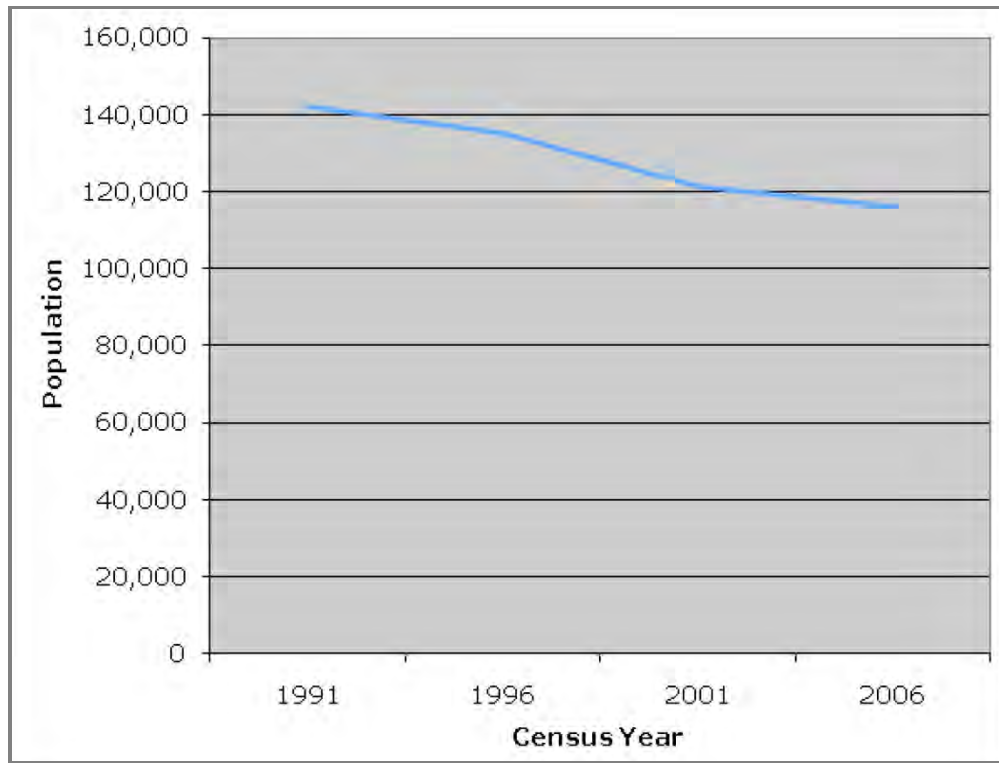


15.3.4.4 Central and Eastern Newfoundland

5 The Central and Eastern Newfoundland Region has the greatest number of communities (200) of the four Study Area Regions. The smallest of these communities typically have fewer than 100 people and the largest, Grand Falls-Windsor, had 13,558 residents in 2006. The Region's total population fell from 142,111 to 115,918 between 1991 and 2006, a decrease of 18.4% (Figure 15.3.4-8). In 2006, almost half of the population of the Central and Eastern Newfoundland Study Region was male (49%) (NLSA / Community Accounts 2011, internet site).

10

Figure 15.3.4-8 Population, Central and Eastern Newfoundland Region, 1991 to 2006

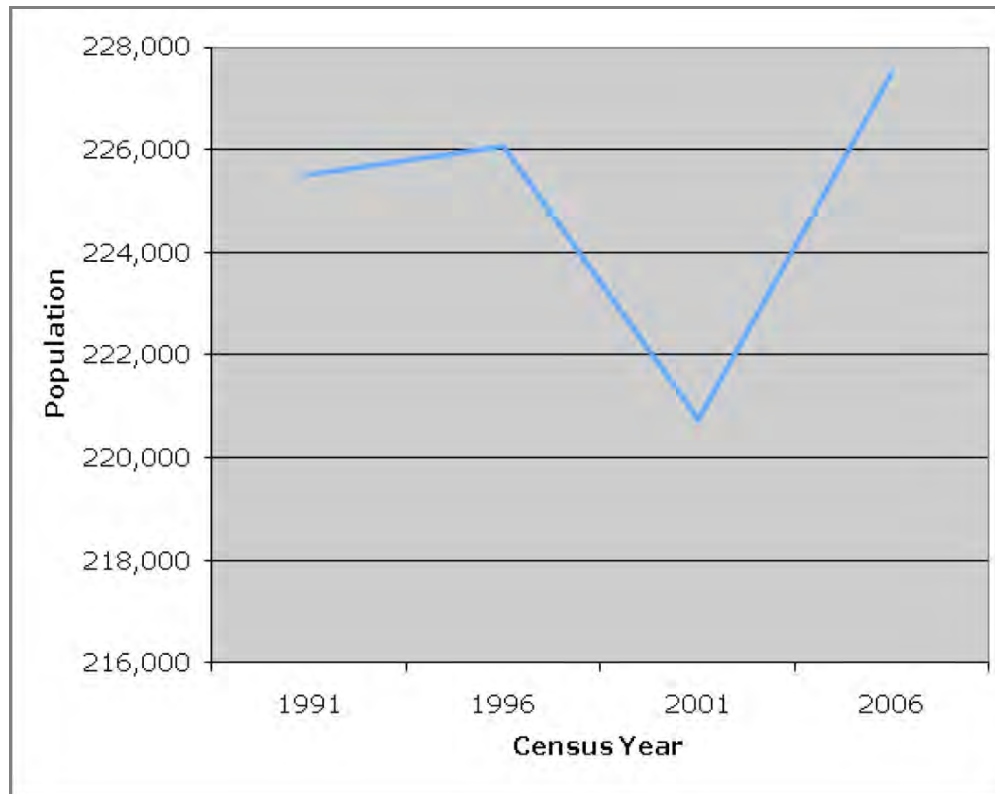


15.3.4.5 Avalon Peninsula

5 The Avalon Peninsula is home to almost half of the province’s population, with the majority of people living in communities with populations over 5,000. The largest community is the City of St. John’s, which had a 2006 population of 100,646. The Avalon Peninsula is the only one of the four Study Area Regions to have experienced a population increase between 1991 and 2006. In 2006, the total population of the Region was 227,490, up 2.4% from 225,517 in 1991 (Figure 15.3.4-9). However, as indicated in the figure, the population rebounded between 2001 and 2006 from the decline experienced in the 1996 to 2011 period. In 2006, there were slightly more females (52%) living in this Region than men (48%) (NLSA / Community Accounts 2011, internet site).

10

Figure 15.3.4-9 Population, Avalon Peninsula Region, 1991 to 2006



5 The region includes a variety of community types, ranging from the city entities of St. John’s and Mount Pearl and larger towns such as Conception Bay South, Paradise and Bay Roberts, to small rural communities in the north and northwestern parts of the region. Unlike most of the other regions included within the Study Area, the majority of people in the region live in communities with populations over 5,000 (NLSA / Community Accounts n.d., internet site).

15.3.5 Community Infrastructure and Services

10 Community infrastructure and services refers to those physical elements (i.e., roads, ports, schools), and organizational systems (i.e., education, social assistance, security) that support the economy and the quality of life for people and communities. This section describes the existing conditions of select infrastructure and services.

15.3.5.1 Highways and Roads

15 In Newfoundland and Labrador, the Department of Transportation and Works (NLDTW) is responsible for the construction of public roads and the management of road improvement projects together with the year-round maintenance of over 9,000 km of primary and secondary highways and community access roads (NLDTW 2008, internet site). In general, municipal authorities are responsible for construction and maintenance of local streets within the municipality (Municipalities Newfoundland and Labrador n.d.a, internet site).

20 Central and Southeastern Labrador

The Trans-Labrador Highway (TLH) is the main highway serving the region. Route 500, the first section constructed, links the Labrador-Québec border with Happy Valley-Goose Bay. The Labrador Transportation

Initiative Fund, established in 1998, included upgrading of the TLH between Wabush and Happy Valley-Goose Bay (Phase 1) to a high-standard gravel surface highway. That project was completed between 1997 and 1999 at a cost of \$60 million (Russo Garrido and Stanley 2002). A chip-seal surface has been applied at each end of the TLH1 and a permanent hard surface is planned for the entire length of Phase 1, a project that started in the spring of 2009. As of August 2010, more than 75% of Phase 1 had been widened and more than 180 km was hard-surfaced.

In February 2011, the GNL issued two tender calls for the paving of an additional 160 kilometres of Phase 1. The first of the two sections begins 92 km west of Happy Valley-Goose Bay and continues 80 km west toward Churchill Falls. The second section is an 80-km stretch of highway from near the Ranger Lake highway depot toward Churchill Falls. As of February 2011, the provincial government had invested more than \$93 million in the widening and hard-surfacing of TLH1. Hard-surfacing is expected to be completed in 2014 (NLDTW and NLDLAA 2011, internet site).

The original Route 510 is an asphalt surface highway that links the communities along the Labrador Straits from Blanc Sablon to Red Bay (Figure 15.3.5-1). Phase 2 of the TLH (TLH2) is an extension of Route 510, and is a two-lane, all-season, 323 km mixed asphalt and gravel road that runs between Red Bay and Cartwright. There are also links to St. Lewis (Route 513) and Charlottetown and Pinsent's Arm (Route 514). That project was initiated in 1999 and completed in 2002 at a cost of \$130 million (Russo Garrido and Stanley 2002).

Construction on Phase 3 of the TLH (TLH3), a 280 km section, connects Cartwright Junction and Happy Valley-Goose Bay. This phase of the highway was officially opened to the public in December 2009 and was completed in 2010 (Tee 2011, pers. comm.). The three phases of the TLH now form a continuous route of approximately 1,150 km linking Labrador West and Southern Labrador (NLDTW 2009a, internet site). As yet there is no indication when gravel sections of the highway might be paved (Dyson 2011, internet site).

Northern Peninsula

In this Study Area Region, the main highway is Route 430, linking St. Anthony in the north and Deer Lake in the south (Figure 15.3.5-1). Route 430 runs west of the proposed transmission line route along the west coast of the Northern Peninsula to Rocky Harbour, before turning southeast to Deer Lake where it joins Route 1, the Trans-Canada Highway (TCH).

Central and Eastern Newfoundland

The TCH is the main highway link across the province (Figure 15.3.5-1). In this Study Area region it links Deer Lake, Grand Falls-Windsor, Gander and Clarenville. Other major highways in the region providing branches from the TCH include Route 410 to Baie Verte, Route 360 to Harbour Breton and Route 230 to Bonavista.

Avalon Peninsula

The TCH is the main link between Clarenville and St. John's (Figure 15.3.5-1). Branch highways south from the TCH link it to Placentia (Route 100), St. Mary's (Route 90) and Trepassey (Route 10), while highways to the north link it to Baie de Verde (Route 80) and Harbour Grace (Route 71). Numerous other highways linking the communities of Conception Bay result in this area having the most dense highway network in the province.

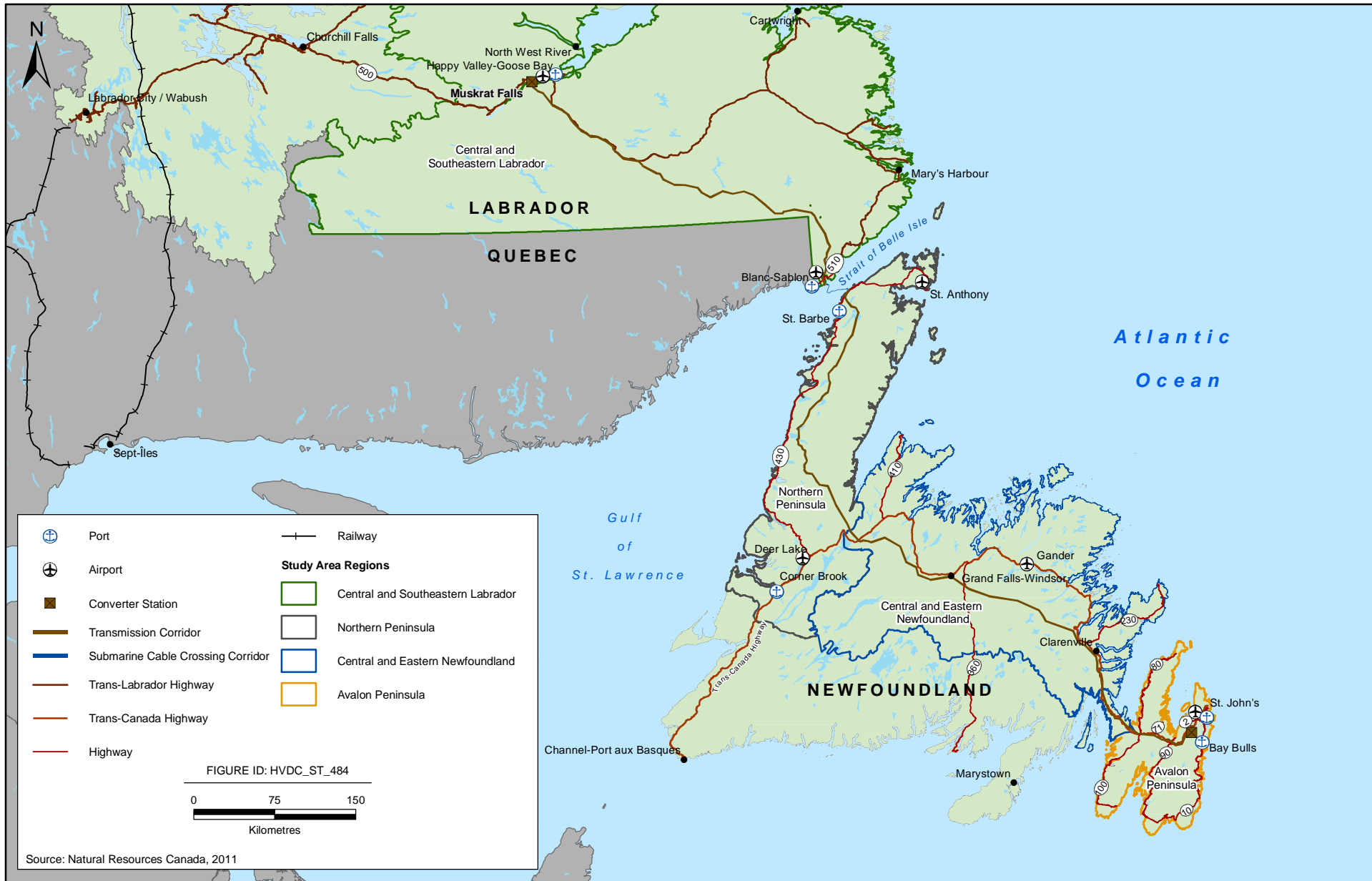


FIGURE 15.3.5-1



Study Area Regions Transportation Infrastructure

15.3.5.2 Ports, Airports and Rail

5 The island and coastal geography and settlement history of the province mean that ports in particular play an important role in many aspects of community life. By contrast there is only one railway in the province, in Labrador, and this has a highly specialized role associated with iron ore shipments. A summary of selected aspects of this transportation infrastructure follows, with emphasis on those elements of particular relevance to the Project.

Ports

10 The Canadian ports system is composed of several types of ports and harbour facilities, all with different administrative and jurisdictional structures. The 17 main ports in the country are operated by Canada Port Authorities, one of which is the Port Authority of St. John's, and which are overseen by Transport Canada (Transport Canada (TC) 2010a, internet site).

15 In December 1995, the federal government's National Marine Policy provided for the divestiture of federal ports that did not meet the test of being ports of national significance to the country as a whole. Many of these ports were transferred to provincial governments or to municipal authorities, and others were divested to local communities or to private interests, and still other facilities were deproclaimed as port facilities and closed permanently. Independent local ports in Newfoundland and Labrador are the Corner Brook Port Corporation, the Port Harmon Authority Ltd. (Stephenville) and the Argentia Port Corporation (IMPACPorts.com 2011, internet site).

20 Transport Canada also owns and administers 14 smaller ports within the province including, for example, Goose Bay in Labrador (Central and Southeastern Labrador Study Area Region), Botwood (Central and Eastern Newfoundland) and Long Pond (Avalon Peninsula) on the Island (TC 2010b, internet site).

25 Small Craft Harbours (SCH) is a nationwide program of the Fisheries and Oceans Canada (DFO). SCH operates and maintains a national system of harbours to provide commercial fish harvesters and other harbour users with safe and accessible facilities. Part of the SCH mandate is to maintain a network of core harbours essential to the fishing industry, promote the formation of Harbour Authorities to ensure local control over commercial fishing harbours and to transfer ownership of non-essential harbours and recreational harbours to local communities. Arnold's Cove in the Avalon Study Area Region, for example, is managed by the Harbour Authority of Arnold's Cove, which is one of 208 Harbour Authorities in the province (DFO 2010a, internet site).

30 There are numerous ports and harbours in each of the Study Area Regions, some of which could play a role in the Project. No final decisions have been made on which ports or harbours might be used for particular purposes, hence the focus here is on the larger port facilities and those closest to known and particular Project activities.

Central and Southeastern Labrador

35 The Regional Port of Happy Valley-Goose Bay in Terrington Basin (Figure 15.3.5-1), operated by TC, provides transshipment services to coastal Labrador as well as handling bulk shipments into the Upper Lake Melville Region. The shipping season normally runs from June to September and access to the harbour outside the standard season is possible when not restricted by sea ice. Studies conducted for the Lower Churchill Hydroelectric Generation Project indicated that the port facilities would require upgrading to handle the heavy loads associated with that project (Nalcor Energy (Nalcor) 2009a).

40 The closest industrial port to the Labrador-Island Transmission Link crossing of the Strait of Belle Isle is at Blanc Sablon, Québec, a small port with two berths of 110 m and 65 m. The wharf is used primarily to supply the local population with goods on a weekly basis, to receive general goods and petroleum products, and to provide a daily ferry service between Blanc Sablon and St. Barbe on the Island of Newfoundland, and a weekly service to Rimouski, Québec. The ferry service normally runs from May to January (TC 2010c, internet site).

The ferry continues to provide service from Blanc Sablon to the island for the duration of the winter with two round-trips each week to Corner Brook (The Aurora 2010, internet site).

5 Local Harbour Authorities also exist in the Labrador Straits in Forteau, L'Anse au Clair and L'Anse au Loup, which manage these small ports originally established to support the fishery. The town of Red Bay also operates a Harbour Authority through the town of Forteau (Letto 2010, internet site).

Northern Peninsula

10 The Port of Corner Brook (Figure 15.3.5-1), managed by the Corner Brook Port Corporation, is a major commercial distribution centre for western Newfoundland. Ocean freight is handled either over private wharves (e.g., Corner Brook Pulp and Paper Limited, Barry's Seafood's Inc., Ultramar, Irving Oil and Imperial Oil) or via a public wharf, the TC facility at what is known locally as Seal Head.

There is 362 m of berthage, approximately 28,000 m² of space for container storage, and a high-capacity crane (53 tonnes (t)) to facilitate the loading and unloading of containers at dockside. In addition, two top lifts allow quick retrieval and storage of containers within the dock facilities. The Port is directly connected to the TCH via a four-lane arterial road, providing easy highway connections to two airports within an hour's drive.

15 The Port Authority plans to construct a new dock that would replace the Corner Brook Pulp and Paper Company dock and create additional multi-use berth space across the basin, allowing the Port to accommodate multiple vessels at the same time and to ship a broader range of commodities (Corner Brook Port Corporation 2010, internet site).

20 In recent years, there have been significant increases in freight traffic through Corner Brook, particularly from the Northern Peninsula and Southern Labrador. The export of fish products, for example, is moving more and more into refrigerated containers, which can be shipped out of Corner Brook to customers elsewhere in North America and overseas.

25 In addition to Corner Brook there are numerous smaller ports and harbours in the Study Area Region. Transport Canada owns and administers ports at Main Brook and Roddickton, while between St. Anthony and Corner Brook there are some 54 harbours of various sizes and types, of which 36 are designated as Core Fishing Harbours (DFO 2011a, internet site).

Central and Eastern Newfoundland

30 There are no large ports compared to Corner Brook and St. John's in the Central and Eastern Newfoundland Study Area Region. Transport Canada operates and administers ports at Botwood, Lewisporte and Charlottetown (TC 2010b, internet site), and there are numerous small-craft harbours along the north and northeast coasts (DFO 2011a, internet site).

Avalon Peninsula

35 The Port of St. John's (Figure 15.3.5-1) is a modern industrial port with state-of-the-art handling and storage facilities and the capability of handling any large volume commercial business. The port is administered by the St. John's Port Authority, a Crown agency, and since 1999 has undergone extensive modifications as the result of a multi-million dollar capital investment strategy. It is the primary offshore oil supply and service centre on Canada's east coast, the largest fish-handling port in Newfoundland and Labrador, a cruise ship destination and the province's primary container terminal (St. John's Port Authority (SJPA) n.d., internet site).

40 There is a total of approximately 5 km of dockface, 51% of which is owned by the Port Authority. This includes the container and roll-on / roll-off terminal, which handles approximately half of the cargo entering the province. Of the remaining dockage, 32% is privately owned and 17% directly or indirectly owned by government departments and agencies (SJPA 2010, internet site).

5 The St. John's Dockyard (NEWDOCK), at the western end of the Port of St. John's, includes a graving dock, a marine elevator, transfer and repair berths, mobile cranes, fabrication shops, warehousing and laydown areas. NEWDOCK's capabilities include provision of marine services and offshore services (NEWDOCK n.d., internet site). The dockyard changed ownership in 2010, but no changes in operational or capital expenditures were anticipated at that time (The Telegram 2010a).

10 Bay Bulls Marine Terminal (BBMT) is located approximately 32 km south of St. John's. Completed in 2005, it has 12.5 acres of waterfront space suitable for light and heavy marine industrial activity, for loading and discharging vessels, and for repairing and upgrading drill rigs. The BBMT has two wharves and over 14 acres of lay-down area without load restriction, and storage facilities adapted for bulk, pumping and tubular handling. Fabrication, office space as well as 8,500 square feet of warehouse space are also available on-site. The Terminal is close to highway linkages to St. John's and surrounding industrial parks (Bay Bulls Marine Terminal 2007, internet site).

Transport Canada operates and administers ports at Come by Chance, Holyrood and Long Pond (TC 2010b, internet site), and there are some 84 designated small-craft harbours in the region (DFO 2011a, internet site).

15 Airports

20 The federal government's National Airports Policy (NAP) defines the federal government's role with airports. That role is defined through two main levels of federal involvement in airports with scheduled passenger traffic: nationally significant airports that will form a National Airports System (NAS) and regional / local airports. The NAS includes airports in all national, provincial and territorial capitals, as well as airports with annual traffic of 200,000 passengers or more. Responsibility for the operation and management and development of NAS airports rests locally with approved Canadian Airport Authorities (CAAs), but the federal government retains ownership of these airports to guarantee the integrity and long-term viability of the NAS (TC 2010d, internet site).

