8.0 OUTFITTING OPERATIONS

While hunting and fishing in Central and Southern Labrador are undertaken by local residents, visitors from elsewhere in the province, Canada and other countries also participate in wildlife harvesting and fishing. Sports fishing and hunting have traditionally been the primary contributors to Labrador's tourism industry (Department of Development and Rural Renewal 1996). The following chapter provides an overview of the regulatory framework for outfitting and existing outfitting operations in the vicinity of the proposed TLH - Phase III route.

8.1 Regulatory Framework

Tourism and recreation, including outfitting operations, in the province are within the mandate of the Newfoundland and Labrador Department of Tourism, Culture and Recreation. The department is involved in the development and marketing of Newfoundland and Labrador's tourism industry, and provides a range of related programs and services, including: advertising and communications; product development; touring and travel trade; visitor services; regional support; and special celebrations (Department of Tourism, Culture and Recreation n.d.). It is also involved in the regulation of tourism operations in the province under the *Tourist Establishments Act* and *Tourist Establishment Regulations*, which require all operators of tourist establishments in the province to be licenced by the department. The regulations also include specific guidelines and requirements for certain types of tourism establishments in the province.

Hunting and fishing activity are subject to applicable provincial and federal legislation as discussed in Chapters 6 and 7. Non-resident big game hunters (caribou and black bear) in Newfoundland and Labrador are required to be accompanied by a licenced guide (those hunting small game and waterfowl do not require guides) (Department of Tourism, Culture and Recreation 2002a). In Labrador, north of 52°N, a non-resident angler may not fish inland waters without engaging the services of an outfitter, unless certain exemption requirements, as outlined in Section 7.1.4, are met.

In Labrador, south of 52°N, a non-resident angler may not fish scheduled salmon waters unless accompanied by a licensed guide or by a direct relative who is a resident. Non-residents may only fish unaccompanied on non-scheduled waters within 800 m of a provincial highway (DFO 2002).

8.2 Outfitting Camps and Activities

The *1991 Labrador Sport Fishing Survey* indicated that approximately 57 percent of the non-resident anglers visiting Labrador in that year used the services of an outfitter (LGL 1994). There are currently approximately 70 commercial outfitting camps throughout Labrador offering fishing and/or big game hunting adventures (Department of Tourism, Culture and Recreation 2002a). Of these, 19 are located in the general project area (Figure 8.1; Table 8.1).

There are currently three commercial outfitting lodges on the lower part of the Eagle River. The Lower Eagle River Lodge, Rifflin' Hitch Lodge and Eagle's Nest Lodge offer fishing for Atlantic salmon and brook trout (Department of Tourism, Culture and Recreation 2002a).



Table 8.1 Commercial Outfitting Camps

No. *	Operator	Lodge	Location	Species Fished	Approximate Distance from TLH - Phase III Route (km)
1	Adventure North Ltd.	Crooks Lake	Crooks Lake	Northern pike and brook trout.	8.1
2	Camp 1155 Ltd.	Camp 1155	Upper Eagle River	Northern pike and brook trout.	11.9
3	Coopers' Minipi Camps	Anne Marie Lake Lodge	Upper Minipi River	Atlantic salmon, northern pike, Arctic charr and brook trout.	53.1
4	Coopers' Minipi Camps	Minipi Lake Lodge	Upper Minipi River	Atlantic salmon, northern pike, Arctic charr and brook trout.	66.9
5	Coopers' Minipi Camps	Minonipi Lodge	Upper Minipi River	Atlantic salmon, northern pike, Arctic charr and brook trout.	44.5
6	Department of National Defence	No Name Lake (Family Wilderness Camp)	No Name Lake	Information not obtained.	23.3
7	Eagle Lake Sport Fishing Ltd.	Eagle Lake Lodge	Eagle Lake	Northern pike and brook trout.	19.1
8	Goose Bay Outfitters Ltd.	Lower Eagle River Lodge	Lower Eagle River	Atlantic salmon and brook trout.	52.7
9	Igloo Lake Lodge Ltd.	Igloo Lake Lodge	Igloo Lake	Northern pike and brook trout.	18.5
10	Labrador Angling Adventures Ltd.	Awesome Lake Lodge	Awesome Lake (English River)	Eastern brook trout.	93
11	Labrador Interior Outfitters Ltd.	St. Paul's Lodge	St. Paul's River (Headwaters)	Northern pike and trout.	58.8
12	Labrador Outdoors Inc.	Little Minipi Lake Lodge	Little Minipi River	Northern pike, landlocked charr and brook trout.	49.2
13	Labrador Sportsfish Ltd.	Eagle's Nest	Eagle River	Atlantic salmon and brook trout.	36.4
14	Labrador Venture Ltd.	Birchy Lake Lodge	Birchy Lake, Upper St. Paul River	Information not obtained.	43.4
15	Osprey Lake Lodge	Osprey Lake	Osprey Lake (Eagle River watershed)	Brook trout.	13.7
16	Park Lake Lodge Inc.	Park Lake Lodge	Park Lake	Atlantic salmon, northern pike and brook trout.	19.6
17	Rifflin' Hitch Lodge Limited	Rifflin' Hitch Lodge	Eagle River	Atlantic salmon and brook trout.	39
18	Six North Fishing Lodge	Lac Mercier Lodge	Lac Mercier	Northern pike, lake trout and brook trout.	21.1
19	Warrick Pike	Whitey's Lodge	Whitey's Lake	Information not obtained.	11.1
* See Source	Figure 8.1 for approximes: DTCR 2002a; T. Ker	hate camp locations.	pers. comm.: Personal c	ommunications and interview	vs with outfitters.

In the north-central portion of the area, the Park Lake Lodge offers fishing for brook trout, northern pike and Atlantic salmon, while the Igloo Lake Lodge caters to anglers of brook trout and northern pike (Department of Tourism, Culture and Recreation 2002a). There is also a private fishing camp at Byrne Lake, located south of Park Lake (J. Smith, pers. comm.).

In the south-central portion of the region, a fishing lodge at Crooks Lake offers fishing for brook trout and northern pike. The Osprey Lake Lodge caters to anglers of brook trout, and the Eagle Lake Lodge offers fishing for brook trout and northern pike (Department of Tourism, Culture and Recreation 2002a). There is also a commercial fishing camp in the area operated by Camp 1155 Ltd. The Department of National Defence has a fishing lodge on No Name Lake, which is used by military personnel and their families and guests. There is also a fishing camp at Whitey's Pond, located to the west of Crooks Lake (T. Kent, pers. comm.; P. Dawe, pers. comm.).

To the west of the proposed highway, the Six North Fishing Lodge on Lac Mercier offers fishing for brook trout, northern pike and lake trout. Three camps on the Upper Minipi River (the Anne Marie Lake, Minonipi and Minipi Lake Lodges) provide guests with fishing for brook trout, Atlantic salmon, Arctic charr and/or northern pike. Also, the Little Minipi Lake Lodge offers fishing for brook trout, landlocked charr and northern pike (Department of Tourism, Culture and Recreation 2002a).

There is also a fishing lodge on Awesome Lake (English River) in the extreme northwestern portion of Southern Labrador, which provides fishing for eastern brook trout, as well as two camps on the headwaters of the St. Paul River in the southwestern extent of the region which offer northern pike and/or trout fishing (Department of Tourism, Culture and Recreation 2002a).

Each of these are "fly-in" camps, currently accessed by float plane and/or helicopter, usually from Happy Valley-Goose Bay. Fishing activity at these camps is usually within approximately 5 to 10 km of the camp location. Most, if not all, of the angling undertaken at these camps is hook and release only.

There are also a number of outfitting camps to the east of or adjacent to the existing TLH (Red Bay to Cartwright) in Southern Labrador, as well as several camps in the Labrador Straits (Department of Tourism, Culture and Recreation 2002a).

Discussions with commercial outfitters operating in this general area revealed that these operations provide considerable economic benefit to the local and provincial economy. Most of the existing camps in the area are owned and operated by residents of Labrador or the island of Newfoundland. They directly employ local people each season, and benefit local businesses through the purchase of goods and services by outfitters and their guests (e.g., food and supplies, aircraft travel and hotel accommodations while enroute to the camps).

These discussions also revealed a number of issues and concerns on the part of these commercial outfitters. Several noted that any further increase in the development of outfitting lodges in the area may adversely affect existing operations through angler crowding and resource depletion. As a result, there is currently a freeze on the development of new outfitting camps on rivers in Labrador (T. Kent, pers. comm.). However, several outfitters have also expressed concern regarding unlicenced, unregulated operations in the area. There are concerns that existing government regulations and policies regarding outfitting operations in

Labrador are not being adhered to or adequately enforced (e.g., buffer areas between camps, outfitter licencing and regulation).

Outfitters also noted that the establishment of the proposed Mealy Mountains National Park would have positive implications for the industry. Restrictions on snowmobile and ATV use within national parks, the need for special fishing licences, and enforcement by Parks Canada personnel would help to protect and preserve the area's natural environment and resources, and its existing tourism industry. Operators also commented on the importance of ensuring that the upper portion of the Eagle River be included within the park boundaries, and that the existing outfitters be "grand-fathered" into final park planning and permitted to continue their operations.

9.0 PARKS, RESERVES AND SPECIAL AREAS

There are no existing provincial or federal parks in Southern or Central Labrador. The Mealy Mountains have been identified by Parks Canada as a candidate for national park status. A municipal park was proposed for the Cartwright area (JW 1998). Pinware River Provincial Park, Labrador's only provincial park, is located in the Labrador Straits.

9.1 Mealy Mountains National Park

The proposed Akamiuapishku/Mealy Mountains National Park is located in central Labrador. The study area for the proposed park encompasses approximately 21,500 km², extending from Lake Melville and Groswater Bay, south to the Eagle River and east from the Kenamu River to the coast of Labrador (Figure 9.1). The proposed highway will cross the southern portion of the park study area, south of Park Lake.

Canada is divided into 39 natural regions, each with distinctive characteristics such as physiography, vegetation, wildlife and environmental conditions. These natural regions provide the basis for selection and establishment of new national parks. Canada's goal is to create a national park to represent each of the 39 regions by the year 2000. Twenty-three are currently represented by national parks or reserves, and work is under way to establish new parks to represent the remaining 16 natural regions. The Mealy Mountains are a candidate to represent Natural Region 21 - East Coast Boreal within the national parks system.

Currently, the land under consideration for national park status is crown land under the jurisdiction of the Province of Newfoundland and Labrador. Should the proposed park be acclaimed, the land would fall under federal government jurisdiction and would be under the mandate of the Parks Canada Agency (Parks Canada) and subject to federal laws and regulations.

National parks are usually established according to a five-step procedure (Parks Canada 1999):

- identification of representative areas (based on natural regions criteria);
- selection of a park proposal (relying primarily on science)
- feasibility assessment considering competing land and resource uses and neighboring communities; involves extensive public consultation;
- negotiation of a park agreement. The federal government negotiates an agreement with the provinces whereby administration and control of the land is transferred to the federal government for a new national park. In cases where the land is subject to a comprehensive Aboriginal land claim, a new park can be established as part of a claim settlement or following the resolution of the land claim. In this case traditional native hunting, trapping and fishing would continue within the park; and
- protection of the park under the *National Parks Act*. Complications related to land title and property purchase may mean that interim protection for park resources is required. Alternative legislative tools are available to provide this interim protection.



9.1.1 History of the Proposed Mealy Mountains National Park

The creation of a national park in the Mealy Mountains was first suggested in the early 1970s and the site was established as a preferred candidate in 1976. The project was put on hold in 1979 following public concern and opposition from Aboriginal groups. In 2000, the Government of Newfoundland and Labrador announced that federal and provincial governments and representatives of Labrador Aboriginal peoples would embark on a joint feasibility study to examine the potential impacts and benefits of establishing a national park in the Mealy Mountains (Government of Newfoundland and Labrador 2001).

A steering committee was put in place to lead public involvement and a public consultation process to determine whether or not a national park is feasible for the Mealy Mountains area. The Feasibility Study Steering Committee consists of Parks Canada, the provincial Department of Culture and Recreation (supported by Labrador and Aboriginal Affairs), Innu Nation, Labrador Inuit Association, Labrador Mètis Nation, Combined Councils of Labrador, Southeastern Aurora Development Corporation, and Central Labrador Economic Development Board.