Central and Southeastern Labrador

25 The Goose Bay Airport (Figure 15.3.5-1) was developed following the outbreak of World War II. It is a designated Regional Airport operated by the Goose Bay Airport Corporation. Goose Bay Airport is undergoing expansion to the Air Terminal Building. Air passenger traffic has increased significantly of late, from 64,278 in 1997 (Voisey's Bay Nickel Company Limited (VBNC) 1997, internet site) to 94,252 in 2007 (Statistics Canada 2007, internet site). The planned \$14 million investment to more than double the terminal's capacity to service passengers is expected to be completed in December 2011 (Goose Bay Airport 2010, internet site).

35 The Lourdes-de-Blanc Sablon Airport on the north shore of the St. Lawrence in Québec is the closest airport to the proposed location of the Transmission Link crossing of the Strait of Belle Isle. The airport is designated as a Remote Airport under NAP and is owned and operated by TC. It supports scheduled flight services between the Island of Newfoundland, Labrador and Québec, air freight and charter operations (TC 2009a, internet site). There are also several smaller airstrips along the coast of the Region, including those at Cartwright, Black Tickle, Charlottetown, Port Hope Simpson, Williams Harbour, St. Lewis, Mary's Harbour, and L'Anse Amour (Crow Head). Long Pond, which overlaps the proposed transmission corridor near Forteau Point, is used as a float plane base by several operators (Belbin 2011).

Northern Peninsula

40 The Regional Airport at St. Anthony (Figure 15.3.5-1) is owned and operated by TC. It hosts two airlines that have regular flights in and out of St. Anthony (TC 2009b, internet site). Traffic has declined from 5,734 aircraft movements in 2004 to 4,242 in 2008 (Statistics Canada 2009a, internet site). Several small airstrips are present in the region, including a private airstrip in the Strait of Belle Isle area near Savage Cove, near the marine crossing cable landing site at Shoal Cove. Further south along the Peninsula there is an airstrip at Port au Choix.

The Deer Lake Regional Airport is operated by the Deer Lake Regional Airport Authority Inc. (DLRAAI), which was established in 1998. At that time its traffic volume was less than 200,000 passengers per annum, but since then the number of aircraft movements has increased from 18,896 in 2004 to 20,075 in 2008, for example (Statistics Canada 2009a, internet site), while passenger traffic increased to 293,847 in 2008 (DLRAAI 2009, internet site). The airport has undergone major expansion over the past two decades with a new \$12 million terminal building, customs and immigration facilities opening in 2007 (DLRAAI 2009, internet site) and a runway extension was recently completed.

Central and Eastern Newfoundland

Gander International Airport (Figure 15.3.5-1) is designated as part of the NAS under the NAP and is operated by the Gander International Airport Authority Inc. (GIAAI). It has a major service role of providing technical stop services to commercial carriers and corporate aircraft for their transatlantic activities. As the main entry points into North American airspace, the airport and the town also provide essential medical and security services in the event of in-flight emergencies. Customs and immigration services are provided on-site in support of this role (GIAAI 2005, internet site).

The airport provides residents, and businesses in Central Newfoundland with scheduled and charter services for passengers and cargo to major airports, and connecting with transcontinental and international routes. It also provides regional and local charter services, other commercial operations, flying training, and a base for government civilian / military aircraft activities such as search and rescue and fire protection services. Five Fixed Base Operators serving corporate and private aircraft are located at the airport. Passenger movements have fluctuated annually (e.g., 70,563 in 2006 and 79,427 in 2007 (Statistics Canada 2007, internet site)), but were reported as being at a nine-year high in 2010 (GIAAI 2011a, internet site).

The Department of National Defence (DND) operates the Canadian Forces Base (CFB) 9 Wing Gander on the airport site. The base's primary operation is search and rescue.

Elsewhere in the region there are a number of airstrips including those at Buchans, Springdale and Bishop's Falls.

Avalon Peninsula

St. John's International Airport (Figure 15.3.5-1) is also part of the NAS and is the busiest commercial airport in the province. The St. John's International Airport Authority Inc. (SJIAA), a not-for-profit corporation, assumed control in December 1998. The main terminal serves scheduled national and international passenger aircraft, most charter flights and air cargo traffic (SJIAA 2011a, internet site). Between 2005 and 2007, over \$22 million was spent in infrastructure upgrades and general capital improvements to the airport (Petroleum Research Atlantic Canada (PRAC) 2009). The SJIAA recently announced a \$150 million expansion plan to accommodate growing passenger traffic (Canadian Broadcasting Corporation (CBC) 2011a, internet site).

General aviation activities take place on the east side of the airport in an area that supports corporate aviation, government and military operations, charter services, flight training, search and rescue, helicopter, cargo and courier services. The multi-purpose Cougar Helicopters Inc. facility, adjacent to the main terminal on the west side, is used for helicopters and some military and private aircraft use. Universal Helicopters Ltd. has a terminal building and landing area, under the control of the airport control tower but outside Airport property, on Major's Path.

Between 2002 and 2005, passenger volumes increased 35%. Since 2005 the SJIA has annually been used by approximately 1.2 million passengers (SJIAA 2011a, internet site). Air cargo has been increasing steadily in recent years. Current facilities can handle present volumes, but a site has been set aside to accommodate increased traffic when needed. There are plans for an extension of the cargo / baggage handling area.

There are also airstrips at Placentia and Harbour Grace.

Rail

5 The Québec North Shore and Labrador Railway (Figure 15.3.5-1), owned and operated by the Iron Ore Company of Canada, connects Labrador City and the Port of Sept-Îles, Québec. This rail link, together with the Tshuetin Rail Transportation line, Arnaud Railway, Wabush Lake Railway, and Bloom Lake Railway, forms an isolated railroad network in western Labrador and Québec, as it does not interchange with any other rail lines on the North American network. The primary purpose of the network is transportation of iron ore from Québec and Labrador to the north shore of the St. Lawrence, but the railway is also used to transport passengers, materials and equipment (Chen 2006).

15.3.5.3 Waste Management

10 The handling of garbage – solid waste – has become an increasing concern in the province and represents a challenge for communities and government. In a 2002 report by the Newfoundland and Labrador, Department of Environment (NLDEC 2002, internet site), it was estimated that Newfoundlanders and Labradorians generated more than 400,000 t of waste materials a year at a rate of approximately two kilograms per person per day. At that time this waste was being sent to approximately 240 disposal sites that served an estimated
15 654 communities. Many of the sites were at the end of their useful life, and there were approximately 50 aging teepee incinerators in use throughout the province. Nuisance problems from poorly or improperly maintained landfill sites, inconsistency with the growth of the province's tourism industry, and a general recognition by the public and government that present ways of handling waste needed to change, prompted the development of a provincial waste management strategy.

20 The purpose of the Strategy was to provide a basis for the modernization of the province's waste management program and it called for the phasing out of 80% of the sites and implementation of a regional waste management system, with 15 regional management zones: 11 on the Island and four in Labrador. The Strategy also called for three full-service disposal facilities, one each in the Avalon, Central and Western zones of the Island. Once these are operational, the remaining Island zones would develop systems to transport waste to
25 these facilities (NLDEC 2002, internet site). The regional waste management zones that approximate the Study Area Regions are shown in Figure 15.3.5-2.

Since the release of the strategy in 2002, there have been some changes regarding the waste management zones. Currently, eight Regional Waste Management Authorities operate on the Island (Burke 2011, pers. comm.; Field 2011, pers. comm.):

- 30
- Bonavista Peninsula Regional Waste Management Committee;
 - Coast of Bays Waste Management Authority;
 - Green Bay Waste Authority;
 - Burin Peninsula Waste Management Corporation;
 - Eastern Waste Management;

35

 - Central Newfoundland Regional Service Board;
 - Northern Peninsula Regional Service Board; and
 - Western Regional Waste Management Committee;

There are four in Labrador (Burke 2011, pers. comm.; Field 2011, pers. comm.):

- 40
- Western Labrador;
 - Central Labrador;
 - North Coast Labrador; and
 - Southern Labrador.

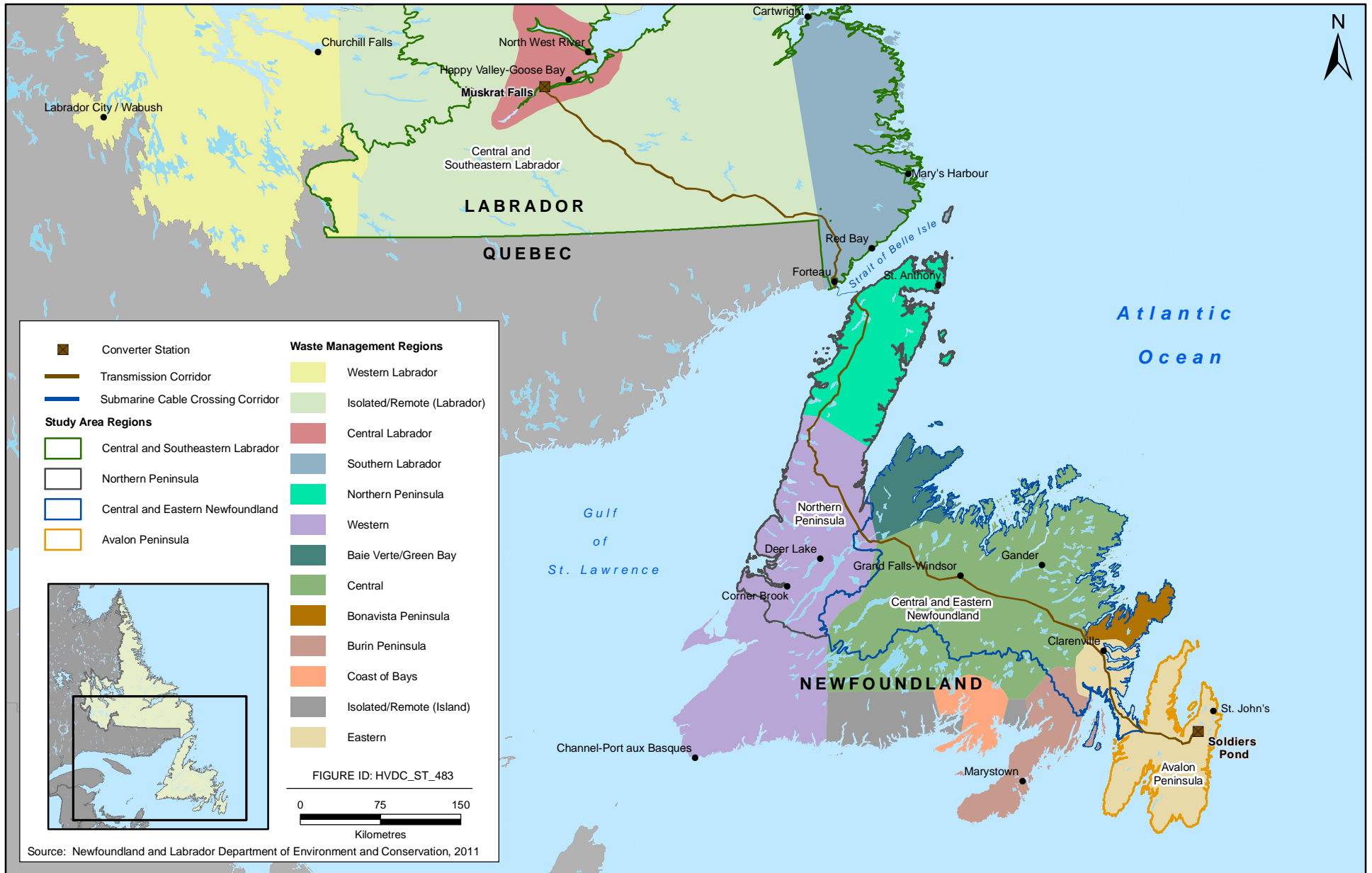


FIGURE 15.3.5-2

Each authority is responsible for waste management activities within its respective region, such as recycling, waste diversion and composting, as well as management of waste that is harmless to the environment, and disposing of true waste materials at one of the regional sites. The Department of Municipal Affairs administers the strategy, while environment standards and regulations are the responsibility of the Department of Environment and Conservation (NLDMA and NLDEC 2007, internet site).

For isolated areas, community disposal sites will remain in operation. However, emphasis will be on improving these existing disposal sites and enhancing opportunities for diversion. Isolated communities will be expected to contribute to the goal of 50% reduction of waste sent to disposal.

Changes have also been made with respect to the number of central waste disposal facilities. Currently, Robin Hood Bay in St. John's has been identified to service Clarenville and the east, and a site in Norris Arm, which is still under construction, will service the rest of the island (Burke 2011, pers. comm.).

Central and Southeastern Labrador

The Central and Southern Labrador Waste Management Regions and part of Isolated / Remote Labrador fall within the Central and Southeastern Labrador Region (Figure 15.3.5-2). The provincial government has yet to finalize a waste management plan for Labrador. Happy Valley-Goose Bay is currently acting as an informal regional landfill site for the central part of the Region (Municipalities Newfoundland and Labrador n.d.b., internet site).

The Labrador Straits Waste Disposal Committee oversees waste management in the Straits area. A landfill serving the communities from L'Anse au Clair to Pinware is located at Crow Head, within the municipal boundaries of Forteau. Currently, the landfill is near capacity and Hatch Mott MacDonald has been hired to conduct a study examining alternatives to the current landfill (Flynn 2011, pers. comm.).

Northern Peninsula

Two Regional Waste Management Authorities oversee waste management in the Northern Peninsula Study Area Region: the Western Regional Waste Management Committee and the Northern Peninsula Regional Service Board (NorPen). The former manages the area on the province's west coast from Harbour La Cou on the southwest coast to Bellburns on the Northern Peninsula and east past Highway 420. The Northern Peninsula Regional Service Board includes all of the communities on the Northern Peninsula north of River of Ponds (NorPen 2010, internet site).

In 2008 the GNL provided funds to enable NorPen to decommission a landfill at Castors River, clean-up the St. Barbe and Straits landfill sites, and then re-develop the St. Barbe / Straits site into one consolidated landfill site. This work has been completed. NorPen is currently in the process of closing out dump sites at St. Lunaire-Griquet and Cook's Harbour (NorPen n.d., internet site).

Central and Eastern Newfoundland

The Study Area Region overlaps with five waste management regions. However, the Central Newfoundland Regional Service Board, which covers the area from Terra Nova Park (inclusive) in the east to Buchans in the west and Fogo Island / Twillingate in the north, is responsible for most of the Region (Figure 15.3.5-2). The Board is overseeing the construction of the waste disposal site at Norris Arm, as well as the operations of seven local waste management facilities or transfer stations. The Norris Arm site, which is approximately 30 km north of Grand Falls-Windsor, will be the main waste disposal site for all communities on the Island west of Clarenville. The Board will also work closely with communities in central Newfoundland in preparation for closing 42 landfill sites in the region (Central Regional Service Board 2010, internet site).

Avalon Peninsula

The Avalon Peninsula Study Area Region is covered by Eastern Waste Management, which includes the region from the Avalon Peninsula to Clarenville, including Random Island and communities to Burgoyne's Cove in the east and to Swift Current to the west. A total of 42 landfill sites are planned to be closed, with the Robin Hood Bay waste management site in St. John's used as the main waste disposal site for all communities east of Clarenville (Eastern Waste Management 2011, internet site).

15.3.5.4 Water Supply

Responsibility for the provision of water supply and sanitation services in Canada lies with municipalities. However, the provincial government and the federal government also have important responsibilities related to the setting of standards, research, economic regulation, and water resources management (NLDEC 2009, internet site).

Data by Study Area Regions for supply source, water quality and other descriptors are not available. However, approximately 83% of the province's population receives water from public sources and 17% from private sources. The majority of public water sources are surface water (88%) (i.e., lakes, ponds, reservoirs, rivers and streams), and the remaining are groundwater (12%) (i.e., dug and drilled wells). Approximately 75% of the public surface water supply sources and about 3% of the public groundwater supply sources are protected. Approximately 83% of the total population of the province has access to public water supplies while the remaining 17% use private supplies.

There are 794 water systems in the province, of which 607 are public systems and 187 are private systems, defined here as unserved communities where each household has its own water source (Water.ca 2008, internet site). Water quality varies widely across the province. A Boil Water Advisory (BWA) is generally issued when there is reason to suspect possible pathogen contamination of a community's drinking water. The number of BWAs has declined from 322 in 2001 to 211 in 2009, and the number of communities affected from 223 in 2001 to 145 in 2009 (NLDEC 2009, internet site).

Additional information on water supplies in the Study Area Regions is presented in Section 10.4.4 from a water quality perspective and Section 15.5.3 from a land use perspective.

15.3.5.5 Electrical Power and Communications

In Newfoundland and Labrador, the generation and distribution of electricity is primarily the responsibility of two energy utilities. Newfoundland and Labrador Hydro (NLH), a crown corporation and subsidiary of Nalcor, is the main generator of electricity in the province. The utility has an installed generating capacity of approximately 1,635 MW that is comprised of a mix of hydroelectric, oil-fired thermal, gas turbine, and diesel plants as well as thousands of kilometres of associated transmission and distribution lines. Newfoundland Power, an investor-owned utility and subsidiary of Fortis Inc., is the main distributor of electricity in the province (Newfoundland Power 2011, internet site). The company distributes power to approximately 240,000 customers on the Island of Newfoundland, over 90% of which it purchases from NLH. In Labrador, customers on that interconnected system are served by NLH with power from the Churchill Falls Hydroelectric Generating Station in Labrador West. Customers on various isolated systems on the coasts of Newfoundland and Labrador receive their power from generators operated by NLH.

Telecommunications infrastructure and services in Newfoundland and Labrador are delivered by the private sector that, since 1989, has been regulated by the federal government through the Canadian Radio-television and Telecommunications Commission (CRTC). Landline services are available throughout the province. Cellular telephone service became available to the province in 1990 (Newfoundland and Labrador Heritage Website 2008, internet site), but cell phone coverage still varies geographically by availability, type and company. In a few areas there is no telephone service coverage at all. The last category includes sections of the TLH. However, in this case emergency telephone service is available through the provincial government's TLH satellite phone service, through which phones are available to travellers on the highway between Labrador

West and Happy Valley-Goose Bay and between Happy Valley-Goose Bay and the South Coast (NLDTW and NLDLAA 2011, internet site).

5 Access to the internet has increased steadily in the province in recent years. In 2005, 55% of the population had internet access from any location. By 2009 this had increased to 69%. Home, work and school Internet access by individuals have all increased substantially, with school access showing some of the largest gains. However, the percentage of individuals with access to the Internet is still well below that for Canada as a whole (80.3% of all individuals in 2009) and is the lowest among the provinces (Statistics Canada 2010a, internet site). Type of access also varies considerably, with many areas (approximately 20% of the province) still without access to broadband Internet (CBC 2011b, internet site). In 2011 the provincial government announced an \$8 million program to further expand broadband services (GNL 2011, internet site).
10

Relative to Canada as a whole, Newfoundland and Labrador schools are now well connected to the internet. In 2003-2004, 99.5% of schools in the province were connected with 93.1% of computers in the schools connected to the Internet. Comparative figures for Canada as a whole were 97.7% and 92.7% respectively (Statistics Canada 2009b, internet site). However, 15.7% of schools at that time still relied on dial-up access compared to 8.6% for Canada as a whole. Use of dial-up access is typically associated with rural and small schools where the cost of providing broadband services. Wireless broadband delivered by satellite systems is an alternative in remote areas and in Newfoundland and Labrador 16% of schools used satellite connections in 2003 / 04 (Ertl and Plante 2004, internet site).
15

The GNL has collaborated with a variety of organizations to ensure that everyone has equal learning opportunities through the Centre for Distance Learning and Innovation (CDLI) regardless of where they live in the province. Established in 2000 by the provincial Department of Education, the CDLI mandate was to bring schools and communities access to a greater range of high quality educational programs and services by providing high-speed Internet access to schools located in rural areas. Since 2002 many schools have made e-courses available through the Centre. These courses use the same curriculum as classroom-based education but are available to students whose schools may not offer courses they wish to take or are required for certain professions (NLCDLI 2009, internet site).
20
25

15.3.5.6 Policing, Fire Protection and Emergency Response

Policing

30 The Royal Newfoundland Constabulary (RNC) and the Royal Canadian Mounted Police (RCMP) have responsibility for policing in Newfoundland and Labrador. The RNC currently polices the St. John's Metropolitan Area (St. John's, Mount Pearl and surrounding communities), Corner Brook and Labrador West (Labrador City, Wabush, Churchill Falls and surrounding area), of which the first two are within the Study Area Regions. There are 11 RCMP Police Districts, 44 detachments, and satellite offices and patrol cabins within Newfoundland and Labrador (Figure 15.3.5-3).