The Steering Committee is currently reviewing the draft park purpose statement and conservation targets prepared by Parks Canada (G. Pittman, pers. comm.). The park purpose statement will be the basis on which the presentation materials will be developed for the public involvement sessions. The schedule for these session has not been developed (G. Pittman, pers. comm.). Following completion of the feasibility study, and if the park is deemed feasible, negotiations will begin for a Land Transfer Agreement between the Federal and Provincial governments. Park Impact Benefit Agreements will also be negotiated with other groups (G. Pittman, pers. comm.).

The goal of Parks Canada with respect to the proposed national park is to protect ecosystems and important landscape features while providing opportunities for enjoyment by humans. To accomplish this, it is understood that there will be some level of development within the national park (Blackmore 2001). Park boundary targets have not been defined. However, Parks Canada would like to see protection for river systems, wildlife, unique alpine vegetation and a large area of forest to allow the natural cycle of the forest to evolve without interference (Blackmore 2001).

9.1.2 Biophysical Environment of the Park Study Area

The Mealy Mountains represent an area of Arctic tundra surrounded by boreal forests and coastal seascapes and is within the home range of the threatened MMCH (Nature Federation 2000). The proposed park boundary would encompass five ecoregions, including Lake Melville, Kingurutik-Fraser River, Mecatina River, Eagle Plateau and Paradise River (ESWG 1996).

The topography of the area is varied, a result of the underlying bedrock and structural geology as well as influences of glacial erosion and deposition. Features include steep, glacially-scoured mountainous terrain, and flat plateaus with numerous lakes and wetlands. Other landforms found in the area include eskers, glaciofluvial terraces and raised marine beaches, plateau bogs, patterned fen complexes, coastal and alpine barrens, and boreal conifer forest (Keith 2001).

The Mealy Mountains are the highest in southern Labrador, with elevations that exceed 1,150 m. Vegetation at these higher elevations includes some Arctic alpine species, typical of vegetation found in more northern latitudes (Keith 2001). South of the Mealy Mountains, the interior lowland region has some of the most productive forest in Labrador.

Lake Melville, which extends inland 240 km from the mouth of Groswater Bay, forms the northern boundary of the proposed park study area. This large saltwater inlet is the inland extension of Hamilton Inlet, the largest fiord complex along the Labrador coast (Keith 2001).

Several large rivers bisect the study area, including the Kenamu and Eagle rivers, both important Atlantic salmon rivers. The Eagle Plateau is dominated by lakes and wetland complexes that provide nesting habitat for osprey and bald eagle. Mammals typical of the boreal forest are found in the study area, including woodland caribou, moose, black bear and a variety of furbearer species, including river otter, beaver, muskrat, lynx, wolf and red fox. Similarly, songbirds typical of the boreal ecosystem, a large percentage of them migratory, can be expected to use the study area. Waterfowl densities are generally low; however, an important segment of the Atlantic flyway population of ducks and geese nest in the region due to the large amount of wetland habitat in the park study area.

9.2 International Biological Program Sites

The International Biological Programme (IBP) was an international effort of government and academic institutes to select areas of biological importance in various parts of the world. The program in Newfoundland and Labrador was initiated by the Canadian Forestry Service in 1965 (IBP 1974). Sites were classified as major, supplemental or special based on biophysical features. Definitions of each classification are unclear; however, it appears that only sites with a rare or unusual feature were classified as special. Terra Nova National Park and Gros Morne National Park were the only major sites designated during the program (IBP 1974). In 1972, attention was focused on Labrador, although coverage at many sites was superficial due to the size of sites and the difficultly in accessing some areas (IBP 1974). A total of 23 sites were classified in Labrador during the program, with 17 being considered supplemental and six considered special.

The IBP program is no longer active and the Parks Division of the provincial Department of Tourism, Culture and Recreation now manage the IBP database. In the early 1990s, a site re-evaluation program was initiated and some Labrador sites were reviewed to determine if the classifications remained valid, based on the significance of the factors for the designation and current levels of disturbance (Ballam 1994).

There are five IBP sites located in Central Labrador. All sites are considered supplementary sites under the IBP classification (IBP 1974).

Site No. 48 Lower Churchill River - this is a small site, approximately 20 km², located on the north shore of the Churchill River (Figure 9.1). The area was originally selected as an IBP site for its representative features of black spruce/cladonia forest on stabilized sand dunes. The site is a rising slope from a river terrace and contains many representative features of the High Boreal Forest ecoregion. It was considered moderately to highly representative of its ecoregion (Ballam 1994). A review of the site by the provincial Parks Division concluded that there may be other areas that

are more representative of the features and may be less disturbed by logging and cabin development (Ballam 1994).

- 2. Site No. 50 Gull Island Lake this site is 73 km² and is situated around the portion of the Churchill River called Gull Island Lake (Figure 9.1). The site is also representative of the High Boreal Forest ecoregion and was selected based on several special features. It encompasses the only known site of *Oxalis montana*, a vascular plant associated with more southern latitudes. As well, the site may be the northern limit for a number of herptile species and the sand dunes in the area were considered important. The area is still considered important for these features (Ballam 1994).
- 3. Site No. 66 No Name Lake this area of 6.5 km² is located approximately 25 km south of the proposed highway (Figure 9.1). The area represents black spruce forest and string bogs and nesting sites for osprey and bald eagle. No special features were identified (IBP1974).
- 4. Site No. 53 Eagle River Headwaters this is a large site (520 km²) situated around a large complex of string bogs and the headwaters of Lake Melville, Gulf of St. Lawrence, and Atlantic drainage systems (IBP 1974). The proposed highway passes through the northern end of the site (Figure 9.1). The site represents black spruce forest and string bogs and nesting habitat for osprey and bald eagles. No special features were identified (IBP 1974).
- 5. Site No. 56 Mealy Mountains this is another large site (1,040 km²) centred on the Mealy Mountains, south of Lake Melville (Figure 9.1). The site was selected as representative of barrens with rock outcrops and as wintering and breeding grounds for caribou (IBP 1974).

9.3 Heritage Rivers

9.3.1 Canadian Heritage Rivers System

The Canadian Heritage Rivers System (CHRS) was established in 1984 as a cooperative program between federal, provincial and territorial governments. The objectives of the program are *to give national recognition to Canada's outstanding rivers and to ensure long-term management and conservation of their natural, cultural, historical, and recreational values* (Parks Canada 2001). The nomination and management of Canadian Heritage Rivers is generally with the government responsible for the lands surrounding the river, provincial or territorial governments or the federal government for national parks or other federal lands.

The CHRS is administered by a Board comprised of two members appointed by the federal government (one from Department of Indian Affairs and Northern Development and one from Parks Canada) and one appointed by each of the provincial and territorial governments. The board meets at least yearly to review new river nominations, program and funding priorities, and evolving policies and guidelines (Parks Canada 2001).

There are currently two rivers in Newfoundland and Labrador that are part of the CHRS. The Main River on the Northern Peninsula of Newfoundland was recently designated as a heritage river and the Bay Du Nord River, on the south coast of Newfoundland, was nominated by the provincial government in 1992 (CHRS 2001). There are no designated or nominated rivers in Labrador. However, the CHRS Board has approved the preparation of a systems study of rivers in Labrador. The timing of the study is to be determined by the provincial government (CHRS 2001).

Nomination of a river must be done by the government with jurisdiction over the river. Nomination documents must show that the river is of outstanding Canadian value (natural, cultural or recreational values) and that sufficient measures can be applied to maintain those values. Once a nomination has been accepted by the CHRS Board, a management plan must be prepared within three years by the nominating government. Public participation in the process is considered important (Parks Canada 2001) and the level of public support for nominations is a factor when submissions are reviewed (CHRS 2001). Management plans describe resource protection measures, including appropriate recreational uses, strategies to maintain ecological integrity, and monitoring. Once a management plan has been accepted, the river is considered designated as a Canadian Heritage River.

9.3.2 Potential Candidate Rivers in Central and Southern Labrador

Candidate rivers must be identified through a systems study that documents various attributes of the rivers to determine if they warrant nomination to the CHRS. Aspects to be considered include natural heritage (geology, landforms, hydrology, vegetation, wildlife, and landscapes), recreational uses, and human heritage.

There are a number of rivers in Labrador with the potential to qualify for nomination as a heritage river, including the Traverspine, Eagle, Kenamu and Paradise rivers. It is likely that all of these rivers exhibit natural values such as unique landforms, hydrology and wildlife. As well, all have been used by humans, both historically and through recent times. The Churchill River would not likely qualify as a Canadian Heritage due to the alterations caused as a result of hydroelectric power development. Further information on these rivers and associated watersheds is provided in the Fish and Fish Habitat Component Study prepared in conjunction with the TLH - Phase III environmental assessment (JW/IELP 2003).

9.4 Other Reserves and Special Areas

Provincial Parks are administered under the *Provincial Parks Act* while sensitive areas such as ecological reserves are administered under the provincial *Wilderness and Ecological Reserves Act*. National parks are administered under the *National Parks Act* and a federal *Marine Conservation Areas Act* is currently under development (Parks Canada 2001).

Pinware River Provincial Park was established in 1974, and typically operates from approximately mid-June to early September. It covers an area of 68 ha, and contains 15 campsites and 25 picnic sites, as well as a 1.2 km-long hiking trail (Parks and Natural Areas Division n.d.). There are several other welldeveloped hiking trails in the Labrador Straits area. A number of operators also offer whale, iceberg, and bird watching boat tours in the region (Labrador Straits Network n.d.; Labrador Straits Development Corporation n.d.; Department of Tourism, Culture and Recreation 2002b).

There are no wildlife or wilderness reserves in Labrador; however, there is one ecological reserve within the region. The Gannet Islands Ecological Reserve is a group of seven islands at the mouth of Sandwich

Bay. The islands host important breeding populations of razor bills (5,400 pairs), Atlantic puffins (50,000 pairs) and common murres (63,000 pairs) (CEC 1999). Large flocks of molting harlequin ducks from the eastern population of special concern are also present around the islands in summer (CEC 1999). The site is also considered an Important Bird Area (IBA). In Canada, the IBA program was initiated in 1996, in conjunction with the launch of parallel programs in the United States and Mexico. The goal of the IBA program is to identify and conserve a worldwide network of sites necessary to ensure the long-term viability of naturally occurring bird populations (IBA 2001).

There are two areas in Labrador identified as potential national marine conservation areas (NMCAs), Nain Bight and Hamilton Inlet (Figure 4.2). Analysis of these two sites prior to selection of the preferred option is ongoing (Parks Canada 2001). NMCAs are marine areas managed for sustainable use that encompass smaller zones of high protection. The areas include the seabed, the water above it and any species which occur there. They may also take in wetlands, estuaries, islands and other coastal lands. NMCAs are protected from such activities as ocean dumping, undersea mining, and oil and gas exploration and development. Traditional fishing activities would be permitted, but managed with the conservation of the ecosystem as the main goal. The *Canada National Marine Conservation Areas Act* was assented to June 13, 2002.

The Battle Harbour National Historic District is located on an island that is accessible by boat from Mary's Harbour (Figure 9.3). Founded in the 1770s, it is one of the oldest European settlements on the Labrador coast, and was a major centre for "floater fishermen" from Newfoundland who sailed to Labrador to take part in the summer cod fishery. It comprises the province's last intact traditional outport mercantile fish premises, with some buildings more than 200 years old. and the site of Dr. Wilfred Grenfell's first hospital, established in 1893. The site comprises the province's last intact traditional outport mercantile fish premises, with some buildings more than 200 years old. This restored fishing community is located on an island which is accessible by boat from Mary's Harbour, and operates from June to September (Battle Harbour Historic Trust n.d.; Department of Tourism, Culture and Recreation 2002b).

The Red Bay National Historic Site is located in the Labrador Straits. Historical and archaeological research at the site revealed its status as the world's largest 16th century whaling port, and resulted in it being designated a site of national historic importance. The Red Bay site typically operates from June to October, and had a total of 7,961 visitors in 2001 (Department of Tourism, Culture and Recreation 2002b; 2002c).

9.5 Cabins, Trails and Recreational Areas

Cabins are common throughout Central and Southern Labrador, with many area families owning one or more cabins. Armitage and Stopp (2003) indicate that, of a total 1,248 cottages in Labrador, 462 were located within 1 km of a road. On the TLH - Phase II route, cabins are concentrated primarily between Port Hope Simpson, St. Lewis (along the inlet area) and Mary's Harbour, and along the highway route between Red Bay and Lodge Bay. The cabins are used mainly for hunting, trapping, fishing and gathering activities, but are also used for general recreational purposes.