35 Newfoundland and Labrador has the lowest requirement level for policing in Canada, reflecting the province's relatively low crime rates. In 2009-2010, the RCMP had 671.5 established positions in "B" Division, comprising 524 regular members, 55 civilian members and 92.5 public service positions (RCMP 2011, internet site). Among the programs and services provided by the Newfoundland and Labrador RCMP are: the Atlantic Region Integrated Technological Crime Unit, Auxiliary Constables, Commercial Crime Section, Provincial Emergency Unit, Police Dog Services, Underwater Recovery Team, Violent Crime Linkage Analysis System and a Major Crime Unit (RCMP 2011, internet site).
40

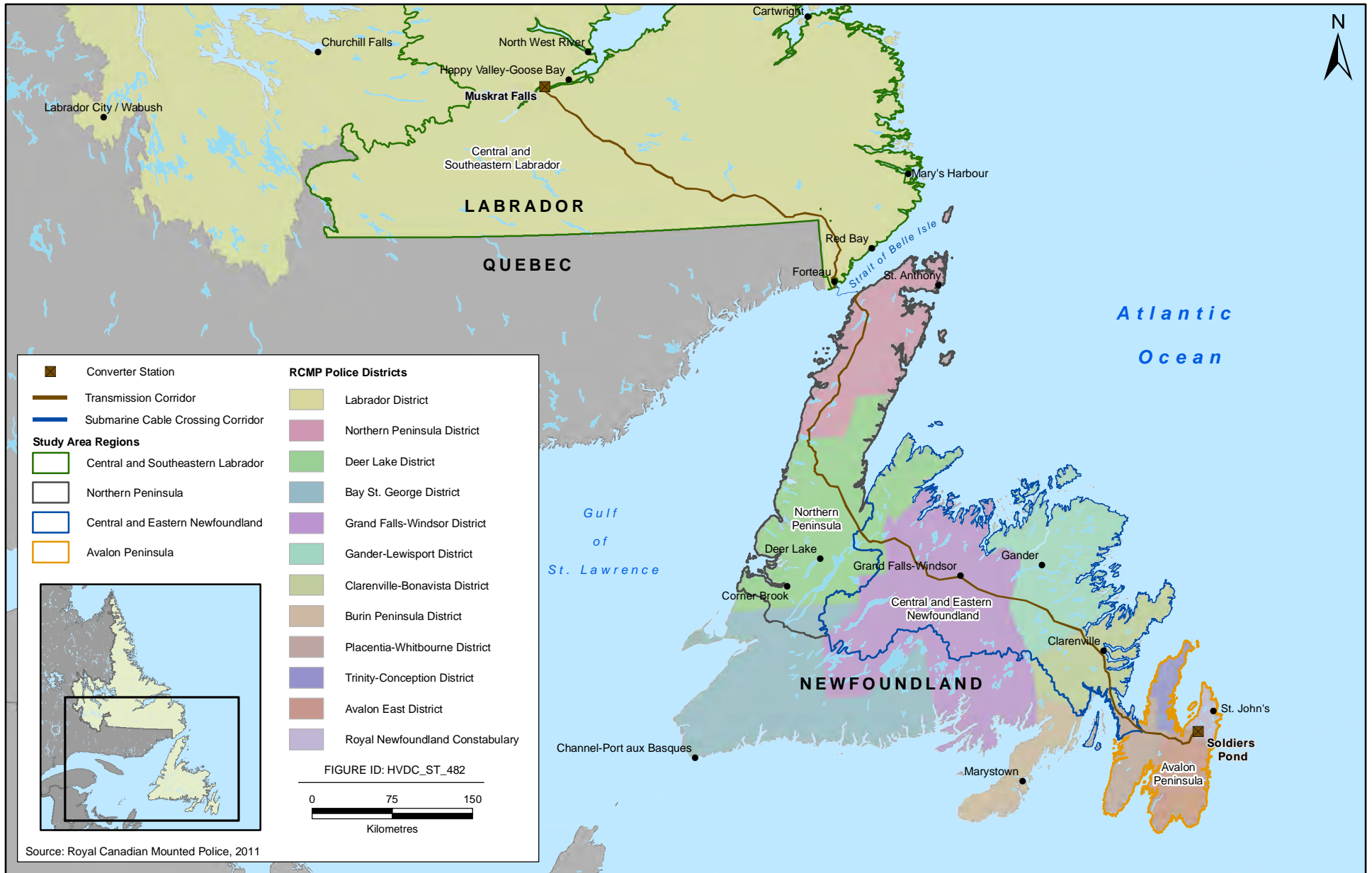


FIGURE 15.3.5-3



**Royal Canadian Mounted Police
Districts of Newfoundland and Labrador**

The RNC Headquarters is located in St. John’s at Fort Townshend. The RNC’s regional operations are managed by a Superintendent with an Inspector in Corner Brook and an Inspector in Labrador City. The regional divisions are responsible for managing assigned budgets and participating in strategic and operational planning activities (RNC 2011, internet site).

5 In 2009-2010 there were 383 RNC officers (of whom 327 were in the North East Avalon and 41 in Corner Brook) and an additional 142 civilian staff (RNC 2010, internet site). The RNC is involved with a variety of community services including the Junior Police Academy, Students Taking Responsibility in Violence Education (STRIVE), Drug Abuse Resistance Education (DARE), Neighbourhood Watch, Drive Wise, Armed Robbery Prevention, Shoplifting Prevention, Crime Prevention for Business, Internet Safety, Identity Theft and Bicycle Safety (RNC 2011, internet site).

10 Crime statistics for selected offences for the period 2006 to 2009 recorded by the RCMP and the RNC for the province as a whole are given in Table 15.3.5-1. The greatest increase in the activity categories listed is in Drug Enforcement, which increased by 106% over the period.

Table 15.3.5-1 Selected Crime Statistics, RCMP and RNC Newfoundland and Labrador, 2006 to 2009

Criminal Activity	2006	2007	2008	2009
Total Crimes Against Persons				
RCMP	4,170	4,235	4,220	4,281
RNC	2,797	3,543	4,123	4,166
Total Crimes Against Property				
RCMP	11,300	11,210	11,065	11,001
RNC	11,373	12,150	11,232	11,782
Total Other Criminal Code				
RCMP	5,195	4,525	4,880	4,732
RNC	2,509	3,465	3,499	3,485
Federal				
Drug Enforcement				
RCMP	490	625	755	1,018
RNC	314	394	541	640

15 Source: RCMP Police Reporting and Occurrence System (PROS) cited in NLSA / Community Accounts 2011, internet site; RCMP 2010, internet site; RNC 2010, internet site.

20 Data for the number of offenders appearing in court by those policing Regions which best approximate the Study Area Regions are provided for the 2006 to 2009 period in Table 15.3.5-2. The number of offenders shows an increase of 15.2% over the period. For the province as a whole, most offenders over the age of 18 are in the 18 to 24 year age category. However, on a region-to-region basis the age category with most offenders varies considerably.

Table 15.3.5-2 Provincial Court Offenders, Study Area Region / Policing Region, 2006 to 2009

Study Area Region / Police Region	2006	2007	2008	2009
Newfoundland and Labrador	5,160	5,285	5,530	5,945
Labrador				
Labrador District, RCMP	535	580	665	695
Total	535	580	665	695
Northern Peninsula				
Northern Peninsula District, RCMP	125	150	135	130
Corner Brook, RNC	290	290	200	225
Deer Lake District, RCMP	250	240	270	285
Total	665	680	605	640
Central and Eastern Newfoundland				
Grand Falls-Windsor District, RCMP	280	360	320	315
Gander-Lewisporte District, RCMP	365	405	440	415
Clarenville-Bonavista District RCMP	230	210	215	235
Total	875	975	975	965
Avalon Peninsula				
Trinity-Conception District, RCMP	200	210	245	280
Placentia District, RCMP	90	95	100	120
Avalon East District RCMP	165	135	165	135
Avalon East, RNC	1,935	1,810	1,895	2,215
Total	2,390	2,250	2,405	2,750

Source: NLSA / Community Accounts 2011, internet site.

Note: Includes all of Labrador except Labrador West (Labrador City, Wabush, Churchill Falls).

Fire and Emergency Response

- 5 Fire and Emergency Services Newfoundland and Labrador is an agency that combines the roles of the Provincial Fire Commissioner with the Emergency Measures Organization. Its mandate is to maintain an emergency management system across the province, in collaboration with such partners as municipalities. It is the only agency that is authorized to coordinate the activities of all police, fire, health, social services, and other services in an area, either municipal or provincial, and to engage civilian personnel to assist in these services (NLFES 2011, internet site).

10 In respect to ambulance services, the Department of Health and Community Services is responsible for policies, procedures, standards and negotiations with private and community operators. The province's Regional Integrated Health Authorities are responsible for delivery of the provincial road and air ambulance programs. A road ambulance service is provided from 80 locations across the province (NLDHCS 2011a, internet site).

15 An emergency air ambulance program has been in place in this province since the early 1950s. Today, there are two King Air 350s, which provide dedicated service to the entire province and are located in St. John's and Happy Valley-Goose Bay. A Twin Otter also located in Happy Valley Goose-Bay mainly services the Labrador region. In addition to these fixed-wing aircraft, five helicopters on contract are used for special trips, including

Medevacs from remote areas, which cannot be reached with a fixed-wing aircraft. These helicopters are located in Gander, St. Alban's, St. John's, Pasadena and Happy Valley-Goose Bay. Private charter services are also used when provincial aircraft are not available (NLDHCS 2011a, internet site).

5 Community fire protection services are provided across the province by local or regional fire departments, the majority of which are staffed by either voluntary personnel or a composite of career and voluntary personnel. In 2009, 301 fire departments served the province (Porter 2010, pers. comm.), several of which serve regional functions, such as the Straits Volunteer Fire Department in Flower's Cove. All departments across the province participate in ongoing training, coordinated by Fire and Emergency Services Newfoundland and Labrador (Hollett 2010, pers. comm.).

10 The provincial government through the Forestry Services Branch, Department of Natural Resources, provides forest fire protection. Since 1975, the province has taken the lead role in forest fire management and suppression substantial purchases of new equipment, technology and aircraft have been made since then to help protect forest resources. The Forest Service operates six CL-215 Air Tankers along with a Cessna spotter. Four long-range helicopters are on full-time standby and others are hired as needed. This equipment is used
15 for initial attack along with ground crews who are scattered throughout the Island and in Labrador in 27 depots. Fire co-ordination is handled by a Duty Officer for each region who oversees the initial attacks and deploys equipment as required. There are approximately 100 forest fire suppression field staff employed by the department throughout the various districts (NLDNR 2011, internet site).

20 The Forest Fire Protection Centre, located in Gander, opened in 1986. The Centre coordinates communications and assignment of resources between forest fires occurring in Eastern Region and serves as a base for a regional Helitack Crew. This two-person crew responds to forest fire reports in the central part of the Eastern Region generally within Forest Management Districts 4, 5, 6 and 8. The crew also has access to a fire truck to respond to fires in and around the Town of Gander and Gander International Airport. In 1996, a state-of-the art hose drying, testing and repair facility was opened adjacent to the Forest Protection Centre (NLDNR 2011,
25 internet site).

The number of fires each year fluctuates largely in association with local weather conditions. For example, in 2009 there were 176 fires that burned 35,268 ha (National Forestry Database (NFD) 2011, internet site). The 2009 forest fire season in Newfoundland and Labrador was slightly above the ten-year average in fire starts and hectares (ha) burnt (NLDNR 2011, internet site). By contrast in 2010 there were only 61 fires and only
30 1,020.4 ha of forest were burned. Most of the area subject to forest fire in 2010 was in Labrador (981.7 ha) of which only 9.0 ha were considered productive forest (NLDNR 2011, internet site).

15.3.5.7 Housing

In 2006 there were 197,245 occupied private dwellings in Newfoundland and Labrador, an increase of 4.3% from 2001 (Statistics Canada 2006a, internet site; Statistics Canada 2001). Nalcor has addressed property
35 values in the EIS through housing prices. Once the final right-of-way (ROW) has been determined, Nalcor property acquisition process discussed in Section 16.5.5.1 will be initiated and relevant property values will be determined at that time.

In 2009, housing starts in the province totalled 3,057 units. Although this was 6.3% fewer units than in 2008, this level was relatively high in a historical context and performance was much better than nationally, where
40 housing starts decreased by 29.4% (NLDF 2010b, internet site). In 2010, the number of housing starts in Newfoundland and Labrador increased by 18% to 3,606 (Statistics Canada 2011, internet site).

The province has recently experienced a surge in house prices. This has been attributed to historically low interest rates, combined with overall economic strength, which has led to high overall market demand (Canadian Mortgage and Housing Corporation (CMHC) 2010a, internet site). Between 1997 and 2007 the New
45 House Price Index for Newfoundland and Labrador increased 36.3%, an average of 3.6% per year. Since then new home prices in the province have increased significantly, for example, by 19.6% in 2008 and by 11.5% in 2009. The cumulative increase in house prices in the province in 2008-2009 was the greatest increase observed

in Canada (CMHC 2010a, internet site). In 2009 the residential MLS average price was \$206,374 and was forecast to rise to \$233,125 by the end of 2010 and to \$241,500 in 2011 (CMHC 2010a, internet site).

5 More recent information from CMHC suggest that average prices in the province appear to have stabilized around the \$235,000 level and while housing prices continue to be strong, continued weakness in sales combined with an increase in active listings may slow further upward price movement and create a more balanced market (NLDF 2011b, internet site).

10 In terms of rental costs, the average rent for a two-bedroom unit in spring 2011 was \$683 across five urban centres surveyed. In April 2011 the St. John’s Census Metropolitan Area (Avalon Study Area Region) had the highest rent costs at \$744, Grand Falls-Windsor (Central and Eastern Newfoundland) was \$632, Corner Brook \$577 (Northern Peninsula) and Gander (Central and Eastern Newfoundland) \$567. In April 2011 the overall provincial vacancy rate was 2.1%, up from 1.1% in April 2010. The strong economy helped keep vacancies at near historic lows in the St. John’s Census Metropolitan Area, with a vacancy rate of 2.0% in spring 2011. Vacancy rates were highest in Grand Falls-Windsor while Corner Brook had the lowest vacancy rate at this time at 1.7% (CMHC 2011, internet site).

15 Newfoundland and Labrador has some of the oldest public housing in Canada. Construction began in 1949 and at that time homes were built to house larger families. Almost 80% of units have three or more bedrooms. The province’s population characteristics have since changed and now the majority of the housed tenants and applicants are smaller families, which require only one or two bedroom homes. 70% of public housing tenants are either single occupants or are single parent families. Almost 85% of applicants for social housing are single
20 parents, single individuals and seniors (NLHC 2009, internet site).

Census data for 2006 give the number of dwellings in each Study Area Region and for the province as a whole (Table 15.3.5-3).

Table 15.3.5-3 Total Number of Dwellings by Study Area Region, 2006

Region	Total Dwellings
Newfoundland and Labrador	197,245
Central and Southeastern Labrador	4,675
Northern Peninsula	22,910
Central and Eastern Newfoundland	45,745
Avalon Peninsula	95,225

Source: NLSA / Community Accounts 2011, internet site.

25 Most dwellings in the Study Area Regions are detached homes, ranging from 97% of the total dwellings in Zone 20 on the Avalon Peninsula, to 82% in Zone 14 in Central and Eastern Newfoundland. Other types of dwellings (e.g., semi-detached units and apartments) are more common in the larger urban areas and here the proportion of detached homes is smaller. In Zone 19, in northeast Avalon, for example, the proportion of detached homes is only 56%. In all Study Area Regions the percentage of one-family households occupying the
30 homes is more than 70%.

Much of the recent economic growth in the province has occurred in the St. John’s Census Metropolitan Area and it is here that price increases have been greatest. However, large increases have also been experienced in Central and Western Newfoundland. For example, in 2009 prices in the Gander and Grand Falls-Windsor areas in the Central and Eastern Newfoundland Study Area Region increased by 7% to 8% over the previous year
35 (notwithstanding the economic distress associated with the closure of the paper mill in Grand Falls), and in the same period Corner Brook in the Northern Peninsula Study Area Region experienced an 18% increase (CBC 2010, internet site).

15.3.5.8 Education

Public school boards in Newfoundland and Labrador administer the daily operations of Kindergarten to Grade 12 schools within their district. The boards are funded by the Department of Education, are guided by trustees, and serve the Labrador, Western, Central, Eastern areas of the province, and in the case of the Francophone school board, the province as a whole.

In recent years, Newfoundland and Labrador has seen a decline in the number of schools, students and full-time teachers, and in the student-teacher ratio. In the 2010-2011 school year there were 272 public schools in the province and the number of full-time students in grades kindergarten to 12 was 68,716. This represents a decline of 1.4% from 2009-2010. Student enrolment is expected to continue to decline at a rate of 1.0% to 1.7% for the next four years to 2014. In 2010-2011 there were 5,631 full-time equivalent educators allocated, 34 fewer than the previous year. In addition to the public schools there are five private schools and three First Nations schools in the province (NLDE 2011a, internet site).

Post-secondary education and training in the province is provided primarily through Memorial University, which has its main campus and a Fisheries and Marine Institute (Marine Institute) in St. John’s, and the Grenfell Campus in Corner Brook. In addition, there is the College of the North Atlantic (CNA), which has 17 campuses throughout the province. There are also 27 registered private training institutions, some of which are trade union sponsored, the majority of which are in the St John’s area. The private colleges primarily offer vocational training (NLDE 2011b, internet site).

Table 15.3.5-4 summarizes recent school data for the Study Area Regions. These and other education-related data for each of the Study Area regions are discussed below.

Table 15.3.5-4 Education Indicators, Study Area Regions, 2009-2010 and 2010-2011

	Number of Schools (2009-2010)	Enrolment (2010-2011)	Number of Teachers (2009-2010)
Central and Southeastern Labrador	18	1,975	191
Northern Peninsula	38	7,728	640
Central and Eastern Newfoundland	75	14,872	1,239
Avalon Peninsula	93	34,403	2,560

Source: NLSA / Community Accounts 2011, internet site.

Central and Southeastern Labrador

The Central and Southeastern Labrador Study Area Region overlaps with two school districts: the Labrador School District and the Western School District. In 2010-2011, the Labrador District School Board provided educational services to 3,413 students in 15 schools, which are located in three distinct regions: Coastal Labrador, Western Labrador and Central Labrador (NLDE 2011c, internet site). Of the 14 communities under the Board’s jurisdiction, seven have a native / Aboriginal designation and three others have a significant population of native people as well. As such, the Labrador School Board provides educational services for the vast majority of the province’s Inuit and First Nations children. In fact, nearly 40% of the District’s students are of Aboriginal ancestry. The Board delivers instruction in four languages, French, English, Innu-aimun, and Inuktitut (Labrador School Board 2008, internet site).

In 2008, the Board had 638 full- and part-time employees, of which 257 are full-time equivalent teachers and another 60 are substitute teachers to varying degrees on an annual basis (Labrador School Board 2008). In 2010-2011, the Labrador School Board had six urban schools and nine rural schools. There were 2,673 students enrolled in urban schools (78.3%) and 740 enrolled in rural schools (21.7%) (NLDE 2011c, internet site).

The Western School District includes the western portion of Newfoundland and the southeastern portion of Labrador. The district includes southeastern Labrador, all of the Northern Peninsula, Deer Lake, Corner Brook, and Stephenville, south to Port aux Basques, and Francois on the south coast. As of July 1, 2008, there are 72 schools in the Western School District, ranging in enrolment from six students (William's Harbour School) to 989 students (Corner Brook Regional High). The average school size is 185 students. As of July 1, 2008, the Western School District has 2,174 employees. Of these, approximately 1,625 are permanent employees, and the remaining work in a substitute or call-in capacity (Western School District 2011, internet site).

As indicated in Table 15.3.5-4, the Central and Southeastern Labrador Study Area Region had 18 schools in the 2009-10 school year employing 191 teachers. During the 2010-11 school year, 1,975 students were enrolled in these schools. There is a CNA campus in Happy Valley-Goose Bay, which admits approximately 300 full-time students annually in a variety of programs. More than 1,200 part-time students participate in contract training, *ad hoc* programs and continuing education courses. In addition to the main campus, CNA manages Coastal Learning Centres in North West River and Port Hope Simpson, which teach Adult Basic Education to local residents.

Northern Peninsula

Education in the Northern Peninsula Study Area Region is mainly the responsibility of the Western School district, the area of which was described in the previous section. There is also some overlap with the Nova Central School District in the Central and Eastern Study Area Region. As indicated in Table 15.3.5-4 there were 38 schools in the Northern Peninsula Study Area Region, employing 640 teachers in the 2009-2010 school year. During 2010-2011, these schools enrolled 7,728 students.

The CNA has two campuses in this Region: St. Anthony and Corner Brook. Full-time credit course registration at the Corner Brook campus is approximately 700 students per semester, with another 100 registered part-time. Upwards of 1,200 students participate in Continuing Education evening courses (CNA n.d., internet site). The Grenfell Campus of Memorial University in Corner Brook is a liberal arts and science institution of 1,350 students (Memorial University 2011, internet site).

Central and Eastern Newfoundland

The Central and Eastern Newfoundland Study Area Region falls within the Nova Central and Eastern School Districts. The Nova Central School District is responsible for Central Newfoundland, ranging from just east of Terra Nova Park to the Baie Verte Junction. It includes schools in Gander and east to Charlottetown; in the Lewisporte-Twillingate area; Grand Falls-Windsor west, including Buchans and Green Bay area; the Baie Verte Peninsula; and the Connaigre Peninsula.

During the 2007-2008 school year, the Nova Central School District had 12 urban schools with a total enrolment of 4,585 students (35.3%), and 55 rural schools with a total enrolment of 8,413 (64.7%). Many rural schools are centralized and serve several communities. There are 16 schools with populations of 50 or fewer students. Eight schools are located on islands accessible only by ferries. There are 26 schools with grades Kindergarten to 12 in Nova Central School District (Nova Central School District 2011, internet site).

The Eastern School District includes communities in the region east of Clarenville, including those on the Burin, Bonavista and Avalon peninsulas.

During the 2009-2010 school year, this Region had 1,239 teachers working in 75 schools. During the 2010-2011 school year and it had an enrolment of 14,872 students (Table 15.3.5-4). The CNA operates four campuses in the Region, in Baie Verte, Grand Falls-Windsor, Gander and Clarenville (CNA n.d., internet site).

Avalon Peninsula

As noted in the previous section, education in the Avalon Peninsula Study Area Region is administered by the Eastern School District, which includes 122 schools and has an enrolment of approximately 41,000 students.

The District employs approximately 4,100 teaching and support staff (Eastern School District 2010, internet site).

5 In the St. John's area the *Conseil scolaire francophone provincial de Terre-Neuve et du Labrador* operates one school and there are also three private schools: Lakecrest Independent School, First Baptist Academy and St. Bonaventure Academy.

There were 93 schools in the Avalon Peninsula Study Area Region during the 2009-2010 school year and 2,560 teachers. The 2010-11 school year saw an enrolment at these schools of 34,403 students.

10 Post-secondary education and training in this Region is provided through Memorial University's St. John's campus and the Marine Institute, which had a total of 18,746 students in 2010 (Memorial University 2010, internet site), five campuses of the CNA, and a number of private training institutions.

15.3.5.9 Income Support and Employment Services

15 In Newfoundland and Labrador, the provincial social assistance program is known as Income Support. The *Income and Employment Support Act* and the Income and Employment Support Regulations govern Newfoundland and Labrador's social assistance program. Income Support provides basic benefits to adults only. Children's basic benefits are provided through the Newfoundland and Labrador Child Benefit (Human Resources and Skills Development Canada (HRSDC) 2011, internet site).

20 In 2008 / 2009, Newfoundland and Labrador had the second lowest increase in social assistance cases in the country, likely because of the high Employment Insurance (EI) coverage. The Income Support caseload increased 2.4% between October 2008 and December 2009, rising to 24,781 cases in December 2009. In January 2010, the caseload increased even further to 24,984. By contrast, Newfoundland and Labrador was the only province to have EI coverage decline during the recent recession, although it still has the second highest coverage in the country (Citizens for Public Justice 2011, internet site).

25 The Department of Human Resources, Labour and Employment provides financial benefits and other services to eligible low-income individuals and families to assist in meeting daily living expenses (Newfoundland and Labrador Department of Human Resources, Labour and Employment (NLDHRLE) 2011, internet site).

Data for the incidence of Income Support are reported here by their constituent economic zones, as aggregating to the Study Area Region level risks distorting the data.

30 In 2008, the incidence of Income Support varied from a low of 3.3% in Economic Zone 5 of the Central and Southeastern Labrador Study Area Region to 11.8% in Economic Zone 12 in the Central and Eastern Newfoundland Study Area Region (Table 15.3.5-5).