Central Labrador residents and visitors take part in a wide range of outdoor recreational pursuits. There are several well-developed hiking trails in Central Labrador, including an extensive biking and walking trail within the Town of Happy Valley-Goose Bay, cross-country ski and hiking trails, as well as trails in and

around the communities of North West River and Sheshatshiu. Other outdoor tourism and recreational facilities in the region at present include a golf and sports club, downhill ski facility, marina, and wilderness resort. Hiking, canoeing, kayaking, and snowmobile excursions are also available to tourists, as are boat tours and charters (Department of Tourism, Culture and Recreation 2002b; Town of Happy Valley-Goose Bay n.d.).

Trail systems exist throughout the Southern Labrador area, and are currently used primarily by local residents for hunting, fishing, trapping and berry-picking activities. There is also an extensive snowmobile trail through Southern Labrador, which extends from Paradise River to Cartwright, from Cartwright to Black Tickle-Domino, and south along the coast to Red Bay. This winter road is used extensively by local residents, and has considerable tourism potential (JW 1998). The nearly completed Labrador Winter Trail is a 1,500 km-long groomed Labrador snowmobile trail. It extends from Western Labrador, through Churchill Falls, Happy Valley-Goose Bay, and Rigolet, and then branches off in two directions. Snowmobilers can travel the north coast through Postville, Makkovik, Hopedale and up to Nain, or south through coastal communities, ending in the community of L'Anse au Clair. There are also shorter branch trails throughout the system. The trail system includes signage and emergency shelters (Access North Labrador 2002).

10.0 FORESTRY

Labrador has a forested area of approximately 6.5 million ha, with a total gross volume of more than 55 million m³ (Department of Forest Resources and Agrifoods 1998). In general, Labrador's forests are isolated, inaccessible and low in merchantable volume, resulting in high harvesting costs. The current harvesting rate of forest resources in Labrador is relatively low. Some of Labrador's most productive forests are located in Central and Southern Labrador (Department of Forest Resources and Agrifoods 2002a).

10.1 Regulatory Framework for Forest Management

Forest management involves considering resources, such as fish, wildlife, land and water, in addition to timber in planning for the use of forest resources. The *Forestry Act*, as amended in 1990, emphasizes ecosystem management (i.e., management of the forest resource as a whole), not timber management. In addition, the act requires that sound environmental practices and the principle of sustainable development govern the management process (Department of Forest Resources and Agrifoods 2002b).

In addition to the *Forestry Act*, other legislation and regulations also play a role in forest management planning and forestry operations in Newfoundland and Labrador. Relevant legislation and regulations include:

- Wildlife Act;
- Environmental Protection Act:
- *Cutting of Timber Regulations;*
- Wilderness and Ecological Reserves Act;
- Endangered Species Act;
- Migratory Birds Convention Act;
- *Fisheries Act*; and
- Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act.

Newfoundland and Labrador's forests are the responsibility of the provincial government, specifically the Department of Forest Resources and Agrifoods. The Newfoundland Forest Service, part of Department of Forest Resources and Agrifoods, manages, protects and uses the forest resources of Newfoundland and Labrador. According to the *Forestry Act*, the Newfoundland Forest Service is responsible for supervising, controlling and directing all aspects of forest access road construction and maintenance, forest protection (e.g., from fire or insect damage), silviculture activities, harvesting operations, developing and maintaining a current forest inventory, and preparing forestry management plans.

The Department of Forest Resources and Agrifoods, with headquarters in St. John's and Corner Brook, has a regional office in Happy Valley-Goose Bay and district offices in Cartwright and North West River. The province is divided into 24 forest management districts (FMD), with six FMDs in Labrador (Figure 10.1). The proposed TLH - Phase III route crosses FMD19 and FMD20.



A Forest Ecosystem Strategy Plan and Five-Year Operating Plan are prepared for each FMD. The district strategy plan draws on the provincial strategy (*20 Year Forestry Development Plan*), which summarizes the forest management activities over the previous five years and outlines what will be accomplished over the next 20 years (Department of Forestry and Agriculture 1992). District representatives work with external management teams, comprised of industry representatives, general public, government resource managers and other non-governmental organizations, to complete the strategy and operating plans for each district. These external teams are formed to address non-timber concerns in the forest management process, ensuring that the Department of Forest Resources and Agrifoods meets its mandate of conserving and managing provincial ecosystems in an environmentally sound manner while allowing use of these resources by the people of Newfoundland and Labrador.

The *Forest Process Agreement*, signed by Innu Nation and the Government of Newfoundland and Labrador on January 30, 2001, facilitates Innu involvement in the forest management process, in the absence of a settled land claim (Department of Forest Resources and Agrifoods 2002c). A Memorandum of Understanding, signed in October 2002, between the Labrador Métis Nation and the Government of Newfoundland and Labrador provides for participation of the Labrador Métis Nation in forest management in Labrador (Government of Newfoundland and Labrador 2002).

Drawing on the objectives of the strategy plan, the operating plan provides details (typically on 1:50,000 scale maps) of the forest management activities (e.g., harvesting, access road construction and silviculture) planned for a five-year period. An annual work schedule identifies the specific location and timing of forest management activities on 1:12,500 or 1:25,000 scale maps.

The Department of Forest Resources and Agrifoods issues permits and licenses to control the use of forest resources. These permits and licenses can be obtained from the district forestry office responsible for the area for which the permit or license is requested. Department of Forest Resources and Agrifoods' conservation officers have the authority to issue various permits and enforce the terms and conditions of the permit or license. The following permits and licenses are issued by the Department of Forest Resources and Agrifoods:

- Commercial Cutting Permit for cutting and removing timber from crown or public land for sale or barter;
- Commercial Mill License for operating a mill for commercial purposes;
- Domestic Cutting Permit for cutting and removing timber from crown or public land for personal use. The volume of timber to be cut and removed under this permit depends on the cutting area, but cannot exceed 23 m³ and cannot be sold, bartered or used as a gift;
- Domestic Mill License for operating a mill to produce products for personal use (not for sale, barter or gift) and not exceeding 5,000 fbm (foot board measure) or the sawlog portion of the permittee's domestic cutting permit whichever is less;
- Operating Permit for carrying out a logging or industrial operation on crown or private land during forest fire season;
- Permit to Burn for starting a fire on forested land or within 300 m of forested land during forest fire season;
- Permit to Export Timber for a person or company to ship timber from the province;

- Timber Scaling License provides the authority to a person to measure timber (all commercial timber and all timber from crown land in the province with royalties owing must be scaled (measured) a licensed timber scaler); and
- Timber Purchase License permits a person to purchase timber cut on crown or public land for sale/barter or processing;

The Department of Forest Resources and Agrifoods' Legislation and Compliance Division provides support in implementing legislation and other departmental programs and policies affecting forest and wildlife resources (Department of Forest Resources and Agrifoods 2002b). This helps to ensure public understanding and awareness of requirements for using forest resources in a responsible and sustainable manner. The division is responsible for investigating suspected unlawful forestry activities, establishing enforcement programs, maintaining an enforcement database, developing and reviewing policy, and coordinating changes in legislation with the Department of Justice.

10.2 Forest Resources in Central and Southern Labrador

The general locations of Labrador's commercial timber areas are shown in Figure 10.2, most are located in the vicinity of Paradise River and Lake Melville. Black spruce and balsam fir are the most common tree species in the area. The area at the western end of the TLH - Phase III route (both north and south of the Churchill River) contains Labrador's most productive forests (Department of Forest Resources and Agrifoods 2002a). Forests in the area are currently managed primarily for fuelwood and lumber. Only a small portion of these commercial timber areas have been subject to small-scale forest harvesting operations.

10.2.1 Labrador Ecoregions

Ecoregions represent the broadest level at which forest ecosystems are classified in Newfoundland and Labrador. Ecoregions are characterized by distinctive ecological responses to climate as expressed by vegetation, soil, water and fauna (Department of Forest Resources and Agrifoods 1998). Labrador's ecoregions are shown in Figure 10.3. The TLH - Phase III route from Happy Valley-Goose Bay to Cartwright Junction crosses four of Labrador's ecoregions. These four ecoregions, as described below, vary in terms of climate, terrain and their ability to grow merchantable timber forests.

10.2.1.1 High Boreal Forest - Lake Melville

The High Boreal Forest - Lake Melville Ecoregion encompasses the Churchill River valley and the coastal plain surrounding Lake Melville. This ecoregion has the most favourable climate in Labrador and a growing season of 120 to 140 days. The forests are generally closed-canopied and highly productive. Black spruce (*Picea mariana*)-balsam fir (*Abies balsamea*) forests dominate the landscape, with the most nutrient-rich areas containing a higher percentage of balsam fir, white birch (*Betula papyrifera*) and trembling aspen (*Populus tremuloides*). The forests of this ecoregion have been subject to the highest harvesting rates in Labrador, and are likely to continue to be into the foreseeable future (Department of Forest Resources and Agrifoods 2002a).





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10.2.1.2 Low Subarctic Forest - Mecatina River

The main portion of the Low Subarctic Forest - Mecatina River Ecoregion is located in southern Labrador. The ecoregion has a growing season of 120 to 140 days, and is dominated by somewhat open black spruce forests, with crown densities greater than 75 percent on more nutrient-rich sites. String bog-ribbed fen complexes cover extensive areas throughout the ecoregion, reducing the area of productive forest in the region.

10.2.1.3 String Bog - Eagle River Plateau

The String Bog - Eagle River Plateau Ecoregion covers most of the Eagle River Plateau area. This upland plateau contains extensive string bogs, with numerous small open water bodies surrounded by fen vegetation. The ecoregion does not support commercially productive forests.

10.2.1.4 Mid Boreal Forest - Paradise River

The bedrock-controlled landscape of the Mid Boreal Forest - Paradise River Ecoregion in southeastern Labrador has many rock outcrops and supports relatively productive, closed-crown forests. The climate is considered boreal and is moister and cooler than the Lake Melville area, yet also has a growing season of 120 to 140 days. As with the other forested ecoregions, black spruce and balsam fir are the most common tree species.

10.2.2 Forest Management District 20

FMD20, as indicated on Figure 10.1, covers an area of 2.2 million ha from the Atlantic Ocean in the east to Lake Melville in the north. This ecologically, dynamic FMD covers four of the ecoregions crossed by the TLH - Phase III route, as well as a fifth ecoregion. The composition of FMD20 forests is approximately 70 percent black spruce and 25 percent balsam fir, with other softwoods, white birch and trembling aspen constituting the remaining 5 percent (T. Schlossek, pers. comm.). The bulk of commercial stands (i.e., those containing a minimum softwood volume of 90 m³/ha) are located in the northeastern portion of the district (Figure 10.2).

10.2.3 Forest Management District 19

FMD19 is 7.1 million ha in size. The district has been sub-divided into 19A (further subdivided into 19A-S and 19A-N), 19B and 19C for management planning purposes(Figure 10.4). A large portion of the eastern and western portions of FMD19 are not forested. However, much of the central and northern portions consist of moderately to heavily stocked commercial softwood forests. These forests are dominated by black spruce, comprising approximately 91 percent of the productive forest in the area. Balsam fir constitutes 5 percent of the area, while other softwoods and hardwoods (white birch and trembling aspen) account for the remaining portion (Department of Forest Resources and Agrifoods 2002a).



10.2.3.1 Forest Management District 19 - Subdistricts 19B and 19C

Although FMD19 contains Labrador's most productive forests and has traditionally been the centre of the forest industry in Labrador, two of the three sub-districts, (i.e., 19B and 19C) remain virtually undisturbed. Due to a lack of access roads, sub-districts 19B and 19C (whose combined areas total more than 4.8 million ha) have not been subject to commercial harvesting operations. In addition, there are no plans to start harvesting operations in 19B or 19C in the foreseeable future. Sub-district 19B is located more than 200 km from the TLH - Phase III.

With the exception of the Eagle River Plateau and the northern extreme of FMD19C, which lies in the High Subarctic Tundra Ecoregion, nearly all of the remaining area falls within the Low Subarctic Forest - Mectina River Ecoregion (Figure 10.3). As noted, the Low Subarctic Forest Ecoregion is characterized by somewhat open black spruce forests, extensive bog-fen complexes, and a growing season of 120 to 140 days. Much of this area consists of lichen scrub/open bog or barrens (Figure 10.5). However, there are large patches of moderately stocked, commercially productive softwood forest (Department of Forest Resources and Agrifoods 2002a).

10.2.3.2 Forest Management District 19 - Subdistrict 19A

FMD19A covers an area of approximately 23 million ha and contains 27 primary watersheds, including the Churchill River which flows in a northeasterly direction through the centre of 19A. Although frozen most of the year, a substantial portion of the landscape (11.6 percent) is composed of water (Department of Forest Resources and Agrifoods 2002a). Four ecoregions (String Bog, High Boreal Forest, Low Subarctic Forest and Mid Subarctic Forest) exist within the borders of FMD19A, the most important (at least from a forestry perspective) being the High Boreal Forest.