Table 15.3.5-5 Incidence of Income Support, Economic Zones, 2008

Region	Income Support Assistance Incidence (%) ^(a)
Central and Southeastern Labrador	
Zone 3	8.1
Zone 4	8.0
Zone 5	3.3
Northern Peninsula	
Zone 6	6.2
Zone 7	7.1
Zone 8	9.2
Central and Eastern Newfoundland	
Zone 11	8.2
Zone 12	11.8
Zone 14	8.6
Zone 15	8.6
Avalon Peninsula	
Zone 17	10.8
Zone 18	9.2
Zone 19	10.4
Zone 20	6.9

Source: NLSA / Community Accounts 2011, internet site.

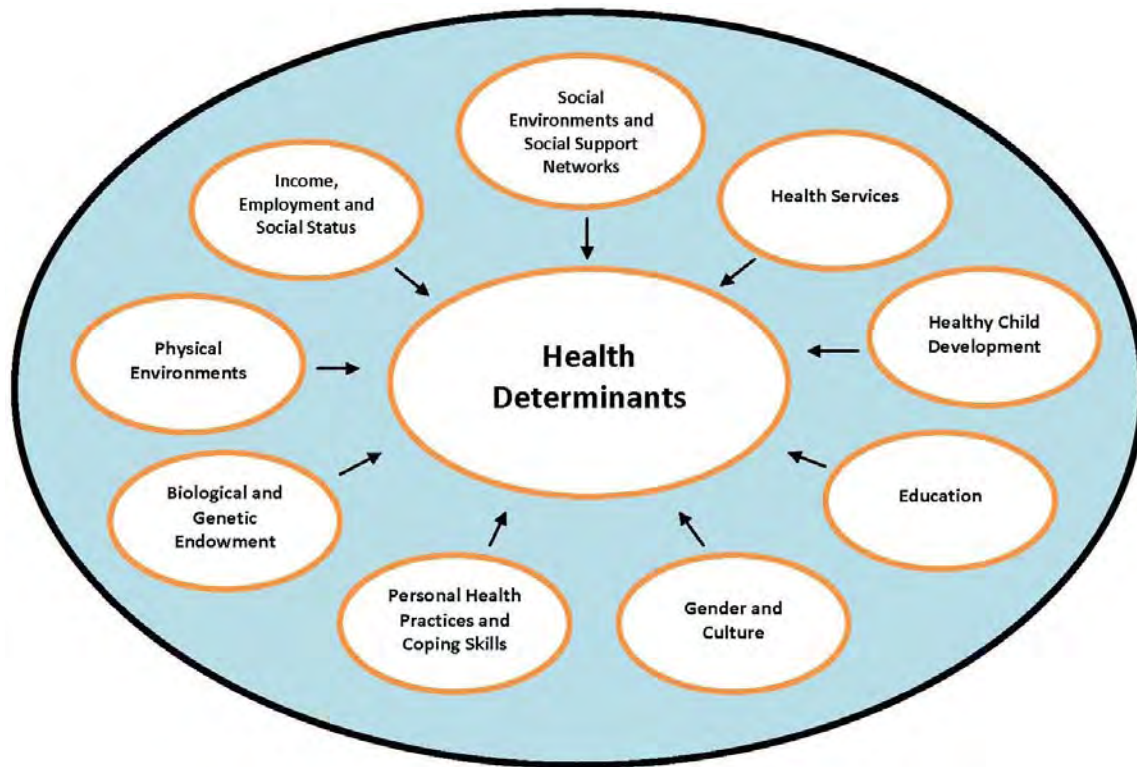
^(a) The 2007 and 2008 Income Support Assistance incidence has been approximated using the 2006 Taxfilers and Dependents figures.

15.3.6 Community Health

5 Human health is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization (WHO) 1947). Recognizing this, Health Canada (1999) has adopted a health determinant approach (Figure 15.3.6-1), which now often forms the basis for environmental assessments.

10 As indicated there is a complex relationship between human health and well-being and environmental, economic, social and community characteristics.

Figure 15.3.6-1 Health Determinants



Source: Health Canada 1999.

5 In this section the focus is on community and individual health and well-being, and describes existing conditions with respect to health services and facilities and aspects of health and well-being, including health status, emotional status, health practices, preventative behaviours and health issues. Readers are also encouraged to review chapters that describe physical environmental, economic and other human environmental aspects that also contribute to the overall health of members of the communities in the Study Area Regions.

10 Community and individual health are commonly mediated by aspects of family life and culture. In Newfoundland and Labrador these are valued and often viewed as being powerful, although demographic and economic change has to a degree undermined the importance of both.

15 In 2006, 89.7% of the Newfoundland and Labrador population lived in family households, compared to only 86.0% in Canada as a whole. However, the structure of families in Newfoundland and Labrador in 2006 was very similar to that for Canada; for example, lone-parent families comprised 15.5% of Newfoundland and Labrador families and 15.9% of Canadian families. Reflecting the province's low birth rates in recent decades, the average number of children at home in couple families (but not lone-parent families) was lower than is the case nationally: 0.9 versus 1.0 children per family.

20 The historical importance of extended families and family support in caring for both children and the elderly has also been undermined by high rates of out-migration, both from rural communities to urban centres (and especially the St. John's metropolitan area), and from the province to other parts of Canada (especially Northern Alberta). These demographic changes, allied to recent rapid economic growth, have also undermined family- and rural-based aspects of Newfoundland and Labrador culture. At the same time, some of the increased personal affluence has been directed at supporting the more commercial forms of cultural production, and there has been an increasing recognition of the economic value of local culture in attracting
25 tourists, leading to its increased commoditization.

15.3.6.1 Health Services and Facilities

5 The Department of Health and Community Services administers health and community services in Newfoundland and Labrador. In 2004, the provincial government announced the transition of 14 health boards into four Regional Integrated Health Authorities (Eastern, Central, Western and Labrador-Grenfell, see Figure 15.3.6-2) to provide better coordination of health needs within the province (NLDHCS 2005). In addition, there is a regional Nursing Home Board in St. John’s. Approximately 20,000 health care providers and administrators provide services to approximately 520,000 residents throughout the province (NLDHCS 2011a, internet site).

10 In 2002, there were 35 hospitals and health care centres, 21 nursing homes, three community clinics and 13 nursing stations in the province, which provided a total of 1,681 acute care beds and 2,839 long-term care beds (Table 15.3.6-1) (NLDHCS 2002). The number of health care facilities fluctuates from year to year, but the general trend for the 2002 to 2008 period saw a reduction in the number of acute and long-term care beds, from 1,681 to 1,594 and from 2,839 to 2,779, respectively (NLDHCS 2009, 2002). The level of service, as defined by the number of nurses and doctors per capita, is comparable to other provinces in Canada.

15 **Table 15.3.6-1 Health Services and Facilities, Newfoundland and Labrador, 2002, 2007 and 2008**

Health Services and Facilities	2002	2007	2008
Hospitals and health care centres	35	34	37
Nursing homes	21	22	19
Community clinics	3	14	14
Nursing stations	13	n.d.	n.d.
Acute care beds	1,681	1,626	1,594
Long-term care beds	2,839	2,747	2,779

Source: NLDHCS 2009, 2002; NLDHCS 2008, internet site.

n.d. No data.

20 Acute care services are provided in hospitals and health centres across Newfoundland and Labrador. All facilities provide 24-hour emergency services, outpatient clinics, and laboratory and x-ray services. The other services provided by a facility vary by location, but range from general surgery, internal medicine and obstetrics to specialized services such as cardiology and neurology (NLDHCS 2011a, internet site).

25 Long-term care services are delivered in both long-term care homes (nursing homes) and in some hospital / health centres with combined long-term and acute care services. All facilities provide 24 hour nursing care plus varying degrees of medical, rehabilitative, social work, pastoral care, dietetic, pharmaceutical, palliative care, respite and recreation programs. Some facilities maintain specialized programs and units for groups with special needs (e.g., Alzheimer’s disease) (NLDHCS 2011a, internet site).

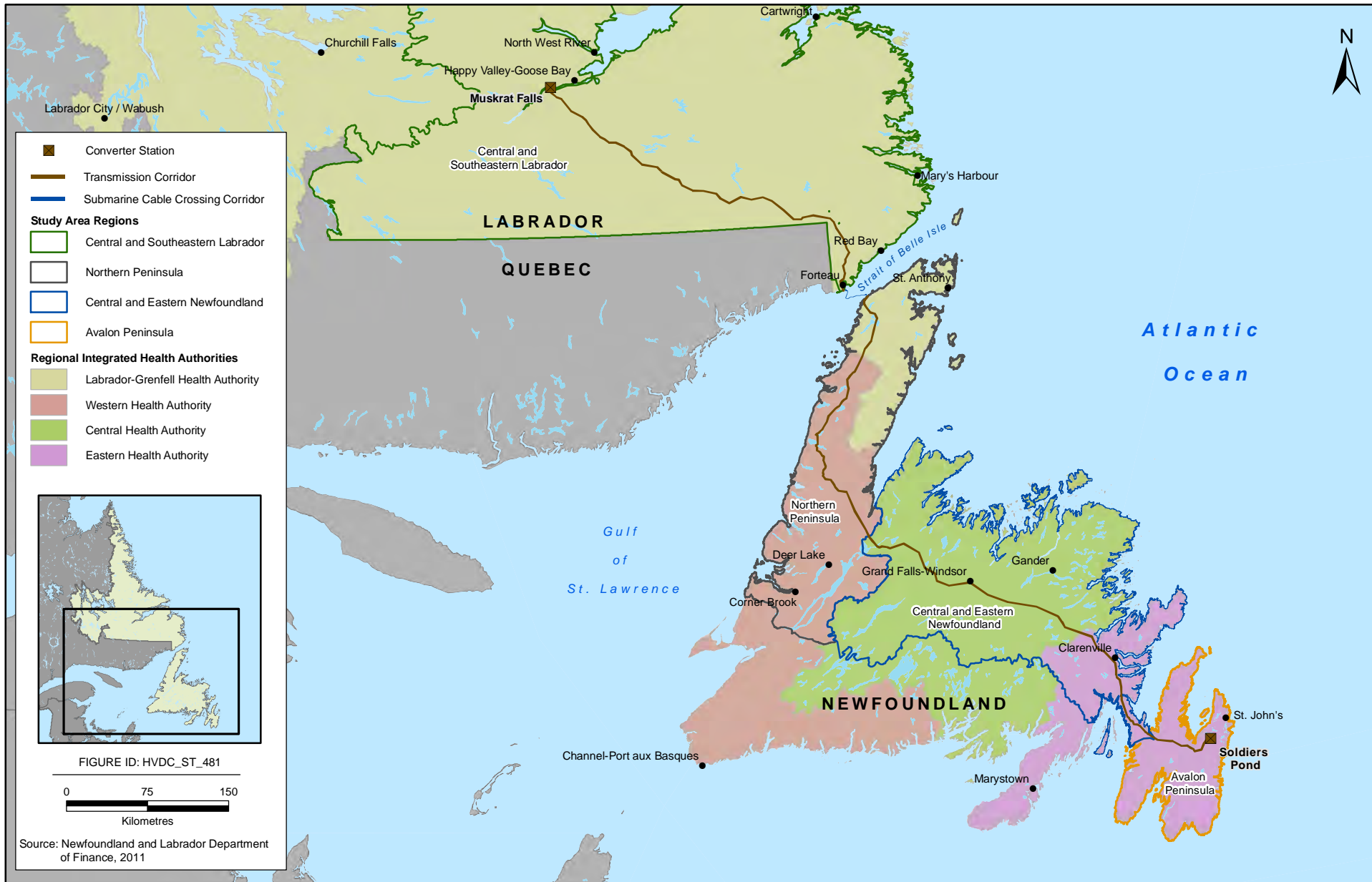


FIGURE 15.3.6-2

**Regional Integrated Health Authorities
of Newfoundland and Labrador**



Central and Southeastern Labrador

Health services in the Central and Southeastern Labrador Study Area Region are provided by the Labrador-Grenfell Regional Health Authority (Labrador-Grenfell Health). It is an integrated health and community services board that delivers primary and secondary health services to the residents of the region, including:

5 acute care, diagnostic and clinical support services; community health and wellness; dental services; health protection services; long term care; mental health and addictions services; residential services; and therapeutic intervention, rehabilitation and other rehabilitation services (Labrador-Grenfell Health 2011, internet site).

10 Labrador-Grenfell Health provides health and community services to approximately 40,000 people in Labrador and on the Northern Peninsula of Newfoundland (Figure 15.3.6-2). It employs more than 1,500 staff and operates three hospitals, three community health centres, 14 community clinics and two long-term care homes. Among these facilities are:

- the Labrador Health Centre, in Happy Valley-Goose Bay, which is equipped with 25 beds and has a 24-hour emergency department, as well as outpatient clinics;
- 15 • the Happy Valley-Goose Bay Long Term Care Home, which has 50 beds for those requiring level 3 and 4 care (Labrador-Grenfell Health 2011, internet site);
- the Labrador South Health Centre in Forteau, which has five in-patient beds a crib and an attached long-term care facility with 14 beds for those needing level 2,3, and 4 care; and
- 20 • community clinics in Black Tickle, Cartwright, Charlottetown, Mary's Harbour, Port Hope Simpson, St. Lewis and North West River / Sheshatshiu.

Northern Peninsula

Health care in the Northern Peninsula Study Area Region is the responsibility of both the Labrador-Grenfell Regional and Western Regional Health Authorities. Labrador-Grenfell Health manages health care for communities north of Bartlett's Harbour on the Northern Peninsula. Within this part of the Study Area Region,

25 Labrador-Grenfell Health operates three health care facilities: Curtis Memorial in St. Anthony, the White Bay Central Health Centre in Roddickton and the Strait of Belle Isle Health Centre in Flower's Cove (Labrador-Grenfell Health 2011, internet site).

The Western Regional Health Authority (Western Health) services a population of 79,460 residents with 49% of the total population residing within the Corner Brook - Humber Valley area. Western Health's responsibilities extend from Port aux Basques southeast to Francois, northwest to Bartlett's Harbour, and on the eastern boundary north to Jackson's Arm (Figure 15.3.6-2).

30

Western Health operates 226 acute care beds, and 434 long-term care beds as well as 40 enhanced assisted living beds for individuals with mild to moderate dementia. The organization employs over 3,000 staff that work in 51 sites throughout the region. The Authority operates 20 community-based offices, 24 medical clinics, four health centres, and two long-term care centres and offers community-based programs, including health promotion, health protection, mental health and addictions, intervention services, and community health nursing. Facilities in the Study Area Region include:

35

- Western Memorial Regional Hospital in Corner Brook, which has 192 beds;
- the Bonne Bay (Norris Point, 22 beds), and Rufus Guincharde (Port Saunders, 29 beds) Health Centres; and
- 40 • the Corner Brook Long Term Care Home (236 beds) (Western Health 2011, internet site).

Central and Eastern Newfoundland

The Central Regional Health Authority (Central Health) is the second largest health region in the province, serving a population of approximately 94,000 and offering them a full range of health care services. It is responsible for health care in most communities in the Central and Eastern Newfoundland Study Area Region. The boundaries of Central Health extend from Charlottetown in the east, from Fogo Island in the northeast, and from Harbour Breton in the south to Baie Verte in the west (Figure 15.3.6-2) (Central Health 2010, internet site).

Central Health provides primary, secondary, long-term care, community health and some enhanced secondary services. These are provided through two regional health centres, 31 community health centres, and five long-term care facilities. Central Health's responsibilities include promoting health and well-being, preventing illness and injury, providing supportive care, treating illness and injury, and providing rehabilitation services. There are 842 beds throughout the Central Health region: 264 acute care, 518 long-term care, 32 residential units and 28 bassinets. Central Health is responsible for the licensing and monitoring of personal care homes and child care centres within the region and partners with the Miawpukek First Nation to support health services delivery in Conne River. The total workforce for Central Health is approximately 3,200 (Central Health 2010, internet site).

The Eastern Regional Health Authority (Eastern Health) also provides health services within this Study Area Region. Eastern Health's jurisdiction extends from St. John's West to Port Blandford, and includes all communities on the Avalon, Burin and Bonavista Peninsulas (Figure 15.3.6-2). Its region includes 111 incorporated municipalities, 69 local service districts and 66 unincorporated municipal units. In 2009-10, Eastern Health operated seven acute care facilities (hospitals), 6 community health centres, and 13 long-term care facilities. Of these facilities, seven are in the Central and Eastern Newfoundland Study Area Region (Eastern Health 2010a, internet site; Eastern Health 2010b).

Avalon Peninsula

Eastern Health operates all health care facilities on the Avalon, Burin and Bonavista Peninsulas and is responsible for health care in the Avalon Peninsula Study Area Region. It is the largest integrated health organization in Newfoundland and Labrador and it provides the full continuum of health services to a regional population of almost 294,000. In addition it has provincial responsibilities for a range of services including cancer care, child rehabilitative clinics and genetics. Health and community services are offered through community-based offices, medical clinics, nursing homes and clinics.

Eastern Health employs 13,000 health care and support services professionals and operates 28 health care facilities, of which seven are acute care facilities, six community health centres, 13 long-term care facilities, a provincial cancer care and a provincial rehabilitation centre. In addition there are community-based offices in 30 communities. In 2009-2010, there were a total of 2,671 beds: 1,619 long-term care, 1,039 acute care and 13 observation / holding beds. The largest facilities are in the St. John's area, and include six long-term care facilities, four hospitals and a hostel. In 2009, the long-term care facilities in the St. John's area provided 1,056 beds, 44 in a hospital and 1,012 in six nursing homes (Eastern Health 2010a, internet site).

15.3.6.2 Health and Well-Being

Well-being, as discussed here, includes the health status, emotional status, health practices, preventative behaviours and health issues of the population in each of the Study Area Regions. Data for each of these components by Region are summarized in Table 15.3.6-2. As data availability varies by year, data years are indicated in parentheses in the discussion that follows.

For comparative purposes maximum and minimum beneficial and adverse well-being indicator values are highlighted. In the case of self-assessed health status, high reporting scores are considered as beneficial. On the other hand high reporting for smoking or alcohol consumption are considered as adverse indicators.

Table 15.3.6-2 Health and Well-Being Indicators, Study Regions and Comprising Economic Zones

Indicator	Central and Southeastern Labrador			Northern Peninsula			Central and Eastern Newfoundland				Avalon Peninsula			
	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 11	Zone 12	Zone 14	Zone 15	Zone 17	Zone 18	Zone 19	Zone 20
Health Status														
Excellent or very good self-assessed health status, age 12+ (2007-08)	57.6%	83.3%	41.5%	65.3%	67.8%	63.2%	67.7%	61.2%	58.1%	52.0%	61.6%	43.2%	65.3%	80.8%
Life expectancy at birth (years) (2005 / 2007)	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3
Median Age of Death (Total) (2004-2009)	71	74	80	79	75	77	78	78	80	79	78	79	78	77
Emotional Status (2007-08)														
Self-Assessed Mental Health as Excellent	44.7%	65.0% ^(a)	No Data	33.4%	50.7%	49.0%	32.8%	36.6%	35.2%	36.1%	42.2%	63.9% ^(a)	43.8%	31.1% ^(a)
Suicide, mortality rate per 100,000 (2007)	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Very Strong Sense of Belonging to a Community	21.8%	50.1% ^(a)	No Data	34.1%	46.2%	40.7%	30.6%	31.6%	35.2%	35.0%	29.0%	No Data	24.8%	No Data
Rated life stress as 'quite a bit', age 18+	10.5%	10.5%	10.5%	10.1%	10.1%	10.1%	10.1%	10.4%	9.0%	10.1%	10.1%	10.1%	10.0%	9.9%
Health Practices (2007-08)														
Smoke daily, age 12+	24.7%	25.4%	25.4%	19.9%	15.6%	18.4%	19.9%	19.9%	19.3%	19.9%	19.9%	19.9%	18.0%	18.1%
Heavy drinkers (5 or more drinks on one occasion, 12 or more times a year), age 12+	35.4%	40.0%	40.0%	22.3%	34.2%	27.8%	31.2%	29.0%	27.4%	27.1%	24.3%	31.2%	32.3%	46.6%

Table 15.3.6-2 Health and Well-Being Indicators, Study Regions and Comprising Economic Zones (continued)

Indicator	Central and Southeastern Labrador			Northern Peninsula			Central and Eastern Newfoundland				Avalon Peninsula			
	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 11	Zone 12	Zone 14	Zone 15	Zone 17	Zone 18	Zone 19	Zone 20
BMI 25 or greater, age 18+ (excluding pregnant women)	65.5%	46.6%	64.7%	77.9%	55.8%	62.1%	61.0%	68.0%	72.9%	62.7%	68.6%	76.4%	57.6%	55.0%
Physically inactive, age 12+ (2007)	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%	51.2%
Preventative Behaviours (2007-08)														
Have a regular Medical Doctor	57.7%	36.1% ^(a)	52.1% ^(a)	58.8%	68.8%	93.3%	72.9%	80.2%	19.3%	87.1%	92.4%	No Data	96.2%	No Data
Health Issues (Chronic Conditions 2008-09)														
Heart disease	48.8% ^(a)	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	24.6%	37.4% ^(a)	n.d.	n.d.
Diabetes	n.d.	n.d.	72.2% ^(a)	n.d.	32.3%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
High blood pressure	n.d.	n.d.	n.d.	43.3% ^(a)	48.5% ^(a)	48.2%	61.7%	35.8%	50.3%	38.7%	n.d.	n.d.	37.7%	45.3% ^(a)

Source: NLSA / Community Accounts 2011, internet site.

Note: Indicates the most beneficial level of the indicator among the Economic Zones / Study Area Regions.

Indicates the most adverse level of the indicator among the Economic Zones / Study Area Regions.

^(a) A high sampling variability associated with the estimate. The coefficient of variation for these estimates is equal to or falls between 16.6% and 33.3%. Please use with caution.

5 These data should be viewed and interpreted with caution. Aggregate data for each Study Area Region are not given as the component data for each of the Economic Zones (see Figure 15.3.1-1) that make up the Regions are available only as percentage values and, given the high sampling variability for some component estimates, aggregating information to the Study Area Region level risks additional distortion of the data. In addition, some reported results appear contradictory and need more in-depth analysis to explain them fully. For example, data for Economic Zone 20 (Avalon Peninsula Study Area Region) indicate that 80.8% of respondents consider their health to be 'excellent' or 'very good', but, at the same time, 46.6% report that they are heavy drinkers (as defined by the survey), and 55% indicate that they have a Body Mass Index (BMI) greater than 25, an indicator of obesity (Table 15.3.6-2).

10 The health status and overall well-being of members of Aboriginal groups is generally quite different from that of others, and warrant specific attention. Data for Aboriginal groups in Labrador and Québec are not always directly comparable to that for the Economic Zones and Study Area Regions, but are included in the following health and well-being themes.