FMD19A is currently considered a Crown Management District, because most of the land in the FMD is classified as crown (i.e., owned by the province) land. FMD19A contains approximately 60 percent of Labrador's most productive forested land, the High Boreal Forest - Lake Melville Ecoregion that encompasses the Churchill River valley. This ecoregion has the most favorable climate in Labrador, which combined with the well-drained soils of the upland areas, provide conditions for highly productive forests (Department of Forest Resources and Agrifoods 2002a).

Considering that most of Labrador's forests are relatively sparse, FMD19A contains the majority of Labrador's closed canopy forest. As indicated in Table 10.1, heavy to moderately stocked (i.e., commercial) spruce-fir forests constitute 42.1 percent of the total area of FMD19A. These stands are considered of commercial value as they contain, on average, a minimum softwood volume of 90 m³/ha (Department of Forest Resources and Agrifoods 2002a). Non-commercial, sparse spruce forests make up 17.6 percent, regenerating (i.e., immature) forests and mixed hardwood (white birch and trembling aspen) represent 1.0 percent and 1.6 percent of the total area of FMD19A, respectively (Table 10.1).



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Table 10.1	Vegetation	Cover Type	es in Forest	Management	District 19A
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Vegetation Cover Type	Percent
Heavy Spruce/Fir Forest	12.8
Moderate Spruce/Fir Forest	29.3
Sparse Spruce Forests (Sphagnum Forests and Lichen Woodlands)	17.6
Regenerating Forests	1
Mixed Hardwood Forests	1.6
Other (Water Bodies, Bog/Wetlands, Rock Barrens, Recent Burns, Unclassified, etc.)	37.7
Total	100
Source: Department of Forest Resources and Agrifoods 2002a.	

In addition to non-commercial forests, water bodies (11.6 percent), lichen scrub and bogs (9.2 percent), bogs and wetlands (8.7 percent), soil/rock barrens (2.3 percent), recently burned areas (3.3 percent), and unclassified areas (2.6 percent) comprise the remaining 37.7 percent of the area in FMD19A (Department of Forest Resources and Agrifoods 2002a).

Labrador's relatively short growing season, severe climatic conditions and poor soil conditions limit forest stand density and, as a result, the crown cover of its boreal forests (Department of Forest Resources and Agrifoods 2002b). These factors, combined with a general low level of disturbance (e.g., fire and harvesting), have shaped the current character of FMD19A timber resources. As indicated in Figure 10.6, the age class distribution on productive sites is skewed, with 77 percent of the stands in the overmature age classes. This is largely due to a history of generally low-level disturbances, as shown by Figure 10.7. The effects of past commercial timber operations (particularly in the past 25 years) has been relatively small, having affected a total of approximately 18,000 ha to date. Forest disturbances vary greatly in FMD19A in both intensity and area burned. In general, fire is infrequent, with fire return intervals of 200 to 500 years (Department of Forest Resources and Agrifoods 2002a).

The majority of FMD19A productive stands are 10 to 15 m in height, have a crown closure of 51 to 75 percent, and exist on poor to medium quality sites (Department of Forest Resources and Agrifoods 2002a). The location and extent of FMD19A commercial forests is shown on Figure 10.8.

The total commercial volume of wood in FMD19A is approximately 87 million m³ (Table 10.2). However, steep (>30 percent) slopes, water body and bog buffers, and ecologically and culturally sensitive areas (as those contained in the Protected Area Networks) (Figure 10.8), alternative land uses, and the presence of isolated stands uneconomical to harvest combine to reduce the volume of wood that is actually available for harvest. In fact, only approximately 42 million m³ (48.6 percent) of the total commercial volume is considered economically "harvestable" (i.e., unalienated). This volume is further reduced by 20 percent to account for the combined losses of cull, residuals (e.g., small patches of unmerchantable timber within a stand), harvesting losses due to waste and breakage, and fire. Therefore, the net volume of wood that can be removed economically from FMD19A is approximately 34 million m³. Currently, nearly 72 percent of this total (24 million m³) is located in 19A-S and is inaccessible at the present time (Table 10.2).





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Jacques Whitford Environment Limited Environmental Scientists Consulting Engineers Figure 10.8

Forest Management Classifications Forest Management District 19A

Table 10.2Wood Supply Analysis Results for Forest Management District 19A

FMD 19A	FMD 19A-N	FMD 19A-S	FMD 19A (Total)			
Land Base (ha)		<u>.</u>				
Total Area	1,041,643	186,256	2,227,899			
Productive forest ¹	356,600	744,560	1,101,160			
Commercial Forest ²	166,166	512,305	678,471			
Unalienated Commercial Forest	91,791	233,012	324,803			
Net Commercial Forest ³	65,538	166,371	231,909			
Volume (m ³)						
Commercial Volume	21,744,770	65,267,600	87,012,370			
Unalienated Commercial Volume	12,024,970	30,330,300	42,355,270			
Net Commercial Volume	9,619,976	24,264,240	33,884,216			
Notes:						

¹ Stands capable of producing 35 m³/year at rotation.

 2 Stands that contain a minimum softwood volume of 90 m³/ha.

³ Total commercial forest with a reduction applied to account for unmapped stand level features.

Source: Department of Forest Resources and Agrifoods 2002b.

10.3 Forest Operations in Central and Southern Labrador

10.3.1 Forest Management District 20

Only a small fraction of FMD20 has been subject to forestry activity. Between 150 and 175 domestic cutting licenses have been annually in FMD20 during the past few years, with a total harvest volume of approximately $3,500 \text{ m}^3$ /year. Most of this volume was removed from domestic cutting reserves located within a 10 to 15 km radius of the communities of Cartwright and Paradise River (T. Schlossek, pers.comm.).

All commercial forest operations (on average, six commercial cutting licenses are issued per year) in FMD20 are located in the White Hills area, approximately 15 to 20 km southwest of Cartwright. These operations are relatively small in scale, harvesting a total average of 6,000 m³ of softwood per year (T. Schlossek, pers. comm.). Most of the wood is harvested during the winter, when the area is accessible by snowmobile. Most of the lumber produced is sold locally.

The volume of timber harvested in FMD20 is expected to increase to 30,000 m³ within two to three years to accommodate the demand for a new sawmill scheduled to be constructed in the Cartwright area in 2003. Due to the relatively high productivity of the forests in the area, and the fact that forest road access already exists, the additional wood will also be harvested from the White Hills area (T.Schlossek, pers. comm.). The sawmill is expected to produce prefabricated housing materials for markets in Labrador and the island of Newfoundland. When the new sawmill is operational, harvesting operations are expected to occur year-round, rather than be limited to the winter.

10.3.2 Forest Management District FMD19A

All commercial harvesting activities in FMD19A have occurred north of the Churchill River, in an area 15 to 80 km northwest of Happy Valley-Goose Bay (i.e., subdivision 19A-N of FMD19A) (Department of Forest Resources and Agrifoods 2002c). As a result, all existing forest access roads in FMD19A are located north of the Churchill River. The activities that have taken place in FMD19A in the past five years are summarized in Table 10.3. Areas treated with silviculture (e.g., tree planting) were reduced generally due to an increased reliance on natural regeneration. Silviculture areas in FMD19A-N are shown in Figure 10.9.

Forest operations in FMD19A have been relatively unstable. Commercially harvested timber harvested in FMD19A over the 1969 to 2000 period are shown in Figure 10.10. After Labrador Linerboard ceased large-scale (over 300,000 m³/year) operations in 1977, harvesting continued at much lower levels up to 1992. Since 1990, ten commercially licensed sawmills have operated in FMD19A and; combined, have produced an average of 1.7 million board feet (mbf) annually. However, the combined potential capacity of these sawmills is more than 10 mbf annually (Department of Forest Resources and Agrifoods 2002a). Timber harvesting in FMD19A has increased steadily over the past five years. During this period, the volume of commercially harvested timber increased from less than 10,000 m³ in 1995 to approximately 40,000 m³ in 2001 (Department of Forest Resources and Agrifoods 2002a).

Year	Area Harvested (ha)	Area Treated (ha)	Roads Constructed (km)			
1997-1998	189	104	3.7			
1998-1999	282	90	9.5			
1999-2000	365	90	3.9			
2000-2001	464	90	10.7			
2001-2002	Not Available	97	9.5			
Source: Department of Forest Resources and Agrifoods 2002c.						

Table 10.3	Summary of Activities in Forest Management District 19	A. 1997	to 2002
1 abic 10.5	Summary of Activities in Forest Management District 17	. 1, 1///	10 2002

Domestic timber harvesting continues to be an important activity for local communities, with an average of 300 domestic cutting permits issued annually since 1991. Annual average of less than 7,000 m³/year was harvested in this manner. Locally harvested wood is used in home construction and heating, as well as for constructing boats, sleds and snowshoes (Department of Forest Resources and Agrifoods 2002a).





10.4 Forest Management and Harvesting Plans, 2002 to 2007

An increase in FMD20's AAC to 30,000 m³/year from 6000 m³/year is expected to occur within two to three years. While domestic harvesting rates are relatively low and stable, commercial harvesting rates are increasing in eastern and central Labrador.

The wood allocation for FMD19A is summarized in Table 10.4. The total allocation for the next five years is less than 200,000 m³, considerably less than the 400,000 m³ allocation anticipated during the planning process that took place in 2000. The incorporation of ecological and cultural values into the planning process resulted in a substantial change to how the timber management landbase was determined (Department of Forest Resources and Agrifoods 2002c). The existence of the Protected Areas Network, as well as areas designated for conservation emphasis (Beaver River) and domestic use (Figure 10.8) illustrate that non-timber values are important in FMD19A.

Table 10.4Forest Management District 19A Annual Allowable Cut

Management Class	AAC Contribution (m ³ /yr)	Percent of AAC			
Sub-district 19A-N					
Commercial Areas ¹	54,200	27			
Domestic Reserves ²	3,000	2			
19A-N Total	57,200	29			
Sub-district 19A-S					
Commercial Areas	127,000	64			
Domestic Reserves	10,500	5			
Selective Reserves ³	3,500	2			
19A-S Total	141,000	71			
District 19A Total	198,200	100			

Notes:

^{1.} Large-scale operations with both sawlog and pulpwood market requirements (approximately 80% of the total harvest allocation).

² Primarily fuelwood and some sawlog requirements, with a focus on harvesting in domestic reserves (near local communities) and burn-wood areas (approximately 12% of the total harvest allocation).

^{3.} Small-scale commercial operations that use a selective harvest approach. Requires primarily sawlog and construction timber with a high value-added potential (approximately 8% of the total harvest allocation). Source: Department of Forest Resources and Agrifoods 2002c.

As the timber in FMD19A-N is relatively accessible, the majority of forest management activities planned for the next five years are proposed to take place north of the Churchill River. Planning for the period from 2002 to 2007 indicates that 40 km of forest access roads will be constructed, 400 ha will be planted and 300 ha will be precommercially thinnned (Department of Forest Resources and Agrifoods 2002c). The AAC (i.e., the annual rate of harvest that can sustain both timber and non-timber values over the five-year operating plan) for FMD19A-N is 57,200 m³/year (Table 10.4). The ACC is calculated for a five-year period based on the results of the wood supply analysis (see Table 10.2 for the wood supply analysis results for FMD 19A).

The AAC for FMD 19A-S is 141,000 m³/year (Table 10.4). However, the Department of Forest Resources and Agrifoods (2002c) indicates that allocation of the AAC for 19A-S will depend on:

- approval of the TLH Phase III (Happy Valley-Goose Bay to Cartwright Junction) following environmental assessment;
- constructing a bridge across the Churchill River and required access roads to proposed 19A-S Management Units;
- developing local capacity to harvest and process timber in 19A-S; and
- timber allocations.

Commercial, selective, and domestic harvesting operations are allotted specific portions of the AAC allocations for 19A-N and 19A-S. The location and extent of the reserves in which these operations are permitted to occur are shown in Figure 10.8. As indicated in Figure 10.8 and Table 10.5, the greatest percentage of the allocation is allotted to commercial harvesting.