15.3.6.3 Health Status

15 Self-assessed health status is accepted as a reliable and valid measure for assessing the subjective and objective health of individuals and complements other health status indicators (HRSDC 2011, internet site). In 2007-2008, 61.8% of people living in Newfoundland and Labrador self-assessed their health status as 'excellent' to 'very good'. Of those, 73.0% believed their health status was 'about the same' as compared to the previous year. The life expectancy at birth was 78.3 years for the entire province (2005 to 2007) and the median age of death between 2004 and 2009 ranged from 71 years in Zone 3 (Central and Southeastern Labrador) to 80 years in Zones 5 (Central and Southeastern Labrador) and 14 (Central and Eastern Newfoundland) (Table 15.3.6-2) (NLSA / Community Accounts 2011, internet site).

25 Within the Central and Southeastern Labrador Study Area region there was both the highest percentage of people over the age of 12 years who self-assessed their health status to be 'excellent' or 'very good' (Economic Zone 4 at 83.3%), and the lowest (Economic Zone 5 at 41.5%). The Avalon Peninsula Study Area Region shows similar internal variation, with a high of 80.8% in Economic Zone 20 and a low of 43.2% in Economic Zone 18 (NLSA / Community Accounts 2011, internet site). While a number of studies have explored the reasons for such regional variations, for example the relationship between self-assessed health status and income differentials (e.g., van Doorslaer and Koolman 2004; Hildebrand and Van Kerm 2005), such explanations are complex and beyond the scope and requirement of this assessment.

15.3.6.4 Emotional Status

35 A good indicator of emotional well-being is how a person perceives his or her mental health. In Newfoundland and Labrador 43.0% of people in 2007-2008 had some self-perceived life stress (Table 15.3.6-2). In addition, feeling a sense of community is likely to contribute to a person's emotional well-being, especially when it contributes to an individual's overall general health. In 2007-08, 30.5% of Newfoundland and Labrador residents felt a very strong sense of belonging to community (NLSA / Community Accounts 2011, internet site). The overall suicide mortality rate in 2007 was 10.3 per 100,000 people for Newfoundland and Labrador and for each of the Study Area Regions (NLSA / Community Accounts 2011, internet site).

40 The data on emotional well-being by economic zone suggests that there is a reasonably strong positive relationship between self-reported emotional status and sense of belonging to a community. At the same time, and as with self-reported health status, there is considerable variation between Economic Zones in the same Study Area Region with respect to these measures. In Central and Southeastern Labrador, for example, 65.5% respondents in Economic Zone 4 self-assessed their mental health as 'excellent' and 50.1% indicated a 'very strong sense of community'. By contrast, the responses in Economic Zone 3 for the same variables were only 50.1% and 21.8%. Data for the Avalon Peninsula Study Area Region are less complete, but in Economic Zone 18 63.8% indicated that their mental health was 'excellent', while only 31.1% of those in Economic Zone 20 reported the same (Table 15.3.6-2) (NLSA / Community Accounts 2011, internet site).

5 Suicide and attempted suicide is a particularly important issue among some Aboriginal populations. The age-adjusted suicide rate (the standardized rate based on the age distribution of the population as a whole) for Labrador in 2001 was estimated at 27 per 100,000, compared with 6.7 per 100,000 for the province as a whole (Statistics Canada 2001). Risk factors for suicide include mental health issues, alcohol-related factors and feelings of isolation. Although education is not a predictor of suicide, it does play an important role in understanding and preventing suicide attempts. Between 1998 and 2000 the rate of attempted suicide among Labrador Innu youth was 17 times the provincial rate (NLCHI 2004, internet site). In 2001, 42% of people in Sheshatshiu reported having actively thought about suicide and 28% had attempted suicide (Rogan 2001).

10 The suicide rate among Labrador Inuit is even higher at 239 per 100,000 for the 1999 to 2003 period. 22% of respondents to a 1997 Regional Health Survey had seriously thought of suicide, and 15% had made at least one attempt (National Aboriginal Health Organization 2006, internet site).

15 Personal and social well-being data regarding the mental health of Aboriginal populations in Québec are not as readily available, but in Unamen Shipu, for instance, suicide and suicide attempt rates are also reported as high. In 2006-2007, approximately 50 people tried to take their lives, and several succeeded (Hydro-Québec 2007).

15.3.6.5 Health Practices

20 The way individuals take care of themselves, as well as their daily lifestyle practices, including exercise and nutrition, is a large part of their well-being. According to the 2008-09 Canadian Community Health Survey (those sampled were 45 years and older), 79.4% of people in Newfoundland and Labrador did not smoke. This compared to 17.6% of people who were daily smokers (Table 15.3.6-2) (NLSA / Community Accounts 2011, internet site).

25 From the same survey, 53.6% considered themselves to be overweight and 43.9% thought they were the appropriate weight. Furthermore, 73.7% of survey participants said they had consumed alcohol in the past 12 months, while 56.4% admitted they never had five or more drinks on one occasion in that same time frame. Just over half (51.2%) of the entire population (over the age of 12 years) of Newfoundland and Labrador claimed they were physically inactive (NLSA / Community Accounts 2011, internet site).

30 Of all the Study Area Regions, Central and Southeastern Labrador (all Economic Zones) had the highest percentage (approximately 25%) of daily smokers over the age of 12 years (2007-08) (NLSA / Community Accounts 2011, internet site). This Region also had the highest number of heavy drinkers (defined as five or more drinks on one occasion, 12 or more times a year), with a range from 35.4% to 40.0%. The percentages of those with a BMI of 25 or greater ranged from the lowest in the province at 46.6% in Economic Zone 4 to 65.5% in Economic Zone 3 (NLSA / Community Accounts 2011, internet site).

35 Elsewhere, Economic Zone 20 in the Avalon Peninsula Study Area Region has the highest percentage of heavy drinkers in the province, 46.6%, while Economic Zone 18 in the same Region has among the highest percentage of those with BMI levels above 25.

40 Alcohol and solvent abuse is one of the most pressing health issues among Aboriginals in Labrador and is believed to be at the root of many other social ailments such as homicide, child abuse and neglect, family dysfunction and suicide. In addition, dietary practices are often poor with typical diets high in fat and deficient in fruits, vegetables and dairy products, as well as calcium and other important minerals. Among Innu, for example, increased reliance on store-bought foods as a result of a reduction in hunting compared to past generations, and a consequent decreased proportion of country food in the typical Innu diet increases health problem risks stemming from poor nutrition, increased obesity and Type II diabetes (Samson and Pretty 2006).

15.3.6.6 Preventative Behaviours

45 Preventative health behaviour generally stems from a belief that such actions will benefit health, for example quitting smoking can reduce the chances of early morbidity and mortality. Preventive actions can reduce, but

not eliminate, the chances of acquiring a disease or illness. The strength of the cause and effect relationship between certain behaviours and the health problem one is trying to prevent will determine the impact that performing the behaviour will have on reducing the risk (ENotes 2011, internet site).

5 Having a regular medical doctor is considered likely to be important in encouraging and facilitating preventative behaviours such as having flu shots and breast and prostate examinations. For the province as a whole, 87.8% of people in had access to regular medical doctor in 2007-08 (Table 15.3.6-2) (NLSA / Community Accounts 2011, internet site).

10 There is a very wide variation by Study Area Region and Economic Zone in the percentage of respondents having a regular medical doctor. For example, In Economic Zone 14 in Central and Eastern Newfoundland only 19.3% reported that they had a regular doctor, compared to 93.3% in Economic Zone 8 in the Northern Peninsula Study Area Region. In a regional sense, Central and Southeastern Labrador residents had the lowest level of regular access to a doctor with responses ranging from 36.1% in Economic Zone 4 to 57.7% in Economic Zone 3.

15.3.6.7 Health Issues

15 Provincial departments are working with regional health authorities, Aboriginal and community groups, businesses and organizations across the province to support programs that promote healthy living and provide opportunities to make healthy choices in this province. Diabetes and heart disease are two of the most common diseases in Canada and they are more common in Newfoundland and Labrador than in Canada as a whole (NLDHCS 2008, internet site).

20 In 2008-2009, for the healthy aging category (those 45 years plus), other chronic conditions affecting the people of Newfoundland and Labrador included arthritis (39.4%), high blood pressure (40.5%), back problems (26.3%) and thyroid condition (10.1%). In addition, 15.8% of Newfoundland and Labradorians suffered from diabetes and 40.5% reported having high blood pressure (NLSA / Community Accounts 2011, internet site).

25 Data for some of the most important health issues by Economic Zone and Study Area region are presented in Table 15.3.6-2. Data are limited for some Regions. For example, while heart disease is an important issue, data are not available for most regions and there is a high sampling variability for most Regions for which there are some data. While high blood pressure issues are fairly uniform across the Study Area regions, Zone 11 in the Central and Eastern Newfoundland Study Area Region stands out as higher than others.

30 Labrador Innu have higher than average rates of diabetes, mortality of people aged 65 or younger, youth mortality, teenage pregnancy and learning difficulties consistent with Fetal Alcohol Spectrum Disorder (FASD) (Philpott et al. 2004), compared to the Labrador-Grenfell Health Region as a whole.

35 The percentage of adult Labrador Inuit reporting excellent or very good health (58%) is similar to that for the general Canadian population (60%). The most commonly reported chronic conditions for Labrador Inuit adults are high blood pressure (19%) and arthritis / rheumatism (12%); in Canada, 12% of the population reported high blood pressure and 13% reported arthritis / rheumatism. About 30% of Labrador Inuit children have been hungry because the family had run out of food or money to buy food. This figure is the same as for Inuit children elsewhere in Canada (Statistics Canada 2006c, internet site).

40 Among Québec Innu, alcohol and drug abuse is prevalent, fostering violence and creating safety issues. In many cases, the traditional Québec Innu diet has been replaced with bad nutrition, which, combined with the lack of physical activity, lead to obesity. Diabetes is also more widespread among the Innu than the general population of Québec (Hydro-Québec 2007).

45 In an effort to address the unique health challenges and needs of the Aboriginal people of Newfoundland and Labrador, the GNL, in budget 2010, provided funding to hire a dedicated Aboriginal Health Liaison. This Liaison will work with Aboriginal governments and organizations in the province to facilitate the development of a holistic and collaborative Provincial Aboriginal Health Policy Framework (NLDHCS 2011b, internet site).

Similarly, in an effort to improve the health status of Canada's Aboriginal peoples, the federal government has partnered with the provinces and territories to deliver the Aboriginal Health Transition Fund (AHTF). The AHTF provides funding for Aboriginal initiatives that:

- improve accessibility of health programs and services for Aboriginal peoples;
- 5 • adapt existing health programs and services to better meet the needs of Aboriginal peoples; and
- increase the participation of Aboriginal peoples in the design, development, implementation and evaluation of programs and services that serve Aboriginal populations.

In Newfoundland and Labrador there are now some ten AHTF projects underway of which Aboriginal groups are the lead organizations in seven (NLDHCS 2011b, internet site).

10 **15.4 Economy, Employment and Business**

An appropriate description of the socioeconomic environment is required to define the context in which the Project will be constructed and provide a baseline that includes and evaluates Project related activities and likely effects. This includes the definition and discussion of the economy employment, and business environment. 'Economy' here refers to the set of activities relating to material production, distribution and consumption of goods and services, while 'Employment' relates to those persons in the labour force engaged in the production, distribution and servicing of those goods and services. 'Business' refers to the firms and other entities involved in organizing those production, distribution and service activities.

For this assessment and where data are available, employment, economy and business is considered at two geographic scales. First, and primarily, it is considered at a provincial level for all of Newfoundland and Labrador. In addition, the Study Area has been subdivided into four different on-land regions. Economic data for these four Study Area regions are based on data from those provincial Economic Development Zones through which the transmission corridor passes. The Study Area regions discussed are Central and Southeastern Labrador (Economic Zones 3, 4 and 5), the Northern Peninsula (Economic Zones 6, 7 and 8), Central and Eastern Newfoundland (Economic Zones 11, 12, 14 and 15), and the Avalon Peninsula (Economic Zones 17 and 19). Figure 15.3.1-1 illustrates the province's Economic Development Zones in relation to the Study Area regions.

Included within this section is a discussion of the following:

- Nature of the economic environment, including factors influencing economic growth, the contribution of key industries. This includes the economy of the province as a whole, as well as key elements of the economy in the Study Area regions.
- 30 • Definition of the provincial labour force, including age, education and skill levels, the availability of labour based on anticipated Project needs, and the relationship between labour and industry.
- A description of the business environment in the both the province and the Study Area regions.

Establishing the current and forecasted economic context for both the province and the regions is important in understanding how economic benefits of the Project can best be optimized and local opportunities for business and employment maximized.

15.4.1 Study Area

The discussion of existing baseline conditions for Economy, Employment and Business is focused primarily on the province as a whole as well as considering the various regions from Central and Southeastern Labrador to the Island of Newfoundland's Avalon Peninsula within which Project activities will occur. The Project regions are discussed, as feasible, using economic data for these regions from those provincial Economic Development Zones crossed. The regions discussed are Central and Southeastern Labrador (Economic Zones 3, 4 and 5), the

Northern Peninsula (Economic Zones 6, 7 and 8), Central and Eastern Newfoundland (Economic Zones 11, 12, 14 and 15), and the Avalon Peninsula (Economic Zones 17 and 19). Figure 15.3.1-1 illustrates the province's Economic Development Zones in relation to the regions.

15.4.2 Information Sources and Data Collection

- 5 Baseline data relating to Economy, Employment and Business were obtained from secondary sources, including:
- Statistics Canada and other agencies and departments of the Government of Canada;
 - the Newfoundland and Labrador Statistics Agency (NLSA) / Community Accounts, and other agencies and departments of the GNL; and
- 10 • municipal governments, local and regional authorities, and RED boards.

Information available through these sources was used to provide a description of the existing environment for the purposes of the environmental assessment.

15.4.3 Demographics

- 15 Changes in the province's economic health are reflected in a number of ways in the province's demography, while in turn, its demographic characteristics are in part reflected in economic conditions in the province. To set the context for these potential interactions, the current demographic structure and trends are summarized below. Additional information on population characteristics is provided in the Communities section (Section 15.3.4).

15.4.3.1 Newfoundland and Labrador

- 20 The January 2010 population for the province was estimated at 510,805, an increase of 2,510 since July 2009 (NLDF 2010a, internet site). The last census in 2006 reported a total population of 505,469, although the provincial government uses an estimate of 510,313 (Figure 15.3.4-1). There have been year-over-year population increases since 2008, the first time this has occurred since 1992 (NLDF 2009a, internet site).

- 25 A major consequence of the closure of the fishery in the early 1990s was the decline of the population. Between 1991 and 1996, there was a net loss of approximately 20,000 people and a further loss of almost 50,000 people between 1996 and 2002 (NLDF 2009a, internet site). These losses were concentrated in rural Newfoundland and Labrador, but were reflected in an overall decline in provincial economic health. This included higher unemployment rates (20.4% in 1994), a decline in the labour force, decreases in retail trade and declining housing starts.

- 30 Net migration to the province in 2008-2009 was positive, the first time this has occurred since 1982-1983 (see Figure 15.3.4-3). Positive net migration can be attributed in part to the strong performance of the provincial economy, but also to the fact that there were fewer jobs elsewhere in Canada, the global recession in 2008-2009 reducing the number of jobs in Alberta and Ontario in particular (NLDF 2010b, internet site).

- 35 Rapid aging of the population is one of the most important demographic challenges confronting the province because of its implications for both government and business (Figure 15.3.4-5). These include implications for government in terms of revenue generation capabilities, including federal transfers, local sales taxes and excise revenues. At the same time, public sector service needs, demands and expectations will change, with an increasing share of expenditures likely having to be allocated to health care in particular.

- 40 Low reproductive rates and an aging population have implications for labour supply. With fewer young people entering the labour force and with older workers retiring, the reduced labour supply could result in competition for labour, thereby driving up wage rates. Together with the pull of opportunities elsewhere in Canada, this could negatively affect private and public sector hiring in the province. However, a shrinking

labour force could have positive effects on the current high levels of youth unemployment and encourage investments to increase productivity.

For the business sector, an aging and potentially declining population has implications for consumer demand and shifting spending patterns by the sector. For both the business and government sectors, these demographic changes mean that provision of some services, for example, banking and education, may no longer be viable in some communities (particularly rural ones), with implications for the longer-term viability of those places affected (NLDF 2002, internet site).

Additional information on population characteristics is provided in the Communities section (Section 15.3.4).

15.4.3.2 Central and Southeastern Labrador

Demographic data for the Central and Southeastern Labrador region are based on information for Economic Zones 3, 4 and 5 (Figure 15.3.1-1). Demographic change in this region of the Study Area generally reflects that of Labrador as a whole, with a decline in the number of total births and negative net migration in recent years. As indicated in Figure 15.3.4-6, the total population of the area has declined 9.1% from 15,182 in 1991 to 13,797 in 2006 (NLSA 2007, internet site). Happy Valley-Goose Bay, located within Economic Zone 3, is the largest community in the region, with a population of 7,572 in 2006 (NLSA / Community Accounts n.d., internet site).

15.4.3.3 Northern Peninsula

Demographic data for the Northern Peninsula region of the Study Area is based on information from Economic Zones 6, 7 and 8 (see Figure 15.4.1-1). As indicated in Figure 15.3.4-7, the population of this region declined from 70,336 to 58,889 between 1991 and 2006 (16.3%). As in other Study Area regions, this has been primarily a result of declining reproduction rates and high levels of net out-migration, particularly amongst youth.

15.4.3.4 Central and Eastern Newfoundland

Demographic data for the Central and Eastern Newfoundland region of the Study Area is based in data from Economic Zones 11, 12, 14 and 15 (see Figure 15.4.1-1). This region too has seen a decline in population since 1991, from 142,111 to 115,918 in 2006, a decrease of 18.4% (Figure 15.3.4-8). While fewer births and out-migration account for the decline, geographically most of the population loss has occurred in the smaller communities. This has been partially offset by growth in a few of the larger regional centres along the TCH, such as Grand Falls-Windsor (1.6%), Gander (3.1%) and Clarenville (3.3%) (NLSA / Community Accounts n.d., internet site), to which many from smaller places in the region and elsewhere have moved.

15.4.3.5 Avalon Peninsula

The Avalon Peninsula Study Area region comprises Economic Zones 17 and 19 (Figure 15.4.1-1). The Isthmus of Avalon is not included in the region as it is part of Economic Zone 15. The region includes a variety of community types, ranging from the city entities of St. John's and Mount Pearl and larger towns such as Conception Bay South, Paradise and Bay Roberts, to small rural communities in the north and northwestern parts of the region. Unlike most of the other regions included within the Study Area, the majority of people in the region live in communities with populations over 5,000 (NLSA / Community Accounts n.d., internet site).

The total population of the region increased by 0.9% between 1991 and 2006, from 225,517 to 227,490 (Figure 15.3.4-9) and rebounded between 2001 and 2006 from the decline experienced in the 1996-2001 period. Most of the losses have been in the rural, smaller and more isolated communities in the region. For the 2001-2006 period, the population grew by 4.3% (NLSA / Community Accounts n.d., internet site). While the strength of the economy of the Census Metropolitan Area is closely associated with growth in the offshore oil sector, discussed below in Section 15.8.3, much of the population increase is associated with in-migration from elsewhere in the region and the province (NLDF 2008, internet site).

15.4.4 Economy

5 For many years since Confederation, Newfoundland and Labrador had the slowest growing economy in Canada. This situation was aggravated in the late 1980s and early 1990s with closures in the groundfish industry. The performance of the Newfoundland and Labrador economy today has improved dramatically, largely a result of the growth of the offshore oil sector, mineral production in northern Labrador and iron ore production in western Labrador. The Hibernia, Terra Nova and White Rose offshore petroleum projects (Shrimpton 2004, internet site); iron ore expansion in Labrador West (NLDNR 2010b, internet site); the Voisey's Bay mine / mill development in Labrador (Vale 2010, internet site) and most recently the Vale nickel processing facility at Long Harbour (Newfoundland and Labrador Executive Council (NLEC) 2009, internet site), 10 are among the larger capital projects that have been or are presently sources of considerable employment. These projects are the reason why the economy of the province, as reflected in Gross Domestic Product (GDP) growth, has been one of the fastest growing in Canada in recent years (NLDF 2010b, internet site).

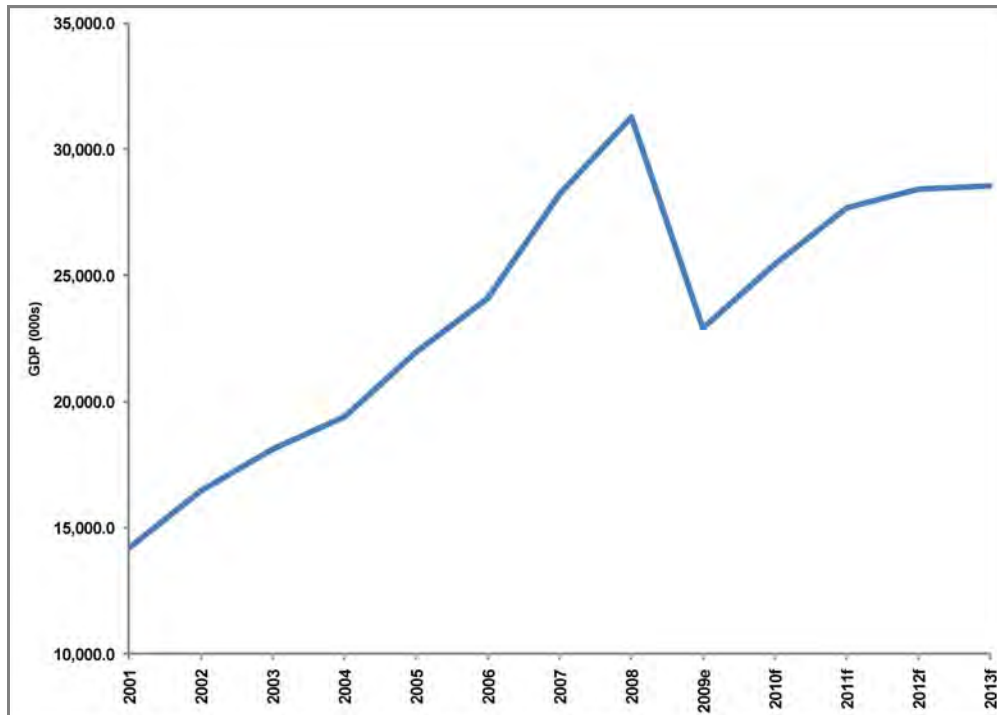
15 The provincial GDP, which represents the annual total value of all goods and services, petroleum and minerals extracted, etc., declined in 2009 by 8.9% as a result of the recession, which began in the third quarter of 2008. A decrease in oil exports combined with a substantial decrease in the price of oil, as well as in the value of minerals produced and recession-related output cuts were the main factors associated with this decline. Provincial GDP has and is anticipated to continue to rebound in 2010 and 2011, with forecast growth rates of 4.0% and 3.1%, respectively. This growth will likely be driven by rebounding commodity prices and increased construction activity. Future provincial GDP growth is largely dependent on the timing of other major capital projects such as the Hebron offshore oil project and the Lower Churchill Hydroelectric Generation Project (NLDF 2010b, internet site). 20

25 Despite the progressive weakening in Newfoundland's employment growth in 2009, housing demand has remained robust. This has been due in part to a reversal, since the first-quarter of 2008, of the province's chronic pattern of out-migration, low interest rates and consumer confidence in the economy. Between 1997 and 2007, the New House Price Index for Newfoundland and Labrador increased 36.3% or an average of 3.6% per year. However, since 2007, new home prices in Newfoundland and Labrador have increased by 33.3%, with a 19.6% increase in 2008 followed by an 11.5% increase in 2009. The increase in housing prices in the province over the last two years was the largest cumulative increase observed in Canada (CMHC 2010a, internet site).

30 Selected indicators of the overall performance of the provincial economy are illustrated in Figure 15.4.4-1 and Figure 15.4.4-2 for 2001 to 2013 (forecast).

35 As illustrated by Figure 15.4.4-2, the goods-producing sector contributed 61.4% to the provincial GDP in 2008. Oil extraction and support activities dominated, contributing almost 40% to total provincial GDP. Mining contributed a further 11.5%, and manufacturing, which includes fish products and forestry products such as newsprint, an additional 3.7%. Travel and tourism, included as part of the services-producing sector, contributed 2.4% to the total provincial GDP in 2008 (NLDF 2010c, internet site).

Figure 15.4.4-1 Gross Domestic Product at Market Prices (\$ Millions), Newfoundland and Labrador, 2001 to 2013



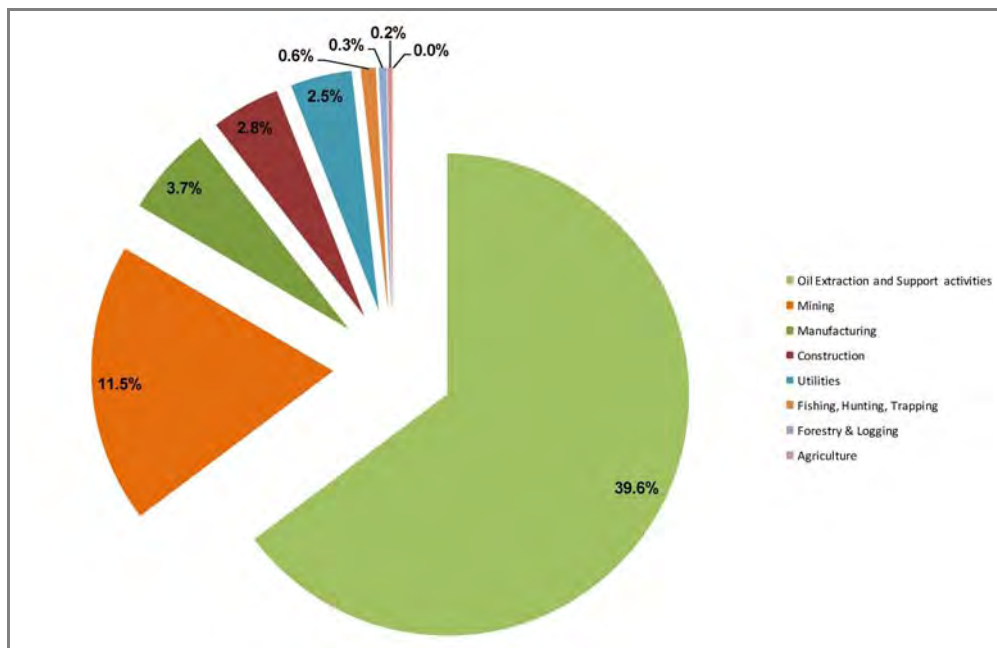
Source: NLDF 2010c, internet site.

Note: "e" following year = estimated.

"f" following year = forecast.

5

Figure 15.4.4-2 Contributions to Provincial Gross Domestic Product by Goods-Producing Sector, Newfoundland and Labrador 2008



Source: NLDF 2010d, internet site.

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15.4.4.1 Economic Sectors

The following is a brief description of activity in some of the province's major industries. In addition, the reader is referred to Section 15.5 Land and Resource Use, as various specific commercial activities are discussed further in that section.

5 Petroleum Sector

The petroleum industry has become the dominant sector of the Newfoundland and Labrador economy. The start of the 1990s saw the beginning of a new phase in the province's offshore petroleum industry with the construction of the Hibernia platform at Bull Arm. This \$5.9 billion project, the largest construction project in North America at the time, created, at peak (in September 1995), approximately 6,100 jobs in Newfoundland and Labrador (Community Resource Services Ltd. 2003), and is reflected in the substantial increase in capital investment in the 1993 to 1996 period.

Other projects completed during this time included the construction of the Newfoundland Transshipment Terminal and the initial phase of development for the Terra Nova oil field. Work on the latter, a \$2.8 billion project, started in 1998 and the completed Terra Nova Floating Production, Storage and Offloading (FPSO) vessel arrived at the Grand Banks in August 2001, with oil production starting in January 2002 (Community Resource Services Ltd. 2003). Subsequently, work on the \$2.35 billion White Rose Project began in 2002 and the first oil from that field was delivered in 2005.

Production from offshore petroleum projects was 97.7 million barrels of oil in 2009, a 22% decrease from the previous year. In addition, the value of production decreased by 48% in 2009 to \$6.6 billion. This was a result of both reduced production and a sharp decline in crude oil prices, which declined from an average of US\$96.94 in 2008 to US\$61.74 in 2009. With rebounding prices, offshore oil production continues to increase in importance as the dominant contributor to the provincial economy. By the end of 2009, cumulative production from the provincial offshore oil industry was 1.09 billion barrels, with an estimated value of \$65.6 billion (NLDF 2010c, internet site).

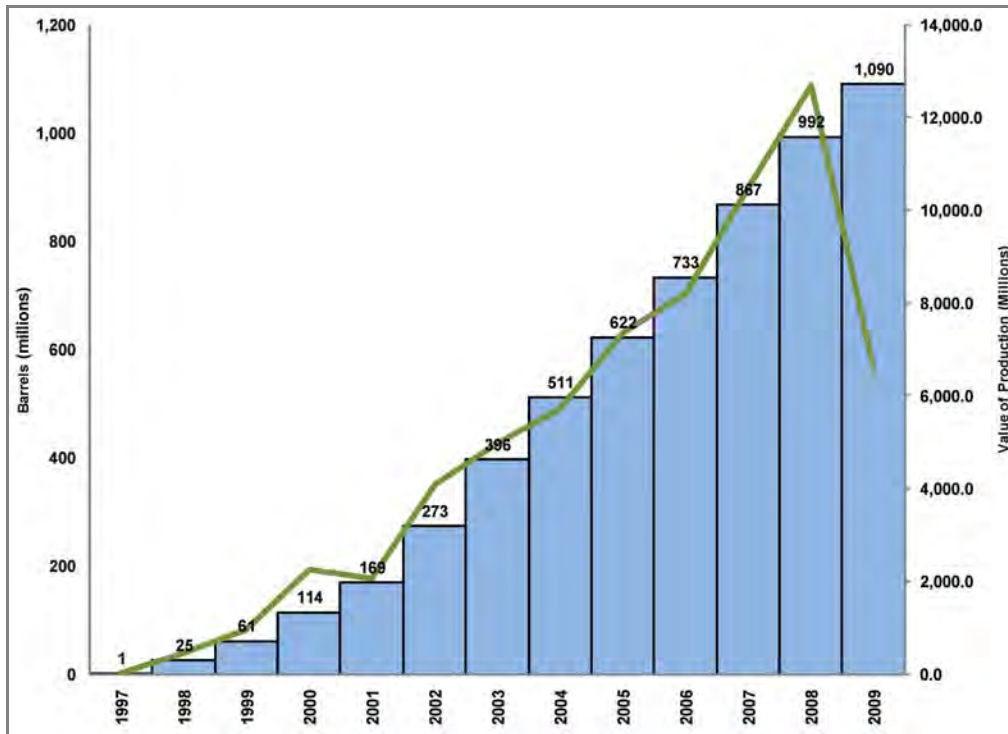
Total oil production in the province is shown in Figure 15.4.4-3, with peak production to date occurring in 2007. Oil-related expenditures from 1992 to 2008 are illustrated in Figure 15.4.4-4. Overall, expenditures for offshore exploration, pre-development, development and offshore oil production have increased during this period, reaching a peak of \$1.6 billion in 2008 (Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) 2010a, b, internet sites).

In August 2008, the province announced that it had reached a Memorandum of Understanding with the Hebron offshore project proponents (Exxon-Mobil, Chevron, Suncor, Statoil-Hydro and Nalcor) to develop that oil field, which is estimated to contain approximately 700 million barrels of oil. In February 2010, the GNL ratified the Memorandum of Understanding reached in 2009 and signed a formal agreement with its industry partners to develop the Hibernia South Extension (NLDF 2010c, internet site), a project which is expected to add an estimated \$10 billion to provincial revenues (NLEC 2009, internet site).

Mining

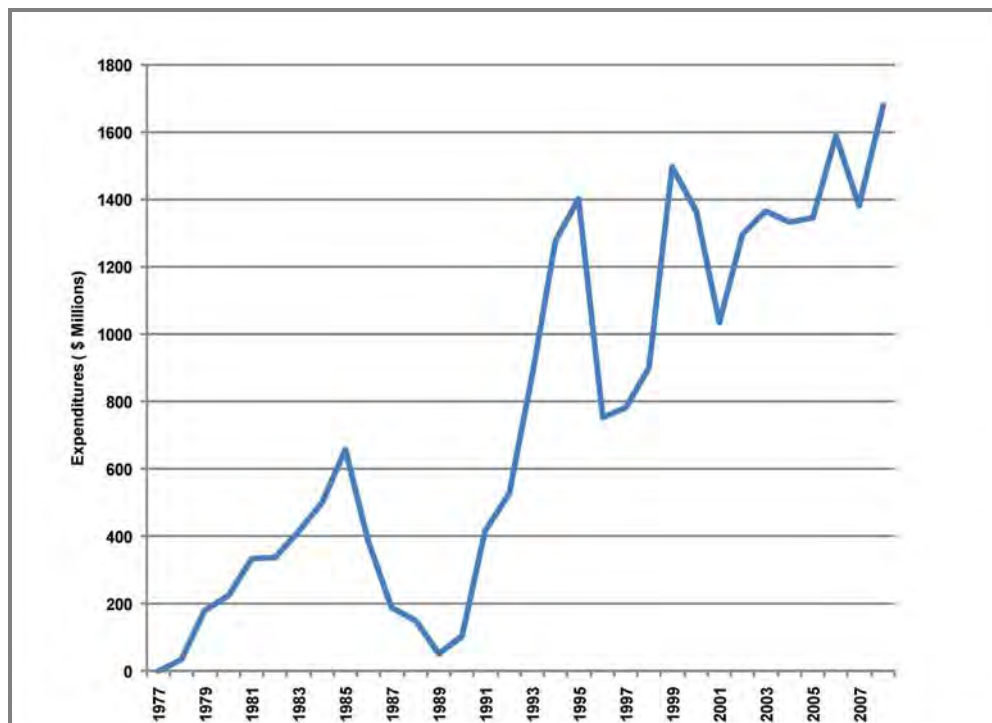
Largely as a result of the global recession, the value of mineral production from the provincial mining industry declined in 2009. The value of shipments declined by approximately 50% to \$1.9 billion (Figure 15.4.4-5), largely due to the influence of lower prices and production of nickel and iron ore. Additionally, lower demand resulting from the recession led to a 60% decline in exploration expenditures. Finally, direct employment resulting from mining decreased by 11% to approximately 3,500 person-years. However, prices for nickel and copper rose steadily throughout 2009, while increases were also seen in spot prices for iron ore, all of which will benefit the province in 2010 and beyond (NLDF 2010c, internet site).

Figure 15.4.4-3 Cumulative Offshore Oil Production / Annual Value of Production in Newfoundland and Labrador, 1997 to 2009 (million barrels and millions \$)



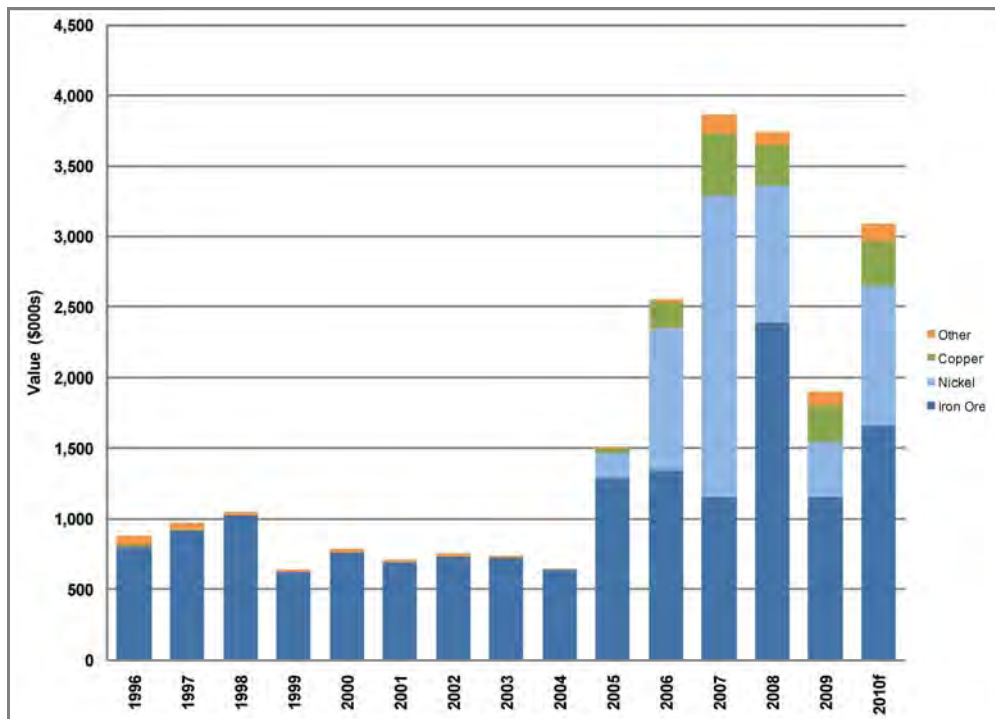
Source: C-NLOPB 2010a, internet site.

5 Figure 15.4.4-4 Offshore Area Expenditures: 1977 to 2008



Source: C-NLOPB 2010b, internet site.

Figure 15.4.4-5 Value of Mineral Shipments (\$000s), Newfoundland and Labrador; 1996 to 2010



Source: NLDF 2010c, internet site.

Note: "f" following year = forecast.

5 Manufacturing

Fish production is an important, but recently declining component of the provincial manufacturing sector. Primary production of shellfish (e.g., shrimp and crab), groundfish (e.g., cod and flounder), pelagics (e.g., mackerel and capelin) and aquaculture products (e.g., Atlantic salmon and blue mussels) form the basis of the industry. In 2009, fish landings dropped 8.5% to 300,700 t. However, the value of landings declined by 19.2% to approximately \$420 million, largely due to lower prices for key species as a result of the global recession. Export values also declined in 2009, decreasing by 11.2% to \$721 million. Employment in both harvesting and processing declined in 2009, with total industry employment averaging 10,300 people, down from 12,000 in 2008. Production from the processing industry was 176,377 t in 2009, a 4.3% decrease from the previous year. Additionally, the value of shipments declined 19.3% compared to the previous year, a reflection of the lower prices that affected the harvesting industry (NLDF 2010c, internet site).

In recent years, provincial manufacturers of both newsprint and lumber have been facing challenges that threaten the viability of large and small firms in the industry. Changing currency values, increased demands on fibre supply, declining or at best flat demand for key products, and rising input costs have combined to create a difficult operating environment for the province's forest products producers (Milley 2006, internet site).

With respect to newsprint, demand continues to decline. Between 2000 and 2009, North American newsprint production declined by 53%; in 2009 alone, production fell by 28%. This downturn has negatively affected the provincial newsprint industry, which has seen a series of mill closures since 2005. Abitibi Bowater closed its Stephenville mill in 2005 and its Grand Falls mill in March 2009, leaving Corner Brook Pulp and Paper Limited (CBPPL) the only newsprint facility in operation in the province. The volume of provincial newsprint shipments was 264,500 t in 2009, a 49% decrease from the previous year. Low prices resulted in a substantial decrease in value, with average prices down 19.4%, to US\$565 per tonne (NLDF 2010c, internet site).

In its 2010 Budget, the GNL announced that it would provide \$15.4 million in assistance to Kruger Inc., the owner of CBPPL. This assistance is in the form of provincial participation in the annual silviculture program, as well as foregoing the company's annual financial contribution to the Forest Inventory, Forest Insect Control and Managed Land Tax programs (NLDF 2010c, internet site).

5 The lumber sector has also experienced difficult conditions in recent years. Prices have declined 50% since
2004, largely associated with downturns in the Canadian and US housing markets. Producers have found
lumber production increasingly unprofitable given low prices and, as a consequence, the volume of production
declined 14% in 2009 to 60 million board feet, which is low by historical standards. The decline in newsprint
10 production has also had an adverse effect on the production of pulp chips, an important by-product of the
lumber industry. Some relief for the lumber sector was evident in late 2009 and early 2010 as prices showed
an increase to US\$300 from US\$198 per 1,000 board-feet in the first quarter of 2009 (NLDF 2010c, internet
site).

15 In 2008, the provincial government announced a \$14 million Forest Industry Diversification Fund to assist the
forest sector (NLDNR 2008, internet site). This fund is designed to help the provincial sawmill sector modernize
and diversify, and to provide sawmill operators with capital to acquire new infrastructure, technology and
equipment to support innovation and modernization of the industry (see Section 15.8.4 Northern Peninsula,
below).

Tourism

20 Although the Canadian tourism industry experienced a sharp decline in 2009 due to the recession and the
strong Canadian dollar, the provincial tourism industry performed positively, with a 0.8% increase in non-
resident visitors. Estimated spending also increased by 1.4%, to \$375 million. Air travel accounted for 72% of
visitors and 80% of spending in 2009, with non-resident air travel increasing by 0.6% to 348,300 passengers
(NLDF 2010c, internet site). This is discussed in detail in the Tourism Section 15.7.

15.4.4.2 Regional Economies in the Study Area

25 Central and Southeastern Labrador

The economy of Central and Southeastern Labrador is based primarily on the service industry and raw material
extraction. Major industries include hydro, aerospace, services to the mining industry, fish harvesting and
processing, forest resources and tourism (NLDTW 2006, internet site).

30 The economy of this region, and particularly the Upper Lake Melville area of Economic Zone 3, has improved
with the ongoing development of the TLH, which has resulted in new commercial trading patterns, business
expansions and tourism opportunities (AMEC 2010a, internet site). The Voisey's Bay project, ongoing mineral
development and exploration in Labrador West, and the proposed Lower Churchill Hydroelectric Generation
Project, have been cited as the drivers behind a positive economic mood in the region (Central Labrador
Economic Development Board (CLEDB) 2008, internet site), though labour disruption at Voisey's Bay negatively
35 affected personal income levels and spending in this and other regions of Labrador in 2009 and 2010.

Happy Valley-Goose Bay is the largest community in Labrador and is the administrative hub for the delivery of
government services to central and coastal Labrador. The offices of many provincial and federal government
departments are located here and these departments and agencies are large employers of professionals and
trades people (CLEDB 2008, internet site). Happy Valley-Goose Bay is a transportation hub and administrative
40 centre for the delivery of services to central and coastal areas, and it is expected to be an important staging
area for the Labrador portion of the Project.

The military base in Happy Valley-Goose Bay (5 Wing Goose Bay), established in 1941, has historically been the
largest employer in the Upper Lake Melville region. In the 1950s, it became a support base for the Strategic Air
Command, and by the 1960s, the Happy Valley-Goose Bay population included more than 12,000 military
45 personnel and their dependants. Subsequent reorganization, deactivation and relocation of military units

resulted in a decline in the number of personnel at 5 Wing Goose Bay. Marketing and other efforts to attract allied training are ongoing. The Department of National Defence does operate a Search and Rescue helicopter unit (444 Squadron) at 5 Wing Goose Bay and preparations for a five-year (2011 to 2016) North Atlantic Treaty Organization (NATO) exercise within the 130,000 km² air range are ongoing (CLEDB 2008, internet site).

5 Reduced activity at 5 Wing Goose Bay is a concern with respect to the economy of Happy Valley-Goose Bay. Nevertheless, base expenditures still contribute considerably to the local economy. In 2006-2007, direct expenditures at 5 Wing Goose Bay in Labrador were \$56.4 million. Capital works expenditures in 2006-2007 (e.g., hangars, buildings, taxiways, parkways, runways and construction projects) totalled \$3.6 million; further, 5 Wing Goose Bay has engaged contractors for a multi-year environmental clean-up program. In 2006 and
10 2007, the total direct expenditure associated with environmental remediation was \$5.6 million (AMEC and Gardner Pinfold 2008). In 2009, the federal government committed \$300 million for cleanup efforts at 5 Wing Goose Bay. The 10 year program is expected to substantially clean up waste caused by the past storage of contaminants (Defence Construction Canada (DCC) 2011, internet site).

15 Fisheries continue to be the largest employer for people living in coastal communities in Economic Zones 4 and 5, despite the shortage of some species such as snow crab and turbot. This shortage, combined with an aging labour force and the challenge of labour recruitment, are major issues for the fishing industry. Increased fuel prices and the high cost of transporting materials and products also add to the uncertainty of the industry (Newfoundland and Labrador Department of Fisheries and Aquaculture (NLDFA) 2010, internet site). Tourism, agriculture (wild berries) and fur farming are other important sectors within Economic Zone 5.

20 Major gas reserves identified off the North Coast of Labrador in the 1970s have recently gained renewed interest. A call for bids by the C-NLOPB produced \$186 million in expenditure commitments in return for exploration rights in four parcels in offshore Labrador (C-NLOPB 2008, internet site), which might have long-term implications for coastal communities in Economic Zone 5.

25 Labrador has 18 million hectares (ha) of forested land. With 5.5 million ha of productive forest, the gross volume of merchantable timber is estimated at 180,000,000 m³ (NLDNR 2009, internet site). A provincial government Labrador Value Added Forestry Study, completed in 2006 (Milley 2006, internet site), evaluated the potential of developing sawmills and value-added wood products. It identified potential business plans for secondary processing of wood products with the objective of increasing economic development in the area. Forestry Management District 19A in central Labrador currently has 11 commercially licensed sawmills, with
30 annual outputs ranging from a few thousand board feet to over 1.0 million board feet. Average production since 1990 is approximately 1.4 million foot-board-measures (3,304 m³) (NLDNR 2009, internet site).