Table 10.5	Harvest Allocations in Forest Management District 19A
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Year	Commercial Permit (m ³)		Domestic Permit (m ³)		Selective Permit (m ³)		Total
	19A-N	19A-S	19A-N	19A-S	19A-N	19A-S	(ш)
2002 - 2003	51,000		5,000	2,000	1,000	4,000	63,000
2003 - 2004	51,000		5,000	2,000	1,000	4,000	63,000
2004 - 2005	51,000		5,000	2,000	1,000	4,000	63,000
2005 - 2006	51,000	20,000*	5,000	2,000	1,000	4,000	83,000*
2006 - 2007	51,000	40,000*	5,000	2,000	1,000	4,000	103,000*
Total	255,000	60,000*	25,000	10,000	5,000	20,000	375,000*
* These volumes are contingent on the conditions listed above (K. Deering, pers. comm.).							

Source: Department of Forest Resources and Agrifoods 2002c.

A total of 15 harvest blocks will supply the total 255,000 m³ allocated for 19A-N commercial harvesting. The special locations of the harvest blocks that will supply the 60,000 m³ (20,000 m³ in year 4 and 40,000 m³ in year 5) in 19A-S are not available at this time. However, as shown in Table 10.5, a total of 375,000 m³ will be commercially harvested from FMD19A by 2007, 90,000 m³ of which will be harvested from 19A-S. Due to their small-scale nature, selective commercial harvesting will be permitted to occur within the Protected Areas Network along the south side of the Churchill River (Figure 10.8). Forest access road construction will not be permitted in the Protected Areas Network. Thus, selective harvesting activities will be carried out using chainsaws during the winter months when snowmobile access is permitted.

The harvest of fuelwood, sawlogs, and building materials for domestic use will be carried out in the domestic reserve areas by those with a domestic cutting permit. These reserves are generally located in close proximity to the communities of Happy Valley-Goose Bay, North West River, Sheshatshiu and Mud Lake. With the exception of Mud Lake, these communities are all located in 19A-N. Small volumes of timber are expected to be harvested in remote areas by cabin dwellers as well.

11.0 MINING AND MINERAL EXPLORATION

11.1 Regulatory Framework

The Newfoundland and Labrador Department of Mines and Energy is responsible for managing the province's mineral resources, and plays a regulatory role with respect to mineral exploration, mining and quarrying activities in the province. The province's mining industry is managed and regulated in accordance with a number of acts and regulations. The *Mineral Act* governs and regulates the granting of mineral rights in Newfoundland and Labrador. The *Mineral Regulations* define the procedures and rules for holding and maintaining mineral rights in the province. Other relevant legislation include the: *Mining Act* and its associated *Mining Regulations* and *Small Scale Operations Regulations*; *Mineral Holdings Impost Act* and *Mineral Holdings Impost Regulations*; *Quarry Materials Act* and *Quarry Materials Regulations*; and *Undeveloped Mineral Areas Act*. The *Environmental Guidelines for Construction and Mineral Exploration Companies* also apply to mineral activities in the province (Department of Mines and Energy n.d.).

The following provides a brief overview of the process for obtaining and maintaining mineral rights and quarrying permits in Newfoundland and Labrador, based on Department of Mines and Energy (n.d.).

11.2 Mineral Rights

11.2.1 Staking and Maintaining Claims

The acquisition of Mineral Rights in Newfoundland and Labrador is by map staking, the basic unit of which is the "claim". An application for a Map Staked Licence can be for a maximum of 256 claims, and all the claims in the application must be coterminous. A recording fee and a refundable security deposit is required for applications for map staked licences.

A mineral exploration licence is issued for a term of 20 years. In order to maintain the licence in good standing for the 20-year term, it is necessary to carry out and report on exploration assessment work, and renew the licence every five years. In each year of the licence, the minimum annual assessment work must be completed on or before the anniversary date. The assessment report must then be submitted within 60 days after the anniversary date.

Any person who intends to conduct an exploration program on a staked or licenced area must submit an *Application for Exploration Approval and Notice of Planned Exploration Work* with a detailed description of the activity to the Department of Mines and Energy.

Provided the equivalent of the first three years assessment work has been completed and acceptable reports submitted, a licence holder has a right to a mining lease for all or part of a licence area. An annual rental is required to obtain and maintain a mining lease.

11.2.2 Quarry Permits

Exploration activity for quarry materials requires that an Application for a Quarry Material Exploration Licence be submitted to and approved by the Department of Mines and Energy. A permit is required to dig for, excavate, remove and dispose of any crown quarry material. Quarry permits are valid for a period not exceeding one year, normally for an area not exceeding 5 ha. All applications for regular quarry permits are referred to the appropriate government departments and other relevant authorities for comment before a final decision is made regarding whether to issue a permit. Subordinate Quarry Permits may also be issued for the extraction of specified small quantities of material from existing quarries, and are normally valid for one month only.

11.2.3 Other Regulatory and Management Processes

Various other government departments and agencies have direct or indirect responsibility for regulating various aspects of mining and mineral exploration (e.g., DFO; Environment Canada, and the provincial Departments of Environment, and Government Services and Lands). Innu Nation is also involved in reviewing proposals for proposed mineral activities in the project area. A number of other organizations and individuals also have responsibility for, or an interest in, the area's mining sector, including regional economic development boards and local economic development associations, mining and exploration companies and related organizations (e.g., the Newfoundland and Labrador Chamber of Mineral Resources), as well as other interested stakeholder groups.

11.3 Current Mining and Mineral Exploration Activity

At present there are no producing mines or developing properties in the study area (Department of Mines and Energy n.d.). Mineral exploration activity occurs throughout Labrador. In 2000, there were 46,124 active mineral claims in Labrador, with 6,185 claims staked in that year. In 2002, exploration expenditures in Labrador were estimated at approximately \$3.3 million (Department of Mines and Energy n.d.). Although mineral exploration activity in recent years has been concentrated primarily in northern and western Labrador, some exploration has and continues to occur in Southern and Central Labrador. In 2002, for example, there were mineral claims staked for platinum-palladium in the Alexis River area, and for unspecified resources in the general vicinity of the Pinware River (Department of Mines and Energy 2002a). Other noteworthy mineral occurrences in the area include sapphires south of Port Hope Simpson near St. Lewis Inlet, muscovite around Hawkes River near Norman Bay, garnets on the Alexis River near Port Hope Simpson and traces of gold near Cape Bluff. There is also potential for petroleum resources off the Southern Labrador coast, but there has been limited investigation and research conducted with respect to these resources (Southeastern Aurora Development Corporation 1997).

However, with the exception of the extreme western and eastern segments of the proposed highway route most of the TLH - Phase III project area is designated as "Lands Not Open for Staking", due to the presence of the proposed Mealy Mountains National Park area (Ash and Hinchey 2002).

There is little or no quarrying activity in the immediate vicinity of the proposed highway, given the current and past inaccessibility of this area. There are some rock quarries, gravel pits and sand or minor gravel sites located throughout other parts of Central and Southern Labrador, particularly those established as part of construction work associated with Phases I and II of the TLH. The number of quarrying operations tends to fluctuate each year, depending on local activities (AMEC 2000).

Mineral exploration activity will likely continue in the general area in the forseeable future, and may increase as a result of the increased access provided by the TLH (Red Bay to Cartwright). The establishment of the Mealy Mountains National Park would also have implications for mineral exploration and development activity in the project area.
12.0 HYDROELECTRIC DEVELOPMENT

12.1 Regulatory Framework

There are three primary pieces of legislation which govern Newfoundland and Labrador's electricity industry: the *Newfoundland and Labrador Hydroelectric Corporation Act*, the *Public Utilities Act*, and the *Electrical Power Control Act* (Department of Mines and Energy 2002a).

Newfoundland and Labrador Hydro (NLH) is a provincial crown corporation, with the mandate to generate and transmit electricity in the province. The company acts mainly as a generator and wholesaler of electricity, but distributes power directly to customers in Labrador and in some areas of the island of Newfoundland. The corporation was established by an act of the provincial legislation in 1954 and was incorporated in 1975. NLH is the parent company of the Hydro Group of Companies, which includes the Churchill Falls (Labrador) Corporation Limited (CFLCo.) that owns and operates the Churchill Falls Hydroelectric Facility in Western Labrador (Department of Mines and Energy n.d.).

The electricity industry in Newfoundland and Labrador is regulated by the Board of Commissioners of Public Utilities (the Public Utilities Board or PUB). The *Electrical Power Control Act* directs the PUB to enforce government policy in relation to the electricity industry and describes that policy. The *Public Utilities Act* sets out the structure and powers of the PUB, and provides its authority to regulate electrical utilities, as well as its other functions (Department of Mines and Energy 2002b).

12.2 Current Hydroelectric Development Activity

Major hydroelectric power generation and transmission infrastructure are shown in Figure 12.1. The 5,428 MW Churchill Falls facility in Western Labrador is the largest hydroelectric development in the province. Almost all of the power from this facility is sold to Hydro-Québec under a long-term fixed-price contract which expires fully in 2004. The remainder is used to supply power to a number of interconnected communities in Labrador, and the iron ore mines in Labrador City and Wabush (Department of Mines and Energy n.d.). NLH also operates a gas turbine (27 MW) and a diesel facility (11.7 MW) in Happy Valley-Goose Bay. The transmission grid in Labrador includes a 730-kV line from Churchill Falls south to Québec, a 230-kV line from Churchill Falls to Labrador City-Wabush, and a 138-kV line from Churchill Falls to Happy Valley-Goose Bay. NLH also operates 17 rural isolated diesel facilities totalling approximately 20 MW; servicing communities in coastal Labrador. In the Labrador Straits, a number of interconnected communities receive electricity from a Hydro-Québec hydroelectric facility at Lac Robertson, with backup by diesel facilities operated by NLH.

The White Rock Falls facility is currently the only hydroelectric generating project within the study area. Located on the St. Mary's River near the community of Mary's Harbour in Southern Labrador, this 0.135 MW generating facility was established in 1987 by Mary's Harbour Hydro (Water Resources Division 1992; Ah-You and Leng 1999). In 1999, a total of 0.2 GWh of power was purchased from this facility by (NLH 1999).



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12.3 Potential Future Development

NLH is currently exploring the development of a new dam and power plant on the lower portion of the Churchill River. The locations of proposed hydroelectric generation and transmission infrastructure are shown in Figure 12.1. It is currently envisioned that this project would entail the construction of a 2,000 MW generating station with four generating units at Gull Island, approximately 225 km downstream from Churchill Falls and approximately 300 km from the Labrador/Québec border, with associated transmission infrastructure in Labrador. Negotiations with Hydro-Québec on the sale of power from the proposed development are ongoing (Department of Mines and Energy n.d.).

There are also potential sites for small-scale hydroelectric developments in Southern Labrador, but to date, transmission costs to and between communities have made its development uneconomic (Department of Mines and Energy 2002b). The Southeastern Aurora Development Corporation has investigated the potential for developing the hydroelectric potential of the region. Although developing a river in the region for hydro power was not found to be feasible at that time, the corporation has identified further research into the viability of developing a river along the coast for hydroelectric power as one of its objectives (Southeastern Aurora Development Corporation 1997).

13.0 MILITARY ACTIVITIES

13.1 Regulatory Framework

Goose Bay was established as a Royal Canadian Air Force Station in 1942, with the United States Air Force establishing a presence at Goose Bay at the same time. In 1986, Canada signed a Multinational Memorandum of Understanding (MMOU) with the United States, United Kingdom and Germany regarding low-level flying at Goose Bay. The Netherlands signed the MMOU in 1987. The MMOU was renewed in 1996 for another 10-year period, with the United Kingdom, Germany, and the Netherlands. Italy signed the MMOU in 2000. The current memorandum allows for up to 15,000 low-level and 3,000 medium/high-level training flights annually (Department of Finance 2002).

13.2 Low-Level Flight Training

From April to October each year, Allied air forces conduct low-level flight training operations from CFB Goose Bay. Approximately 50 daily flights involving high-performance jet aircraft are flown at low altitudes (between 100 and 1,000 feet) within a designated low-level training area (LLTA), measuring approximately 130,000 km² over Labrador and Québec (Figure 13.1) (Department of National Defence n.d.).

Flying training at CFB Goose Bay has averaged 7,000 low-level flights per year. The highest average flight intensity at any point within the training area is less than five flights per day, but this involves less than 1 percent of the total training area. On average, less than 3 percent of the entire training area is subjected to one or more overflights per day. Happy Valley–Goose Bay and Churchill Falls are the only communities within the LLTA, and both are protected from disturbance by an exclusion buffer of 20 nautical miles in diameter (Department of National Defence n.d.). Approximately 92 km of the proposed TLH - Phase III route will be located within the LLTA.

Within this larger LLTA, a Practice Target Area (PTA) is used to conduct weapons training through the release of non-explosive practice weapons onto defined targets (Figure 13.1). This PTA, with a radius of four nautical miles, is the only restricted area within the LLTA. It is located approximately 120 km south of Happy Valley-Goose Bay and approximately 84 km south of the TLH - Phase III route.



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13.3 Canadian Forces Base Goose Bay

Military flight training forms the basis for the economy of Happy Valley-Goose Bay and the Central Labrador region. The base at Happy Valley-Goose Bay provides employment for a large local civilian workforce of permanent and seasonal employees, and in recent years, has employed approximately 21 percent of Happy Valley-Goose Bay's labor force. The base directly employed 487 Canadians in 1999, and accounts for nearly \$100 million in annual expenditures on personnel salaries, operations and maintenance costs. Allied air forces maintained 245 permanent positions at the base in 1999, with an additional 8,000 transient personnel stationed at CFB Goose Bay during that year. Approximately 16,000 military personnel passed through the base in the summer of 2001. The base also generates a substantial amount of indirect and induced employment and business activity, and provides the basis for further economic diversification in the region. Management of the base is the responsibility of a private company, SERCO Facilities Management Inc. (Department of Finance 2002; Town of Happy Valley-Goose Bay n.d.; Department of National Defence n.d.).

14.0 SUMMARY

14.1 Summary of Land and Resource Use

The TLH - Phase III passes through an area that has traditionally been used by the Innu and is currently subject to a land claim by the Innu. The harvesting areas most important to Sheshatshiu Innu are: Mealy Mountains; shoreline of Hamilton Inlet (near the mouth of river and streams); shoreline of major rivers in the area, in particular the Kenamu, Kenemich and English rivers; Paradise River and the upper parts of Saint-Paul and Saint-Augustin rivers; Eagle River and its tributaries; and shoreline of the larger lakes at the headwaters of the Eagle River. Caribou and fish, supplemented by beaver, porcupine, seal, rabbit and hare, grouse, ptarmigan and waterfowl were the main animals harvested. The Innu also trapped otter, mink, muskrat, fox, lynx, marten and ermine, as well as hunted black bear. Berries are also gathered in the mid to late summer. Trees, mainly black spruce, birch and tamarack were for firewood, shelters, tools and other implements. Innu land and resource use was considered more in more detail by Armitage and Stopp (2003).

Settler or Métis resource use includes trapping along the Eagle, Paradise and Kenamu rivers, and hunting in the Mealy Mountains and the Eagle River Plateau. As notes, areas used overlap with those traditionally used by the Innu.

There are no communities in the immediate vicinity of the proposed highway route. However, in Central Labrador, Happy Valley-Goose Bay, North West River, Sheshatshiu and Mud Lake are located at the western end of the route. Communities in Southern Labrador are distant from the route. Communities in both Central Labrador are connected to the Phase I portion of the TLH (Route 500), which extends from the intersection with Hamilton River Road in Happy Valley-Goose Bay to the Québec-Newfoundland and Labrador border. In Southern Labrador, the Phase II portion of the TLH (Route 510) extends from Cartwright to the Red Bay, linking with the highway through the Labrador Straits and to the island of Newfoundland via a ferry connection.

The 95 watercourse crossings along the route are located within the Churchill River, Traverspine River, Kenamu River, Eagle River and Paradise River watersheds. Of the 95 watercourse crossings, only the Churchill River crossing location is considered navigable by traffic larger than canoes or kayaks. For the remaining crossings, it is possible that canoes or kayak are the only vessels that would likely use these watercourses (C. Froude, pers. comm.). All of the watersheds experience a certain level of resource use activity throughout the year, with much of the use possibly being concentrated in the lower reaches of the Kenamu, Traverspine, Eagle and Paradise rivers.

Wildlife hunting has played a key role in both historical and contemporary land use in Labrador. Moose hunting occurs at the western (Muskrat Falls area) and eastern (Paradise River) portions of the proposed TLH - Phase III. Moose hunting is not permitted south of Lake Melville. Caribou hunting south of Lake Melville is also not permitted as the MMCH is protected under COSEWIC. Black bear hunting is permitted in the area around the TLH - Phase III. However, the number of licenses issued annually is low. Bears appear to be more likely destroyed for nuisance reasons. Small game (ptarmigan, grouse and hare), migratory birds (ducks, geese, snipe, mallard, green-winged teal, scoter and mergansers) and murres are also hunted in Central and Southern Labrador. There is no legal hunting of harlequin ducks as they are protected

under COSEWIC and provincial legislation. All seabird species, except for murre, are protected under the *Migratory Birds Protection Act*.

Trapping is also carried out in the study area, primarily in the Eagle River area in the east, and in the west in Kenamu River and Traverspine River areas. The main species currently targeted is marten, due to the continued higher value of marten pelts. Other species trapped are beaver, ermine, weasel, fox, coyote, lynx, mink, muskrat, otter, squirrel, wolf, fisher and wolverine.

In Central and Southern Labrador, Atlantic salmon, charr, brook trout, lake trout, northern pike and smelt are most important species from a recreational or subsistence perspective. Of the five watersheds crossed by the TLH - Phase III route, only two have scheduled salmon rivers, i.e., the Eagle and Paradise River watersheds. There are 16 scheduled rivers in the area and all are located in the Eagle and Paradise River watersheds. A special trout management plan is also in place for Gilbert's Lake and Chateau Pond in Zone 3. Labrador residents (Aboriginal and non-Aboriginal) can also participate in a subsistence fishery for salmon and trout. The Innu have a co-management arrangement with DFO.

Along the proposed TLH - Phase III route, resident angling activity is currently concentrated near the communities of Happy Valley-Goose Bay and Cartwright. Near Happy Valley-Goose Bay, anglers fish a variety of species with the most common being brook trout or speckled trout. Many of the lakes in the region are used for trout angling, but Lake Melville, Grand Lake and certain tributaries to the Churchill River are probably the more common fishing areas. Salmon angling in the Happy Valley-Goose Bay area is limited. Ice fishing is also common in the Happy Valley-Goose Bay area, in particular on Lake Melville (W. Mclean, pers comm.). Salmon fishing is probably the most common activity in the Cartwright and Paradise River area, with fishing occurring on the Eagle River, White Bear River, Paradise River and North River. Smelt fishing and, to a lessor degree, trout fishing almost tripled over the past decade. The number of non-resident (Canadian and foreign) have also increased. Smelt is the most commonly caught species, followed by brook trout, landlocked salmon, sea trout, Arctic charr, lake trout, northern pike and Atlantic salmon.

There are 19 commercial outfitting camps located in Central and Southern Labrador near the TLH - Phase III route that offer fishing and/or big game hunting adventures. Each of these are "fly-in" camps, currently accessed by float plane and/or helicopter, usually from Happy Valley - Goose Bay. Fishing activity at these camps is usually within approximately 5 to 10 km of the camp location. Most if not all of the angling undertaken at these camps is hook and release only. The closest camp is located approximately 8 km from the TLH - Phase III route.

There are no existing provincial or federal parks in Southern or Central Labrador. However, the Mealy Mountains have been identified by Parks Canada as a candidate for national park status. The study area for the proposed Akamiuapishku/Mealy Mountains National Park encompasses approximately 21,500 km², extending from Lake Melville and Groswater Bay, south to the Eagle River and east from the Kenamu River to the coast of Labrador. The proposed highway will cross the southern portion of the park study area, south of Park Lake. There are no proposed provincial parks and reserves in Central or Southern Labrador, and there has been no indepth study of candidate sites in Labrador to date (S. French, pers. comm.). There are currently no rivers in Labrador designated or nominated under the Canadian Heritage Rivers System

(CHRS). However, the CHRS Board has approved the preparation of a systems study of rivers in Labrador. There are five International Biological Programme (IBP) sites in Central Labrador, but no wildlife or wilderness reserves. There is one ecological reserve within the region, the Gannet Islands Ecological Reserve is a group of seven islands at the mouth of Sandwich Bay.

Local trails exist around communities throughout Central and Southern Labrador, and are used by local residents primarily for hunting, fishing, trapping and berry-picking activities. A developed biking trails exists in and around Happy Valley-Goose Bay. Recreational activities such as cross-country skiing and hiking are not common in Central and Southern Labrador, and canoeing and kayaking are also limited. However, snowmobiling is popular with trail systems existing throughout Central and Southern Labrador. Cabins are common throughout Central and Southern Labrador and are used for hunting, trapping, fishing and general recreational purposes.

The area at the western end of the TLH - Phase III route (both north and south of the Churchill River) contains Labrador's most productive forests. The area around Paradise River and Cartwright also contains commercial timber. Black spruce and balsam fir are the most common tree species in the area. Forests in the area are currently managed primarily for fuelwood and lumber. Only a small portion of these two areas of commercial timber have been subject to forest harvesting operations, which have been relatively small scale. While all commercial harvesting activities at the western end of the route have occurred north of the Churchill River, in an area 15 to 80 km northwest of Happy Valley-Goose Bay, the area south of the river are also included in the forest management plan for the area. The area south of the river has a greater area of productive forest and estimated volume of net commercial timber more than twice that of the north area.

There are no producing mines or developing properties in Central and Southern Labrador; however, some mineral exploration has and continues to occur in Southern and Central Labrador. The transmission line from the hydroelectic power generating facility at Churchill Falls is the only hydroelectric development infrastructure in the study area. However, a new dam and power plant has been proposed for the lower portion of the Churchill River at Gull Island with related transmission infrastructure. As well, aproximately 92 km of the TLH - Phase III route lies within DND's low-level flight training area LLTA).

14.2 Planning and Development

There are a number of planning processes in place to address various of aspects of resource use. The municipal planning process under the *Urban and Rural Planning Act, 2000* provides the means for incorporated municipalities to prepare municipal plans outlining land use designations and defining the manner in which development may occur within the municipality. The municipal plan and development regulations are legal documents and are binding on the municipality, council and others using or proposing to use land in the municipality. Public consultation in the municipal planning process is required under the act. A development permit is required for any development within the municipality and the development must be carried out according to the municipal plan and associated development regulations.

The regional planning and protected area planning provisions of the *Urban and Rural Planning Act, 2000* provide additional means for planning for development and protecting areas of concern. As does the provisions for establishing Special Management Areas as outlined in the provincial *Lands Act*. Development in a regional planning area, protected area or Special Management Area is subject to the regulations put in place for that area.

Similarly, a development permit is required for any development within the building control lines established for a protected road. Building control lines for protected roads are 400 m on either side of the highway as measured perpendicular from the highway centreline, except for the following:

- within the municipal boundary of an incorporated municipality, the building control line is 100 m from the centreline;
- outside the municipal boundary, but within the municipal planning area, the building control line is 150 m from the centreline; and
- within an unincorporated municipality, the building control line is 400 m from the centreline or as set by an interim or approved protected road zoning plan.

Protected road zoning plans are currently being prepared for Routes 500 (Phase I of the TLH) and 510 (Phase II of the TLH) (A. Goulding, pers. comm.). These plans will identify the type of development permitted and locations where it is permitted along the highway corridor. Public consultation is also required for these plans. In addition, the *Protected Road Zoning Regulations* also outline the type of development that may be considered within the building control lines of a protected road.

Protection of water supply areas in Newfoundland and Labrador is the responsibility of the Water Resources Management Division of the provincial Department of Environment. The area around a public water supply can be designated as a public water supply area, and use of the water body and designated protected area may be regulated. Detailed development plans for any proposed development in a public water supply area must be submitted to the Department of Environment for approval. A certificate of approval, with terms and conditions, is issued for approved developments. Any existing or proposed development activities within a protected water supply area are subject to the *Policy for Land and Water Related Developments in Protected Public Water Supply Areas*, which is administered by the Water Resources Management Division.

With respect to outfitting operations, there is currently a freeze on the development of new lodges on rivers in Labrador (T. Kent, pers. comm.). There are also formal processes in place for establishing national parks and heritage rivers, both of which are coordinated by Parks Canada. Recognition of a park under the *National Parks Act* brings with it defined management responsibilities and rules regarding resource use. Similarly, management plans for heritage rivers outline resource protection measures, appropriate resource use activities, strategies to maintain ecological integrity and monitoring. Both of these planning processes provide opportunity for public involvement and consultation.

The forestry management planning process involves various user groups in the planning process, including industry representatives, the general public, government resource managers and non-governmental organizations. In addition, forestry management plans are also required to be registered under the *Environmental Protection Act* and, as a result, are subject to public review under this process.

These planning processes (municipal, regional and protected area planning, protected road zoning plans, forest management planning, national park planning and CHRS management planning) all require some form of public consultation. Thus, there is further opportunity for Labrador residents and others, in the case of national parks and heritage rivers, to have input into further planning and development.