In 2009, tourism in Labrador experienced a decline relative to the previous year, with a 6.5% decrease in passenger movements through the Goose Bay airport and a 2.7% decline in hotel occupancy from 2008 to 2009. However, registered campsites in Pinware River Provincial Park (Economic Zone 5) by 21.5% over the
35 same period (Newfoundland and Labrador Department of Tourism, Culture and Recreation (NLDTCR) 2010a, internet site).

Northern Peninsula

40 The fishery has historically been the main economic activity on the Northern Peninsula, and the collapse of the groundfish sector and subsequent closure of many of the fish processing plants had a substantial social and economic effect. Recently, the area has experienced some economic diversification through harvesting and processing of alternative species such as shellfish, and an increase in tourism. Tourism and the forestry sector are the other principal economic drivers within this region's economy (NEDC 2008, internet site).

45 While the Northern Peninsula region's economy has traditionally been based on natural resource industries, sites such as Gros Morne National Park have become major tourism industry generators. In 2009, the Park attracted 174,000 visitors, 72% of which came from outside of the province. Tourists to the area spent \$38 million in 2009 which generated employment in the area.

The influence of CBPPL is felt both on the Northern Peninsula and in Central and Eastern Newfoundland. The company manages over 2 million ha of forest land in Newfoundland and the CBPPL licence area extends from Plum Point on the Northern Peninsula east to Gander in the Central and Eastern Newfoundland Study Area region. The woodlands division of CBPPL employs 600 employees in harvesting and silviculture operations in almost 50 Newfoundland communities, with another 700 people at the mill in Corner Brook and at the Deer Lake Power Company (Corner Brook Pulp and Paper Limited (CBPPL) 2010, internet site).

In 2009, the provincial government announced that it would modernize a sawmill and establish a wood inventory yard and pelletizing facility on the Northern Peninsula. Funded through the Forest Industry Diversification program announced in 2008 (NLDNR 2008, internet site), the \$10 million investment in Holson Forest Products of Roddickton, once in operation, is forecast to sustain approximately 300 direct and indirect jobs in the region and create a new industry in manufacturing wood pellets (NLDNR and NLDEC 2009, internet site). In January 2010, the Atlantic Canada Opportunities Agency (ACOA) announced that it would contribute more than \$1 million towards development of the wood lot associated with the pellet plant (Western Star 2010, internet site).

Central and Eastern Newfoundland

The economy of Central and Eastern Newfoundland has long been based on resource extraction and related industrial activities, including fishing, mining, pulp and paper. The Grand Falls-Windsor and Bishop's Falls areas are major industrial, service and government centres in Central and Eastern Newfoundland, with the forestry and pulp and paper industries serving historically as major employers. Since the closure of the Grand Falls-Windsor pulp and paper mill in the first quarter of 2009, there have been ongoing efforts to increase the economic diversification in the region, including consideration of a wood pellet plant for the area (Farm Focus 2010, internet site).

The Town of Gander also serves as a public and private sector service centre and transportation hub for the region. In the eastern portion of the region, Clarendville is the commercial and government service centre for the surrounding area, including the Bonavista and Trinity Bay areas. In the coastal areas of the Central and Eastern Newfoundland region, the fishery remains an important element of the economy.

As noted earlier, there has been a surge in house prices in the province, particularly since 2007. While increases in Central and Eastern Newfoundland have not been as great as in the St. John's Census Metropolitan Area, they have nonetheless been considerable; home prices in the Gander area, for example, increased by approximately 7% between 2009 and 2010. Prices also increased by a similar amount in Grand Falls-Windsor, notwithstanding the economic distress associated with the closing of the paper mill in Grand Falls (CBC 2010, internet site).

Avalon Peninsula

The economy of the Avalon Peninsula region is dominated by activity in the St. John's Census Metropolitan Area. As the main centre of government and the location for many of the province's major industries, the Census Metropolitan Area has a more diverse and well-developed economic base compared to other parts of the province. Despite a 7.3% drop in GDP for the Census Metropolitan Area in 2009, St. John's out-performed most other Canadian Census Metropolitan Areas in 2009 and ranked fifth in employment growth and sixth in housing starts. This strong performance is expected to continue as within the Census Metropolitan Area a variety of industries, including professional, scientific, construction and retail trade, are forecast to experience strong growth in 2010 and beyond (City of St. John's 2010, internet site).

The current strength of the economy in the Census Metropolitan Area is reflected in house prices. In 2008 the average house price was \$187,571 increasing to \$218,862 in 2009 (NLDF 2010c, internet site) and to \$251,485 by March 2010 (CMHC 2010b, internet site). The Canada Mortgage and Housing Corporation project prices to continue to rise to \$255,000 in 2011 (CMHC 2010b, internet site).

5 The St. John's International Airport and the Port of St. John's represent the main transportation hubs in the province, serving as gateways to the rest of Canada, the United States, and the rest of the world. A 2007 study into the economic impact of the St. John's International Airport estimated that the airport contributed \$250 million to the provincial economy and \$18 million in tax revenue to the GNL. Additionally, an estimated 80% of non-resident visitors to the province enter through the airport (Strategic Concepts Inc. 2008, internet site).

10 A 2010 economic study estimates that the annual contribution of the Port of St. John's to the provincial GDP has climbed to almost \$255 million. The Port, in addition to serving as the primary offshore energy supply and service centre, also serves as a fish-handling centre, a container handling terminal and a base for the Canadian military and Coast Guard (SJPA 2010, internet site).

15.4.5 Employment

This section describes the characteristics of the labour force for the province of Newfoundland and Labrador and for the four regions considered within the Study Area.

15.4.5.1 Newfoundland and Labrador

15 In March 2010, the provincial labour force was estimated at 258,700, up from 254,200 in 2009, 253,100 in 2006 and 242,700 in 2001 (Figure 15.4.5-1). Despite some measurable fluctuations, the participation rate in the province (i.e., the percentage of the work-age population working or actively looking for employment) increased from 58.7% in 2001 to 59.3% in 2009 (Figure 15.4.5-2) (NLDF 2010e, internet site).

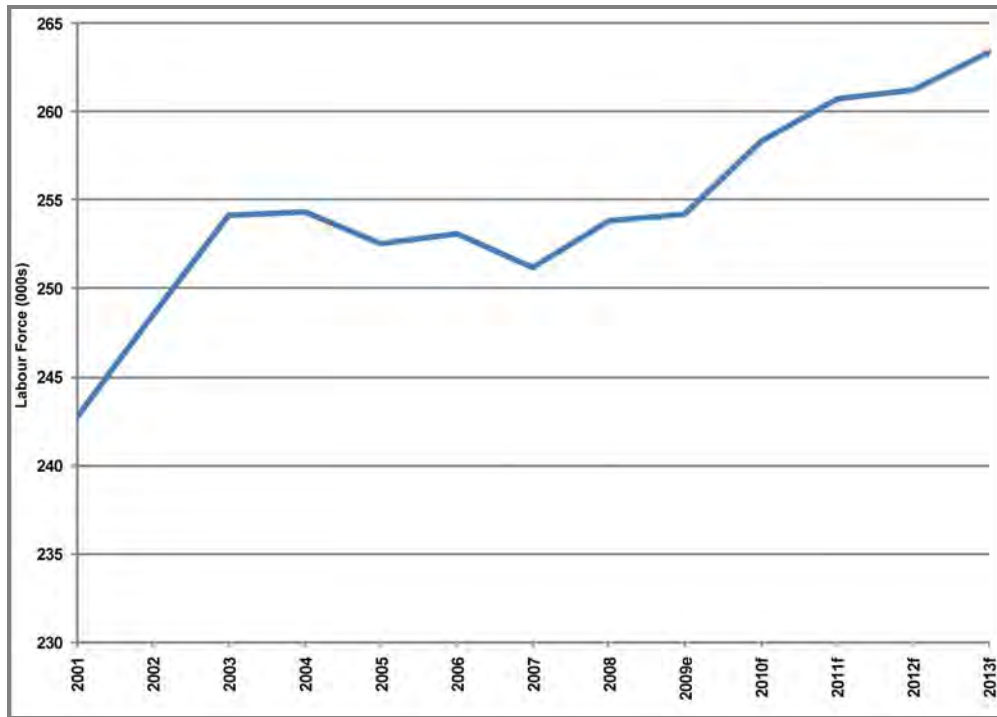
20 The overall unemployment rate in the province fell from approximately 16.2% in 2001 to 13.2% in 2008 (Figure 15.4.5-3). Unemployment rose to 15.5% in 2009 during the recession. Employment losses and growth in the labour force have contributed to the recent increases in the unemployment rate. Assuming the continued recovery of the economy, annual average employment is projected to grow over the next four to five years (Figure 15.4.5-4) (NLDF 2010e, internet site).

25 Data from the 2006 Census indicate there were 248,685 people aged 15 and over in the provincial labour force. The main sources of employment by industry were Business Services, which employed 35,390 people (14.2%), Retail Trade (30,580, 12.3%), Health Care and Social Assistance (30,360, 12.2%) and Other Services (50,040, 20.1%) (Figure 15.4.5-5). The industries that employed the fewest people were Finance and Real Estate (7,895, 3.2%) and Wholesale Trade (6,630, 2.7%) (Statistics Canada 2006d, internet site).

30 There has been an overall improvement in provincial employment indicators, but these have not kept pace with GDP growth. This is primarily due to the capital-intensive nature of offshore oil developments and mining projects. The unemployment rate in the province remains the highest in Canada, although it varies substantially from region to region. For example, in the St. John's Census Metropolitan Area, the 2009 unemployment rate (9.0%) was comparable to the rest of Canada (8.4%), whereas it was much higher in rural Newfoundland and Labrador, and as high as 21.9% in Economic Zones 2 and 4 (Burin Peninsula and South Coast, and Notre Dame-Central-Bonavista Bay) (NLDF 2010f, internet site). This reflects the continued shift in the provincial economy from rural, labour-intensive, resource-based activities to highly capital-intensive, concentrated resource-based activities.

40 Education and skills requirements have and will continue to play an important role in this shift in industry focus. Entry-level employment into most sectors requires increasingly higher formal education levels. As illustrated in Figure 15.4.5-6, one-third of the current labour force does not have a high school certificate or other certificate or diploma. This compares to 23.8% for Canada as a whole (Statistics Canada 2006d, internet site).

Figure 15.4.5-1 Provincial Labour Force, Annual Average (000s)



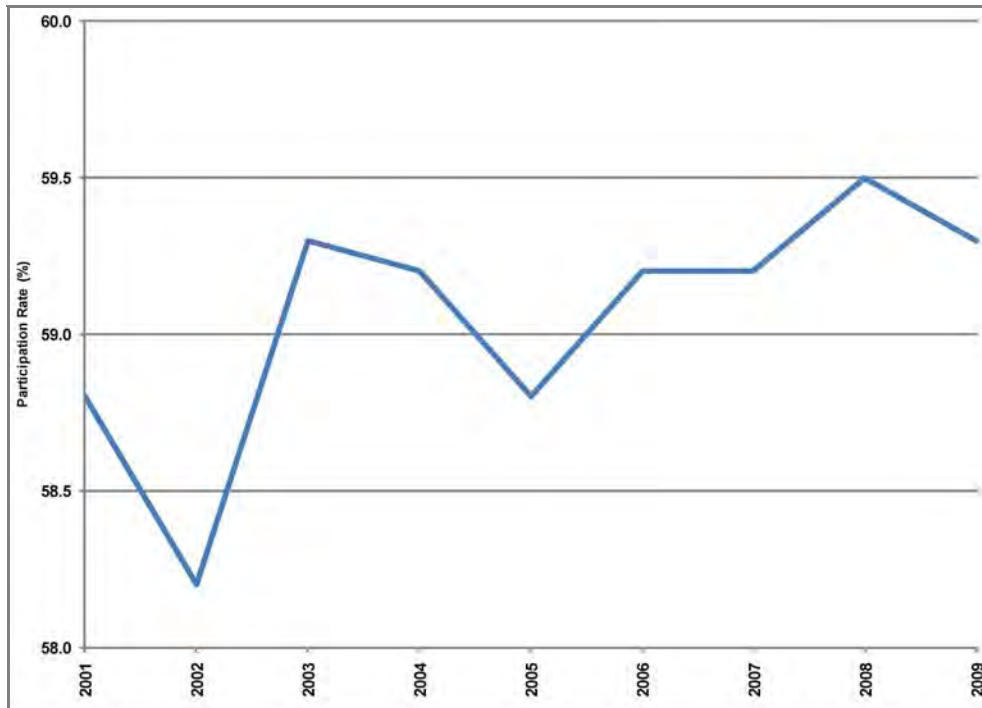
Source: NLDF 2010c, internet site.

Note: "e" following years = estimated.

"f" following years = forecast.

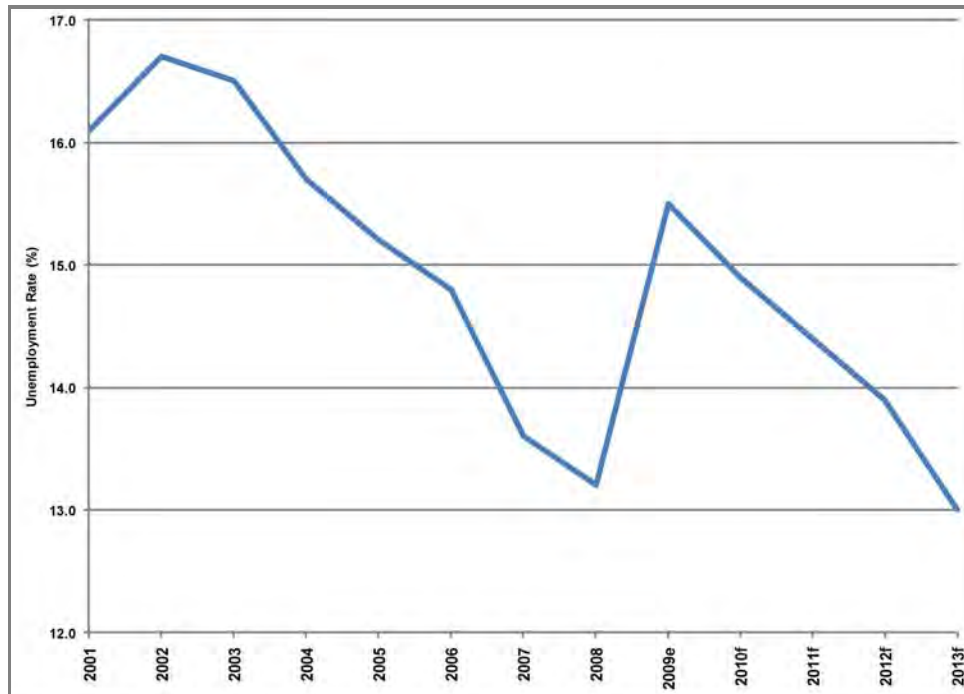
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Figure 15.4.5-2 Provincial Participation Rates, 2001 to 2009



Source: NLDF 2010c, internet site.

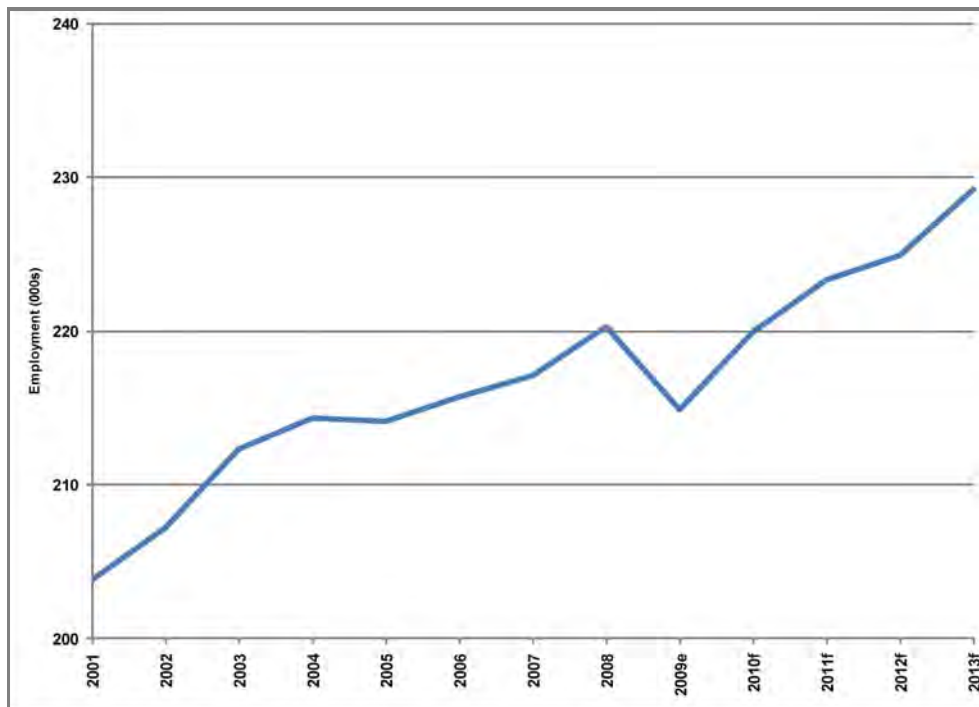
Figure 15.4.5-3 Provincial Unemployment Rates, Annual Average (%)



Source: NLDF 2010c, internet site.
Note: "e" following year = estimated.
"f" following year = forecast.

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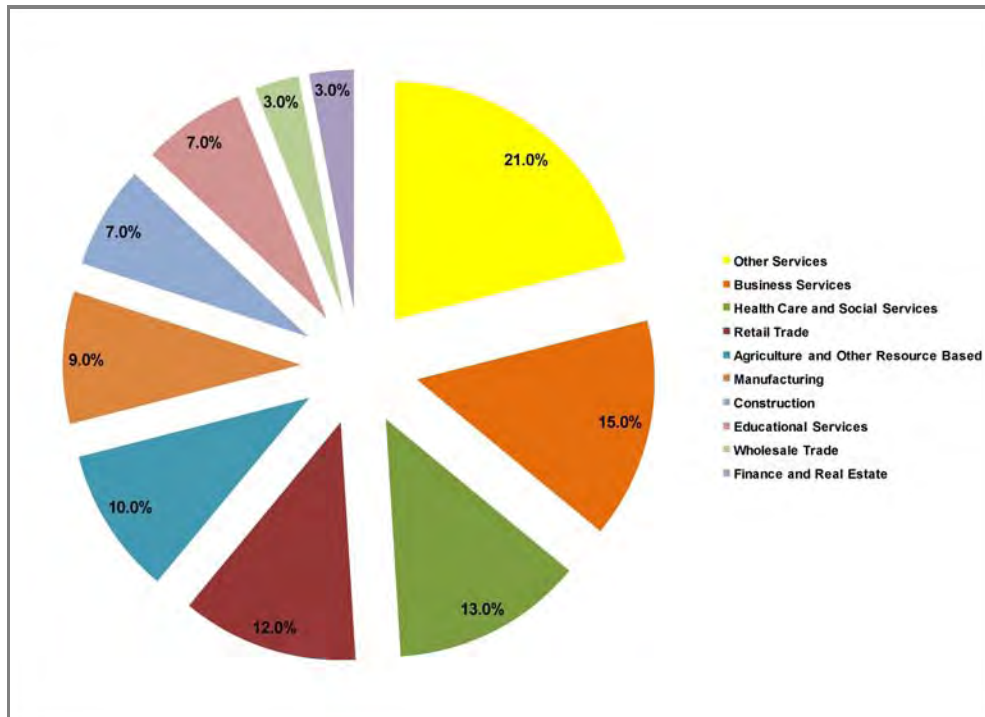
Figure 15.4.5-4 Provincial Employment, Annual Average (000s)



Source: NLDF 2010c, internet site.
Note: "e" following year = estimated.
"f" following year = forecast.

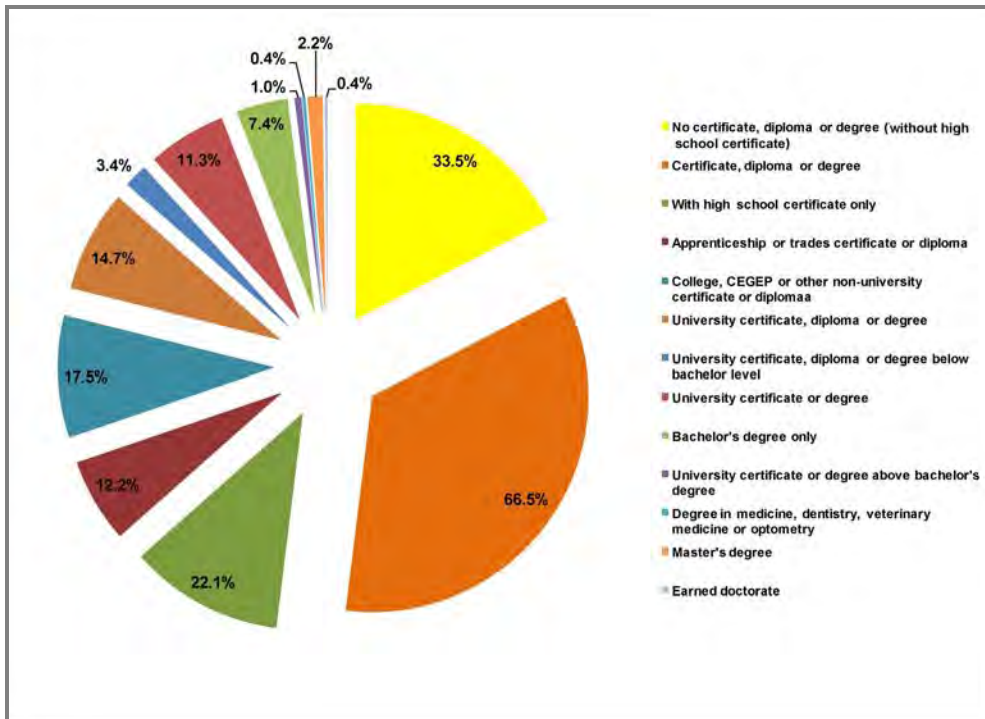
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Figure 15.4.5-5 Labour Force (%) by Industry, Newfoundland and Labrador



Source: Statistics Canada 2006d, internet site.