14.2 Experience with TLH - Phases I and II and Others Roads in Labrador

Experience with previous highway development in Labrador provides some indication of the type of activities that may result from the TLH - Phase III. For example, both the Phase I and Phase II portions of the TLH have been designated as protected roads and protected road zoning plans are being prepared for both sections of highway. As noted above, this designation and associated management plans provide a means for controlling development along the highways.

Cabin development in Labrador has also been facilitated by road development in Labrador. In the section of Churchill River from Gull Island to Churchill Falls (along the Phase I portion of TLH), many private cabins are being built and anglers are experiencing good fishing for brook trout and ouananiche (W. Maclean, pers. comm.). Armitage and Stopp (2003) indicate that, of a total 1,248 cottages in Labrador, 462 were located within 1 km of a road. Increasing trapping activity has been noted along the Phase I portion of the TLH, as well as dust covering vegetation along the route (Innu Nation 2002). Increased incidences of trapping along roadways has occurred around other roads in Labrador, including the Grand Lake Road and Orma Road located along the eastern edge of the Smallwood Reservoir. Wooden top boxes have been set for marten every 2 to 5 km along many of these roads (JW 1999).

There has also been an increase in the number of anglers fishing newly accessible areas associated with the construction of the Phase II portion of the TLH. C. Poole (pers. comm.) notes that angling activity has increased (as much as tripled) with the completion of Phase II. Correspondingly, the number of patrols by conservation officers and the number of charges laid have probably doubled. Anglers frequenting the area are mainly from communities in southern Labrador. However, anglers from the island of Newfoundland, the maritime provinces and Québec are also common and anglers from outside Canada have also been noted.

Due to expected influx of anglers as a result of the TLH - Phase II, a number of previously unscheduled rivers in Southern Labrador were scheduled and given Class III designations in 2001 for salmon conservation purposes (DFO 2002). In addition, special trout management plans were put in place for Gilbert's Lake and Chateau Pond in Southern Labrador. These plans were put in place in response to the anticipated increase in angling pressure that may result from the completion of the Phase II portion of the TLH (B. Slade, pers. comm.).

Past experience in the Labrador Straits also illustrates the potential effects of road access on recreational fisheries. This region saw an influx of anglers from the island of Newfoundland when Atlantic salmon quotas were changed to permit fishers in Labrador to retain one large salmon, resulting in overcrowding along the Pinware, Forteau and other rivers in the region. This eventually resulted in a requirement to implement fish quotas and retention regulations for the Labrador Straits similar to those for the island of Newfoundland (JW 1998).

Highway access will also increase the potential for developing new lodges along the TLH - Phase III route. This has occurred along the Phase I portion of the TLH between Happy Valley-Goose Bay and Western Labrador. In the Labrador Straits, a number of outfitting operations currently exist in very close proximity to the highway, and the ability to access these camps directly by road has allowed these operations to offer fishing packages at somewhat lower prices than those who rely on air transportation (JW 1998).

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APPENDIX A

Trans Labrador Highway - Phase III Environmental Impact Statement and Comprehensive Study Guidelines



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR Department of Environment

Honourable Kevin Aylward Minister

December 2002

GUIDELINES

for

Environmental Impact Statement

(Pursuant to Part X of the Newfoundland and Labrador Environmental Protection Act)

and

Comprehensive Study

(Pursuant to the Canadian Environmental Assessment Act)

Cartwright Junction to Happy Valley-Goose Bay Trans Labrador Highway

Proponent: Department of Works, Services and Transportation

INTRODUCTION

The Department of Works, Services and Transportation has been required through the provincial environmental assessment process to prepare an Environmental Impact Statement (EIS) for the Trans Labrador Highway (TLH) between Cartwright Junction and Happy Valley-Goose Bay, Labrador. The purpose of the EIS is to describe present environmental conditions, identify the potential environmental effects associated with the proposed undertaking, to identify appropriate mitigative measures and the significance of any residual environmental effects. Component Studies shall be carried out to address baseline information gaps for particular Valued Ecosystem Components (VECs). The EIS shall contain a review of all available pertinent information as well as such additional new information or data as provided by the proponent or requested by the Minister of Environment. The contents of the EIS will be used by the Minister of Environment, in consultation with Cabinet, and with the Innu Nation in accordance with a Memorandum of Understanding signed by the Ministers of Environment and Labrador and Aboriginal Affairs, to determine the acceptability of the proposed project based on its anticipated impacts, proposed mitigation, and significance of residual effects. The EIS shall also be used to address the requirements of a Comprehensive Study Report (CSR) pursuant to the Canadian Environmental Assessment Act, and a subsequent decision on the project by the federal Minister of Environment. The EIS shall be as concise as possible while presenting the information necessary for making an informed decision.

The undertaking is subject to a cooperative environmental assessment that will meet the requirements of both the Newfoundland and Labrador *Environmental Protection Act* and the Canadian Environmental Assessment Act (CEAA). The Department of Fisheries and Oceans (DFO) is the Lead Responsible Authority (RA) for the CEAA assessment since there is a requirement for approvals under the Navigable Waters Protection Act (NWPA) and the potential for issuance of Fisheries Act authorizations. Environment Canada, Parks Canada and Health Canada are other Federal Authorities who are providing expert advice to DFO on the environmental assessment.

As more specific information is provided and as additional baseline information is gathered, other concerns and potential effects may be required to be considered by the Minister as recommended by the Environmental Assessment Committee.

The proponent shall hold public information sessions in the communities of Happy Valley-Goose Bay, North West River/Sheshatshiu, Port Hope-Simpson and Cartwright.

The EIS shall also assess the location of the road with reference to the Innu Land Claim currently under negotiation between the federal and provincial governments and the Innu Nation. The EIS must acknowledge that, when a land claim has been settled and lands selected, the proponent will abide by the terms of whatever arrangements are contained within the settlement.

The proponent shall initially submit 20 paper copies of the EIS and 20 electronic copies on compact disks. Additional copies may be required depending on demand. In addition, an electronic copy suitable for posting on the Department website is required. All electronic copies must comply with the Department's Guidelines for Preparing Computerized Copies of Environmental Assessment Documents.

The contents of the EIS should be organized according to the following format and address the identified information requirements:

1. EXECUTIVE SUMMARY

The executive summary shall contain the following information: identification of the proponent; a detailed project description; a description of the present environmental baseline conditions (including environmental change agents other than the project), a discussion of predicted significant environmental effects; mitigative measures; residual effects; cumulative effects; an outline of the component studies; proposed monitoring programs and a summary of the fundamental conclusions of the EIS. Key public and stakeholder concerns identified during the public information sessions shall also be summarized. The executive summary will allow reviewers to focus immediately on areas of concern.

The summary shall be written in terms understandable to the general public and it shall include a Table of Concordance which will identify where specific Guideline requirements are addressed in the EIS. Sufficient quantities of the Executive Summary and as necessary, key sections of the EIS, shall be made available in Innuaimun to allow for meaningful review of the EIS by members of the Innu Nation.

2. INTRODUCTION

2.1 Name of Undertaking

The undertaking has been assigned the Name "Cartwright Junction to Happy Valley-Goose Bay Trans Labrador Highway." The proponent should identify the name which it proposes to use for the undertaking.

2.2 Identification of Proponent

Name the corporate body and state the mailing address.

Name the chief executive officer and state the official title, telephone number, fax number and e-mail address.

Name the principal contact person for purposes of environmental assessment and state the official title, telephone number, fax number and e-mail address.

2.3 Purpose of the Environmental Impact Statement

The purpose of the Environmental Impact Statement is to report on the results of the process by which the change in the present or future environment that would result from an undertaking is predicted and evaluated before the undertaking has begun or occurred.

3. THE PROPOSED UNDERTAKING

3.1 The Prospective Site and Study Area

A precise description of the preferred and alternative routes for the highway is to be presented, accompanied by maps of an appropriate scale showing the entire area of each alternative with:

- principle structures and appurtenant works; and,
- kilometers (km) of road and types and quantities of hectares (ha) of habitat to be disturbed.

A description of the study area shall be presented to describe the setting in which the undertaking is proposed to take place. This description shall integrate the natural and human elements of the environment in order to explain the interrelationships between the physical and biological aspects of the environment and the people and their communities. The study area boundaries shall be determined in relation to:

- the physical extent of the highway and any alternatives;
- the extent of aquatic and terrestrial ecosystems potentially affected by the highway;
- the extent of land use for subsistence, commercial, cultural, recreational, spiritual and aesthetic purposes by Aboriginal and non-aboriginal persons and communities which may be affected by the highway; and
- the zones of economic impact, including local and regional effects, of the highway.

The descriptions shall be presented according to the appropriate spatial scale (large landscape to site level) which best illustrates the interactions between the project and the environment being described. Temporal data necessary to establish normal parameters, trends and extremes shall be integrated into the description of the study area where appropriate.

The information on the alternative routes and extent of the project study area is to be considered for a digital form on computer discs in a format suitable for incorporation in a Geographic Information System (GIS). Maps should be at a 1:50,000 scale and possibly in ARC shape format. As a minimum, the information is to consist of sufficient number of geographic coordinates of point locations, line locations and/or spatial extent, as appropriate, of the features at the selected map scale and projection to either re-create the hard-copy versions provided as part of the EIS or to accurately display the features digitally. (Information already available on the National Topographic maps need not be provided.) The information must be organized and labeled such that each unique feature is distinguishable from all others. Appropriate descriptive parameters of each data set such as projection, UTM Zone, datum and data collection method (e.g., GPS, aerial survey, etc.) must also be included. The format should be in ASCII tabular format or in a spreadsheet or database format such as Lotus 1-2-3, Excel, dBase or similar software.

3.2 Rationale/Need/Purpose of the Project

The rationale for the project shall describe its perceived benefits, both local and provincial. If the undertaking is in response to an established need, this should be clearly stated.

3.3 Alternatives

3.3.1 Alternatives to the Project

This section shall describe functionally different ways to meet the project need and achieve the project purpose. The discussion shall address, but not necessarily be limited to, other modes of transportation and the null (do nothing) alternative.

3.3.2 Alternative Methods of Carrying Out the Project

This section shall detail the process the proponent undertook to determine potential corridors, including discussion of all alignments considered. The proponent's public consultation process shall be described and relate the project alternatives to the results of the consultations.

A detailed discussion of technically and economically feasible alternatives, and the environmental and socio-economic selection criteria (e.g., construction costs, fuel savings, technical factors) for the alternatives shall be provided. The discussion shall include, among other things, routing, location, design, construction standards, maintenance standards, watercourse crossings, etc., which were or could have been considered.

The proponent must specifically include the route identified by Innu members after the proponent's consultations with the Innu community as one of the alternative methods of carrying out the undertaking.

The proponent must specifically include the route identified by the Newfoundland and Labrador Outfitters Association members after the proponent's consultations with the outfitters as one of the alternative methods of carrying out the undertaking.

Alternative routing criteria discussion shall include, but is not limited to:

- avoidance of wetland areas;

- avoidance of adverse effects and enhancement of benefits on existing or potential tourism operations;

- avoidance of environmentally sensitive areas;

- avoidance of additional stress on land and resources through increased access;

- avoidance or reduction of effects on Innu land use;

- avoidance or reduction of effects on the proposed Akamiuapishku/Mealy Mountain National Park; and

- avoidance or reduction of effects on Woodland Caribou (Red Wine and Mealy Mountain herds).

If only one alternative is viable or possible, a statement will be made to this effect with supporting argument. Additional information on any alternatives which may have been considered and rejected, but which may still be regarded as viable should be provided. Reasons for the rejection of those alternatives will be stated.

3.4 Relationship to Legislation, Permitting, Regulatory Agencies and Policies

The EIS shall identify and discuss the project within the context of all existing relevant legislation and policies (municipal, provincial and federal). The proponent shall provide a comprehensive list of permits and regulatory approvals required for the undertaking. The list shall include the following details:

- activity requiring regulatory approval;

- name of permit and/or regulatory approval (eg. authorization).;
- legislation requiring compliance; and
- regulatory agency.

3.5 General Project Description

The EIS shall describe the scope of the undertaking for which an assessment is being conducted.