Figure 15.4.5-6 Education Levels in Newfoundland and Labrador



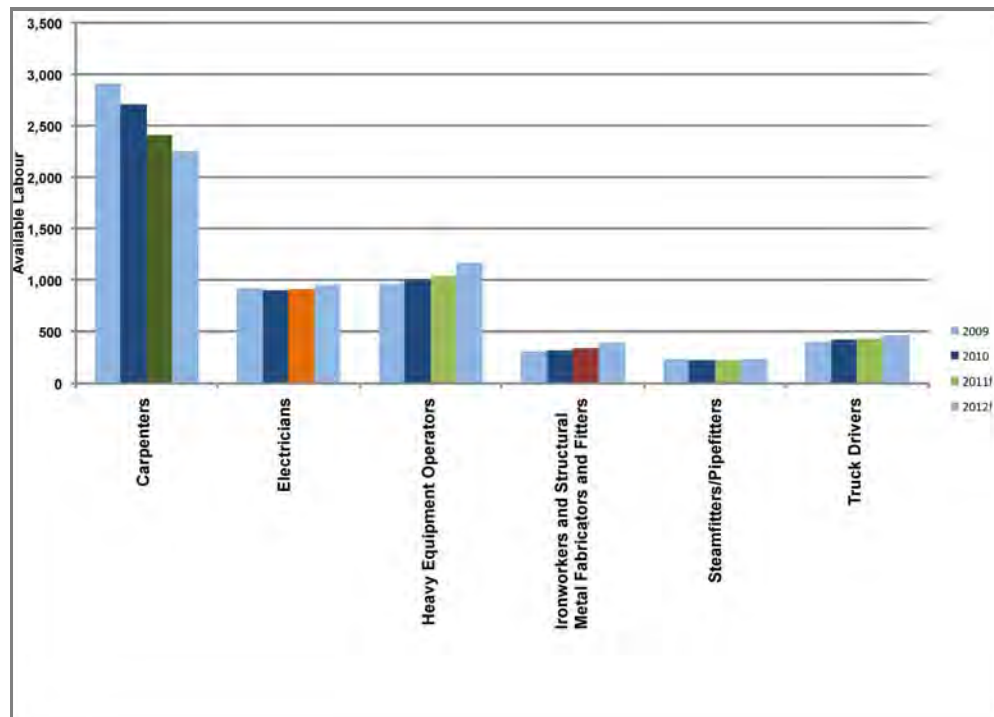
Source: Statistics Canada 2006d, internet site.

The availability of skilled labour is becoming an increasingly important issue, both in Canada and in Newfoundland and Labrador. An analysis by the Newfoundland and Labrador Department of Finance for the Skills Task Force indicates that the recession that persisted through 2009 provided temporary relief from some of the anticipated labour pressures, but suggests that labour force requirements for the current major project inventory in Newfoundland and Labrador will peak in 2014-2015 (NLDF 2010d, internet site). Possible shortages exist for civil engineers, industrial electricians, ironworkers, concrete finishers, industrial painters, drillers / blasters, truck drivers and stationary engineers.

The Construction Sector Council (2010, internet site) has also completed an assessment of construction labour markets in Newfoundland and Labrador from 2010 to 2018. Over this period, the study estimates that retirements and mortality will total 3,780 and employment will drop by 470 jobs. While 2,230 new entrants are expected, there will still be a decrease of 1,360 workers. This assessment concludes that construction trades in the province will see an “ebb and flow” of demand for workers, with peak demand from 2012 to 2014, which corresponds to the current estimated construction dates for the Project. The period from 2012 to 2014 is the estimated peak for construction trades in the province, due to a series of major industrial projects (e.g., the Hebron offshore project, Vale nickel processing facility and continued expansion of the White Rose oil field). Low availability and shortages in several occupational categories (e.g., carpenters, electricians, heavy equipment operators, ironworkers and structural metal fabricators, pipefitters and truck drivers) are forecast to coincide with Project construction as currently scheduled.

As indicated in Figure 15.4.5-7, the projected supply of workers in these trades, at best, shows small increases in the immediate future, with the exception of carpenters, the supply of which is expected to continue to decline. Potential shortages in key occupations of particular relevance to the Project and other labour supply-related issues are discussed in Chapter 16, Section 16.4, which addresses the effects assessment of the Project on the Economy, Employment and Business of Newfoundland and Labrador.

Figure 15.4.5-7 Labour Supply, Selected Trades, Newfoundland and Labrador, 2009 to 2012



Source: Construction Sector Council 2010, internet site.
Note: “f” following year = forecast.

Employment Equity and Diversity

Working-age people who are not in the labour force today will play an increasingly important role in helping to meet future labour demands. There are also a number of groups already in the labour market that are underrepresented and continue to face employment challenges and barriers that limit their full participation, including women, persons with disabilities, Aboriginal groups, youth and mature workers. In the 2010 Work Activity Survey, the Department of Human Resources, Labour and Employment (HRLE) asked survey respondents (18 to 64 years old) who were not in the labour force about their main reasons for not working. This population represented about 84,000 people, or 25% of the 18 to 64 year-old age group. The largest share of those not in the labour force, about one-quarter (or 25.9%) were retirees, another 18.4% had a permanent disability that prohibited them from working, and 16.7% were in school (NLDHRLE 2011, internet site).

Women tend to have lower participation rates than men. However, unemployment rates among women are also lower than men which suggest women are more likely to find work when they enter the labour force. Relative to men, women are more likely to work in the health and social service occupations; sales and service occupations; and business and administration occupations. Women are significantly under-represented in the skilled trade occupations. The 2010 Work Activity Survey results indicate that conditions have been improving, with about 5% of women working in the skilled industrial trades (NLDHRLE 2011, internet site).

Aboriginal populations are more likely to participate in the workforce than other groups. However, a high unemployment and relatively lower employment rate indicates they face challenges to finding employment. Aboriginal workers tend to have lower levels of formal education. In 2006, 42% of the Aboriginal population in the province had less than high school education and 6.3% had a university degree (NLDHRLE 2011, internet site).

A much lower proportion of persons with disabilities participate in the labour market. Employment rates are significantly lower for this population and unemployment rates tend to be higher than the general population. These indicators point to significant employment barriers for persons with disabilities who enter the labour market (NLDHRLE 2011, internet site).

15.4.5.2 Central and Southeastern Labrador

The labour force in this region of the Study Area increased slightly (0.8%) between 2001 and 2006 from 7,240 to 7,295. Unemployment rates varied widely and showed differences in their directions of change in the 2001-2006 period. In Zone 3, for example, the unemployment rate was slightly lower than that for the province as a whole, but showed an increase from 13.9% to 14.4% between 2001 and 2006. By contrast, unemployment in Zone 4 increased from 54.9% to 57.5%, while in Zone 5 it decreased from 41.8% to 33.1% (NLSA / Community Accounts n.d., internet site).

These differences can be mainly attributed to the nature of the respective local economies. In Zone 4, for example, some 36% of the labour force had occupations in Fishing or Fish Processing in 2006. By comparison only 21% were similarly occupied in Zone 5. Occupations in Zone 3 indicate a more diversified economy, with a much smaller percentage occupied in primary activities or associated processing. Of potential relevance to the Project is that some 18% of the region's labour force had occupations in Construction and Related activities in 2006 (NLSA / Community Accounts n.d., internet site).

15.4.5.3 Northern Peninsula

The labour force in the Northern Peninsula region of the Study Area also showed a small increase (0.9%), from 28,130 to 28,395 in the 2001 to 2006 period. In Economic Zones 6 and 7, unemployment rates were significantly higher (35.7% and 35.6%) than that for Zone 8 (17.9%) in 2006, though all zones saw a decrease in unemployment rates between 2001 and 2006 (NLSA / Community Accounts n.d., internet site).

As in Central and Southeastern Labrador, higher zonal unemployment rates are associated with greater occupational dependence on primary activities and lower levels of economic diversity. In Zones 6 and 7, for

5 example, 28% and 25% of the labour force had occupations in Fishing and Fish Processing and 19% and 4% Logging and Other Processing in 2006. On the other hand, Zone 8, which includes Corner Brook and the CBPPL operations, had only 4% and 5% respectively, engaged in these occupations. Corner Brook's service role within the larger region offers a wider range of employment possibilities and greater employment stability. In this region also, some 17% of the labour force had occupations in Construction and related activities (NLSA / Community Accounts n.d., internet site).

15.4.5.4 Central and Eastern Newfoundland

10 The labour force in this region of the Study Area showed a small (0.5%) decrease in the 2001 to 2006 period, but as in the other regions, unemployment rates, while still well above the provincial average, decreased over the period. Zone 11 showed the greatest decrease from 39.2% to 28.3%, while the other zones decreased between 1% and 5%. By 2006, the unemployment rates in each of the other zones (12, 14 and 15) had decreased to approximately 24% (NLSA / Community Accounts n.d., internet site).

15 The importance of primary occupations, particularly fishing, varies across the region. In Zone 11, for example, 21% of the labour force had occupations in Fishing and Fish Processing, while in Zone 12 only 2% had occupations in these activities. As in the other study regions, a substantial proportion (20%) of the labour force report that they are in Construction and related occupations (NLSA / Community Accounts n.d., internet site).

15.4.5.5 Avalon Peninsula

20 The labour force of the Avalon Peninsula region of the Study Area grew by 7.4%, from 110,440 to 118,595 in the 2001-2006 period. This was the largest increase of all the Study Area regions and reflects the population growth in the area. Unemployment rates varied considerably across the region, from 20.4% in Economic Zone 17 in 2006 to 10.4% in Zone 19. As with most other economic zones in the other regions, unemployment rates had decreased over the 2001-2006 period. Decreases were almost 8% in Zone 17 and 1.4% in Zone 19 (NLSA / Community Accounts n.d., internet site).

25 The relative strength and diversity of the economy in Zone 19, in particular, has undoubtedly had an influence on population and labour force growth and decreasing unemployment rates. The occupational structure is also quite different from that of Zone 17 and of that of most other economic zones in the Study Area. In Zone 17, for example, Fishing and Fish Processing represents 17% of the occupations, while it represents less than 1% in Zone 19. Health, Education, Sales and Service, Management, and Office and Related occupations are absolutely and relatively more important in Zone 19 compared to other regions and zones. With respect to the labour force in Construction and related activities, Zone 17 shows a similar proportion (17%) to that for other the regions. In Zone 19, however, only 12% are in this occupation category, again reflecting the relative occupational and economic diversity of Zone 19 (NLSA / Community Accounts n.d., internet site).

15.4.6 Business

35 Businesses provide goods and services to others who want or need them. The overall structure of the business community in Newfoundland and Labrador (businesses by sector and number of firms) and changes over time is highlighted in Table 15.4.6-1, while Table 15.4.6-2 provides the most recent data for businesses by type and number in the Study Area regions.

Table 15.4.6-1 Number of Businesses by Type, Newfoundland and Labrador, 2001, 2005 and 2009

Industry	2001		2005		2009	
	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)
Retail Trade	2,913	16.5	2,853	17.0	2,576	15.0
Health Care and Social Assistance	2,460	13.9	2,183	13.0	2,063	12.0
Construction	1,835	10.4	1,847	11.0	1,896	11.0
Other Services	1,870	10.6	1,718	10.2	3,130	18.2
Accommodation and Food Services	1,439	8.1	1,427	8.5	1,308	7.6
Professional, Scientific and Technical	932	5.3	895	5.3	1,025	5.9
Transportation and Warehousing	861	4.9	824	4.9	713	4.1
Wholesale Trade	880	5.0	773	4.6	703	4.1
Administrative and Support, Waste Management and Remediation	614	3.5	611	3.6	568	3.3
Agriculture, Forestry, Fishing and Hunting	697	3.9	631	3.8	568	3.3
Manufacturing	757	4.3	629	3.7	501	2.9
Real Estate, Rental and Leasing	524	3.0	521	3.1	509	3.0
Public Administration	463	2.6	468	2.8	408	2.4
Finance and Insurance	437	2.5	436	2.6	388	2.3
Arts, Entertainment and Recreation	408	2.3	444	2.6	329	1.9
Educational Services	213	1.2	179	1.1	147	0.9
Information and Cultural Industries	172	1.0	174	1.0	135	0.8
Management of Companies and Enterprises	143	0.8	108	0.6	142	0.8
Mining and Oil and Gas Extraction	71	0.4	72	0.4	87	0.5
Utilities	18	0.1	19	0.1	32	0.2
Total	17,707	100	16,812	100	17,228	100

Source: NLSA 2009, 2001, internet sites.

Table 15.4.6-2 Number of Businesses by Type, by Region, 2009

Industry	Central and Southeastern Labrador		Northern Peninsula		Central and Eastern Newfoundland		Avalon Peninsula	
	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)
Retail Trade	93	19.6	222	13.3	580	16.4	975	12.3
Health Care and Social Assistance	68	14.3	174	10.5	476	13.5	880	11.1
Construction	36	7.6	192	11.5	378	10.7	1,032	13.0
Other Services	71	15.0	323	19.4	720	20.3	1,252	15.8
Accommodation and Food Services	37	7.8	136	8.2	283	8.0	557	7.0
Professional, Scientific and Technical	14	2.9	70	4.2	109	3.1	743	9.4
Transportation and Warehousing	18	3.8	94	5.6	178	5.0	271	3.4
Wholesale Trade	13	2.7	63	3.8	107	3.0	415	5.2
Administrative and Support, Waste Management and Remediation	12	4.8	51	3.1	80	2.3	322	4.1
Agriculture, Forestry, Fishing and Hunting	12	2.5	90	5.4	146	4.1	151	1.9
Manufacturing	17	3.6	38	2.3	118	3.3	245	3.1
Real Estate, Rental and Leasing	15	3.2	53	3.2	85	2.4	273	3.4
Public Administration	10	2.1	34	2.0	86	2.4	134	1.7
Finance and Insurance	—	—	49	2.9	68	1.9	209	2.5
Arts, Entertainment and Recreation	6	1.3	40	2.4	72	2.0	136	1.8
Educational Services	—	—	14	0.8	20	0.6	93	1.1
Information and Cultural Industries	—	—	7	0.4	10	0.3	81	1.0

Table 15.4.6-2 Number of Businesses by Type, by Region, 2009 (continued)

Industry	Central and Southeastern Labrador		Northern Peninsula		Central and Eastern Newfoundland		Avalon Peninsula	
	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)	Number of Businesses	Percent of Total (%)
Management of Companies and Enterprises	7	1.5	14	0.8	5	0.1	91	1.1
Mining and Oil and Gas Extraction	—	—	—	—	12	0.3	48	0.6
Utilities	—	—	—	—	6	0.2	10	0.1
Total^(a)	474	100	1,664	100	3,539	100	7,923	100

Source: NLSA 2009, internet site.

— Data not available.

(a) Total and percentages may not add up as in some cases the numbers of businesses were suppressed to meet confidentiality requirements.

5 As of December 2009, there were 17,228 businesses in Newfoundland and Labrador, most of which (56.2%)
 employed one to four people. There were 248 businesses (1.4%) with 100 to 499 employees and 48 businesses
 (0.3%) with over 500 employees. Between 2001 and 2005, the total number of businesses in the province
 declined from 17,707 to 16,812. Although the number of businesses has rebounded somewhat since 2005, it
 has not returned to 2001 levels. The decline in the number of businesses has been offset somewhat by an
 10 increase in the size of some operations. In the 2001 to 2009 period there was a decrease in the number of
 businesses in the 1-4 employee category from 62.8% to 56.2%, while businesses in the 5 to 19 employee group
 increased from 26.5% to 33.3% (NLSA 2009, 2001, internet sites).

15 Retail Trade (15%), Health Care and Social Assistance (12%), and Construction (11%) represented the largest
 specific businesses categories in 2009. The general category of Other Services (18.2%) was in fact the largest
 and, in recent years, the fastest growing category (NLSA 2009, internet site). Growth in this unspecified
 services category perhaps reflects an increasing diversification of business activity in the province.

20 The number of construction businesses in the province decreased by 3.3% over the 2001-2009 period, but
 within the Study Area regions, discussed in greater detail below, the overall decrease was less at 0.9%, with
 the Central and Southeastern Labrador region accounting for most of the decline within the group (NLSA 2009,
 2001, internet sites).

15.4.6.1 Central and Southeastern Labrador

25 Retail Trade (19.6%), Other Services (15%), Health Care and Social Assistance (14.3%) and Accommodation and
 Food Services (7.8%) were the major categories of businesses in Central and Southeastern Labrador in 2009
 (NLSA 2009, internet site). In the region, there was a 19.5% decline in the number of businesses between 2001
 and 2009. Although this decline affected most sectors, manufacturing was the hardest hit, suffering a 39%
 decline. This is primarily associated with the decline in fish processing over that time (NLSA 2009, 2001,
 internet sites).

15.4.6.2 Northern Peninsula

Of the 1,664 businesses in the Northern Peninsula region, Other Services (19.4%) was again the single largest category, with Retail Trade (13.3%), Construction (11.5%), and Health Care and Social Assistance (10.5%) the major specific business categories. As in Central and Southeastern Labrador, the overall number of businesses declined between 2001 (2,409) and 2009 (2,198) by 8.8%, with manufacturing establishments declining by 42% over this time period (NLSA 2009, 2001, internet sites).

15.4.6.3 Central and Eastern Newfoundland

The pattern of overall decline in the number of businesses in the study region between 2001 and 2009 is repeated in Central and Eastern Newfoundland. In this period, the number of businesses decreased by 16.6%, with manufacturing businesses decreasing by 24.1%. As in the other regions, Other Services (20.3%) was the largest category, with Retail Trade (16.4%), Health Care and Social Assistance (13.5%), and Construction (10.7%) the other major categories (NLSA 2009, 2001, internet sites).

15.4.6.4 Avalon Peninsula

The Avalon Peninsula region showed an increase in the number of businesses between 2001 (7,585) and 2009 (7,923) of 4.5%. All the growth was in Economic Zone 19, which includes the St. John's Census Metropolitan Area. In Economic Zone 17, the number of businesses declined by 5% in this time period. In 2009, Other Services was the single largest category, but in this particular study area region Construction (13%) was larger than Retail Trade (12.3%) or Health Care and Social Assistance (11.1%), the other major business categories (NLSA 2009, 2001, internet sites).

15.4.7 Summary and Economic Prospects

Overall, the economy of the province has performed well since 1996, with substantial growth in GDP and employment, and an overall decline in unemployment. In 2006, for example, unemployment fell below 15% for the first time in 25 years and by 2008, it had declined further to 13.2%, the lowest rate experienced by the province since the mid-1970s. In April 2008, the province declared a budget surplus of \$1.4 billion, the largest in its history, and Newfoundland and Labrador has now joined the ranks of Canadian "have" provinces, bringing an end to the federal equalization payments on which the province had depended since Confederation in 1949.

The recession of 2008 set back this growth path somewhat. Despite robust growth of capital spending in the first-quarter of 2009 (49.4% over the previous year), plunging energy prices, plus declining petroleum production, caused the value of the province's energy exports to drop by 36% from the previous year and total manufacturing exports to fall by 29%. This weakness in resource revenues had a negative effect on total employment. Compared to a 3% annual growth in total employment between May 2007 and 2008, by May of 2009, it had contracted by 5.3%, primarily due to substantial drops in employment in manufacturing, public administration, forestry and retail trade (Clinkard 2009, internet site).

Consumer confidence continues to be bolstered by the current strength of the economy and future prospects. This has been, and is projected to be reflected in increased residential house prices (CMHC 2010a, internet site). In addition the Major Project Inventory compiled by the Atlantic Provinces Economic Council (APEC) in 2010 suggests that much of the anticipated investment in major projects in Atlantic Canada in the near term is expected to occur in Newfoundland and Labrador. Higher spending as a result of the Vale nickel processing facility, the Hibernia Southern Extension and an increase in mining investment is expected to push annual major project investment to over \$4 billion in 2011. Looking further ahead, spending associated with the development of the Hebron offshore oil field and the Lower Churchill Project will contribute to further economic growth (APEC 2010).

Regionally, the economic picture is varied. Much of the recent economic growth has been experienced on the Avalon Peninsula region and particularly in the St. John's Census Metropolitan Area in Economic Zone 19. In contrast, the closure of the paper mill in Grand Falls-Windsor represented a significant economic setback for the Central and Eastern Newfoundland region. Based on the GNL's Major Project Inventory (NLDF 2010g, internet site), economic prospects for the short- to medium-term suggest that many of the Study Area regions could see significant new economic activity, including for example, the Lower Churchill Project, mining activity in the Baie Verte area, and construction of mineral processing and offshore petroleum production facilities at Bull Arm.

15.5 Land and Resource Use

In this section, land and resource use refers to the use of land and resources by and for communities and transportation systems, natural resource-based industries (e.g., forestry, mining and agriculture), commercial activities (e.g., hunting, trapping and outfitting), recreational activities (e.g., boating, snowmobiling, cross-country and downhill skiing, kayaking, canoeing, hiking, bicycling, bird watching and riding motorized recreational vehicles) and subsistence activities (e.g., fishing, hunting and other harvesting). Recreation areas such as cottage developments, campgrounds, ski areas, trails, lakes, and golf courses are also discussed as are parks and protected areas.

Given the number and diversity of land and resource uses and the rather extensive geographic scale of the Project, it was not practical to map all of these in any detail in the EIS. Regional maps are included for general illustration, but the reader is referred to the socioeconomic component studies (AMEC 2011; Nalcor et al. 2011; AMEC 2010b) for further information and detailed mapping.

Several land and resource use related aspects are addressed in other sections of this EIS. Vehicular traffic is discussed in Sections 15.4 and 16.4; communities are discussed in 15.3 and 16.3; tourism in 15.7 and 16.7; economy, in 15.4 and 16.4; and visual aesthetics is addressed in Sections 15.8 and 16.8. Resource use related to the marine environment is also discussed in Section 15.6 and assessed in 16.6.

15.5.1 Study Areas

The land and resource uses within or adjacent to the transmission corridor (2 km wide) as well as considering the location of other Project-related components and activities (e.g., access, electrode sites, electrode line, temporary camps) are the focus of this existing environment section. To provide an appropriate "regional context", a larger geographic area, such as a 15 km wide buffer on either side of the transmission corridor centreline was selected for resource harvesting activities that are more wide-ranging and less geographically defined. For other socioeconomic components that are "stationary" such as communities and transportation, a very broad and general description of the "Study Region" is provided. The larger study area for each land and resource use component or activity is described within each subsection.

Given the extensive geographic area involved, land and resource uses are also generally described by "Study Region". The "Study Region" description provides a regional context by generally describing land and resource use activities within the relevant regions of the province as shown in Figure 15.5.1-1.

15.5.2 Information Sources and Data Collection

Data and information for land and resource use components were gathered mainly from secondary sources as no field work was conducted. Sources include reports, documents, web sites and press releases from government departments. Relevant unpublished data and information were obtained from government departments through direct contact with agency representatives. Nalcor gathered information through communications with NL Department of Natural Resources' Conservation Officers whose extensive knowledge has been gained through personal and professional experience and observation. Information related to land and resource use was also gathered from media reports, private companies, user groups, not-for-profit organizations and consulting reports prepared for Nalcor. Additional information was collected from Nalcor and other authors contributing to this EIS, as appropriate. Sources are documented in the references section of this report.