The EIS shall provide a written and graphic description (e.g. maps and drawings) of the physical features of the undertaking particularly as it is planned to progress through the construction and operation phases of its lifespan. The description should also address other phases of the project as can reasonably be foreseen, including modification, decommissioning and abandonment. Any assumptions which underlie the details of the project design shall be described, including impact avoidance opportunities inclusive of pollution prevention, and adherence to best management practices. Where specific codes of practice, guidelines and policies apply to items to be addressed, those documents shall be cited and included as appendices to the EIS, including mapping at an appropriate scale. Physical features include, but are not limited to:

- highway corridor location: ultimate boundaries of the proposed corridor and highway route in a regional context in relation to existing and proposed land uses and infrastructure such as road networks, trails, power lines, proximity to settled areas, individual and community water supplies, Innu land use areas, proposed or contemplated protected areas, wetlands, ecologically sensitive areas and archaeological sites shall be described;

- roads;
- right-of-way;
- intersections;
- stream crossings;
- temporary stream diversions;
- temporary construction camp(s), laydown areas;
- borrow pits and major excavations; and
- temporary sewage and waste disposal facilities.

3.6 Construction

The details, materials, methods, schedule, and location of all planned construction activities related to the physical features shall be presented including estimates of magnitude or scale where applicable. This is to include but not be limited to, the following:

- specific construction practices incorporating erosion and sedimentation control;

- construction schedule, including proposed time frames for right-of-way clearing,

slash disposal, highway construction and construction adjacent to watercourses; - site preparation (ie., grubbing/clearing of right-of-way, cut and/or fill operations,

etc.);

- subgrade construction;

- stream crossing structures: location of watercourse crossings and their proposed infrastructure (e.g., bridge, culvert) as well as any feasible alternatives; their proposed specifications (e.g., clearance from watercourse, height, width, length, diameter); partial causeways and their infill area or footprint together with design criteria and standards; length, width, cross section and estimated types and amount of fill material required; best practices to be employed; and, all applicable regulatory requirements;

- instream activities (i.e., scheduling, duration);

- proposed structures, design features or construction practices intended to mitigate impacts on terrestrial species or habitats (e.g. wildlife corridors, wetland crossings, etc.);

- proposed structures, design features or practices to manage visual and noise impacts of construction activities;

- proposed methods for controlling dust from construction activities;

- excavations;

- blasting operations;

- vehicle types, truck routes, hours of operation of vehicles;

- transport, storage and use of hazardous materials, fuels, lubricants and explosives;

- establishment, operation and removal of construction camp and yard areas;

- sources and estimated volumes of acceptable types of aggregate and pit-run material with identification of any currently known sources likely to be used;

- methods for identifying and managing acid producing rock;

- disposal areas for excess/waste rock and overburden, including locations of any currently known or planned disposal sites, especially those for acid producing slate;

- disposal areas for organic soil, slash, grubbing and wood fibre, including locations of any currently known or planned disposal sites;

- methods of handling waste and refuse at work and camp locations;

- removal of temporary operations; and

- site rehabilitation and monitoring plans for all disturbed areas.

In order to properly assess the socio-economic impacts in the region specific information on the 2,800 seasonal construction jobs shall be detailed. Specific numbers by occupation, gender and period of employment, as well as an indication of whether these positions are normally filled by local area contractors shall be provided. Initiatives to increase opportunities for women and Innu people in

occupations in which they are under-represented shall be described using the experience of employment of women and Innu people for the Red Bay to Cartwright Trans Labrador Highway and construction of site infrastructure at Natuashish and Voisey's Bay to establish targets.

3.7 Operation and Maintenance

All aspects of the operation and maintenance of the proposed development shall be presented in detail, including information on operation and maintenance positions by occupation, gender and period of employment. In addition to the employment information related to operation and maintenance it is important to include environmentally relevant information such as the location of maintenance support areas, types of maintenance proposed (e.g., dust control, use of salt), material storage locations, and the likely sources of aggregates or maintenance and winter surface treatment for a reasonable operational period of the road.

3.8 Abandonment

The predicted lifespan of the highway and temporary facilities shall be indicated. If the highway is not intended to operate in perpetuity, details regarding decommissioning and abandonment shall be presented.

4. **ENVIRONMENT**

4.1 Existing Environment

The EIS shall identify the study area and shall describe the existing biophysical and socio-economic environment of the study area, and the resources within it, taking an ecosystem approach. Valued Ecosystem Components (VEC's) (as defined by Beanlands and Duinker, 1983) shall be identified and described. In addition, the EIS shall describe environmental interrelationships and sensitivity to disturbance.

The description of the existing environment shall be in sufficient detail to permit the identification, assessment and determination of the significance of potentially positive and adverse effects that may be caused by the highway.

This description shall focus on environmental components, processes, and interactions that are either identified to be of public concern or that the proponent considers likely to be affected by the proposed highway. The EIS shall indicate to whom these concerns are important and the reasons why, including social, economic, recreational, cultural, spiritual, and aesthetic considerations. The EIS shall also indicate the specific geographical areas or ecosystems that are of particular concern, and their relation to the broader regional environment and economy, (e.g., the contribution of the Eagle River Plateau ecoregion to critical habitat and populations of fish and migratory birds, the presence of particular species such as woodland caribou (Red Wine and Mealy Mountain herds), and the contemporary use of the area by Innu and other residents of Labrador).

Aboriginal and other local knowledge of the existing environment shall be an integral part of the EIS, to the extent that it is available to the proponent. In describing the physical and biological environment, the EIS shall consider available Aboriginal and scientific knowledge and perspectives regarding ecosystem health and integrity. The EIS shall identify and justify the indicators and measures of ecosystem and social health and integrity used, and these shall be related to project monitoring and follow-up measures.

Description shall reflect four seasons in the study area where appropriate, through the use of original baseline studies or existing data. If the study results or data has been extrapolated or otherwise manipulated to depict environmental conditions in the study area, modeling methods and equations shall be described and identify calculations of margins of error.

The timing and extent of any surveys for flora, fauna and ecologically sensitive areas must be provided.

A qualitative and quantitative description of the present environment shall include, but is not limited to:

- meteorological conditions are to be described, including weather patterns along the proposed route(s) as they relate to highway operation and maintenance. Include how snow, ice and wind conditions may be expected to change with geographic conditions and seasons, and how these relate to the proposed highway;
- atmospheric conditions are to be described, including wind speeds and directions, precipitation amounts and precipitation chemistry. Identify what Probable Maximum Precipitation levels are used and how they relate to the proposed highway. Particular attention is to be paid to ambient dust levels in areas where construction activities may contribute to increased dust levels;
- background ambient noise levels are to be characterized for various locations along the corridor where traffic noise on the proposed highway could be expected to be heard and felt to be a negative impact (e.g., sensitive wildlife habitat);
- hydrological conditions consisting of hydrologic, hydraulic and design parameters and the methodologies used to determine the dimensions and

capacities for all watercourse crossings, including but not limited to: design return period, climate data, watershed characteristics, ice formation, ice breakup and movement, and estuarine features; detailed information (to meet the requirements of the Water Resources Division of the Department of Environment) concerning number, location, and estimated (identified from 1:50,000 topographic mapping, aerial photography and aerial reconnaissance) site information on each proposed crossing including: water depth, width, flow rate, substrate type, and potential obstructions to navigation;

- hydrological conditions consisting of hydraulic and water quality of representative surface water bodies in the vicinity of the highway, especially downstream. Water quality samples being collected in conjunction with fish habitat surveys may be sufficient but in addition to the parameters being measured a metal scan must be included. Baseline water quality and quantity study will form the basis of a subsequent environmental effects monitoring program. Drainage areas of individual streams both above and below the proposed highway shall be described, including calculations of each watercourse's upstream drainage area as well as water quality prior to construction. Based on seasonal flow estimates, and on prior salt loading data for the area, estimate salt and budget loading to the surface waters and potential change in water quality;
- geography and topography of the study area is to be described;
- geology (both bedrock and surficial), and geomorphology utilizing existing geomorphological data, along proposed corridor(s) including information concerning the location, estimate of the volume, and acid production/consumption data of acid bearing bedrock formations to be encountered and disturbed and the locations and areas of ground instability prone to slumping or landslides. Identification of surficial cover, including overburden depth, soil types, permeability and porosity and areas of high risk erosion, including possible permafrost. The potential for disturbance of contaminated soils is to be identified. Any areas having known or proven economic mineral deposits, areas under advance mineral exploration, and the location and extent of existing and abandoned mines, pits and quarries is to be identified;
- wetland resources including location, size and class of any wetland within a predicted zone of influence and conduct of a wetland evaluation. The true ecosystem value of each wetland is to be examined using comprehensive valuation methodology that assesses component, functional and attribute values. Field surveys and investigations required to supplement available data must be completed in an acceptable manner. The Federal Policy on Conservation of Wetlands shall take into account all wetlands which will potentially be impacted directly or indirectly;
- flora, including typical species, rare plants, species-at-risk, and potential habitat for flora species-at-risk. Current information can be obtained from appropriate

sources and augmented by field surveys and investigations required to supplement available data. Available data, survey results and detailed mitigation measures that demonstrate a special emphasis on avoidance of environmental effects is to be included in the EIS;

- fauna (including migratory species), fauna species-at-risk, and potential habitat for fauna species-at-risk, including, but not limited to Woodland Caribou. Current information can be obtained from appropriate sources and augmented by field surveys and investigations required to supplement available data. Information on furbearers may utilize surveys conducted as construction proceeds or surveys conducted during component studies. Available data, survey results and detailed mitigation measures that demonstrate a special emphasis on avoidance of environmental effects is to be included in the EIS; and,
- fish, including, but not limited to, Eastern Brook Trout and Atlantic Salmon.

The identification of known data gaps is imperative.

Discussion of the description of the existing environment shall be developed for each alternative drawing specific reference to the VECs. Detailed discussions shall be developed for the following VECs:

- Raptors;
- Caribou;
- Furbearers;
- Migratory birds, including waterfowl with particular consideration of Harlequin Duck and forest birds, and their habitats, with emphasis on species at risk or species under hunting pressure;
- flora and fauna species at risk, including rare or endangered plant species;
- geomorphology;
- Water resources, including water quality parameters sensitive to erosion and sedimentation, acid rock drainage and road salt;
- Wetlands, including wetland function;
- Riparian habitat and other known sensitive habitats;
- Historic resources, including, but not limited to archaeological, paleontological, burial, cultural, spiritual, and heritage sites;
- Tourism and recreation (emphasis on sport and recreational fishery, adventure tourism and other activities which may be sensitive to increased access);
- the Akamiuapishku/Mealy Mountain National Park Feasibility Study Area and the Feasibility Study of potential establishment of a national park, including its size, geographic area, ecological integrity and wilderness character (including landscape aesthetics, vistas and noise-scapes);
- Resource use and users including:

- information on historic and contemporary land use by the Innu shall be described. Contemporary land use will include land use within "living memory" of informants, and with reference to the Innu, shall describe both pre-settlement (circa 1960) and post-settlement land use patterns;

- information on historic and contemporary land use by other residents of Labrador;

- existing uses and users of watercourses;

- a description of patterns of current and planned land use and settlement along the proposed highway corridor(s) including, but not limited to, planning strategies, proposed development, utilities and development boundaries;

- a detailed description of the historical and current utilization (e.g., recreational, commercial, subsistence) of all proposed watercourse crossings for navigational purposes;

- access to and alienation of forest resources relating to the alternative routes;

- information on potential protected areas such as parks, sanctuaries or preserves, including the potential for designation of the Eagle River under the Canadian Heritage Rivers System; and,

- wilderness characteristics, including landscape aesthetics, vistas and noise-scapes;

- Fish and fish habitat; and,
- Community Life, Employment and Business.

4.2 Component Studies

Component studies generally have the following format: (i) Rationale/Objectives, (ii) Study Area, (iii)Methodology, and (iv) Study Outputs.

(i) <u>Rationale/Objectives</u>

In general terms, the rationale for a component study is based on the need to obtain additional data to determine the potential for significant effect on a valued ecosystem component due to the proposed undertaking, and to provide the necessary baseline information for monitoring programs.

(ii) Study Area

The boundaries of the study area shall be proposed by the proponent and will be dependent on the valued ecosystem component being investigated.

(iii) Methodology
Methodology shall be proposed by the proponent, in consultation with resource agencies, as appropriate. The methodologies for each component study shall be summarized in the EIS.

(iv) Study Outputs

Study outputs shall be proposed by the proponent. Information and data generated shall be sufficient to adequately predict the impacts of the highway on the valued ecosystem component.

Component Studies shall be prepared for the following VECs (where new information becomes available as a result of baseline studies, additional component studies may be required):

1) Land and Resource Use

The Component Study shall describe historical and contemporary uses of the study area, including the use of lands and resources by Innu people. In addition it shall describe and analyze changes in land and resource use resulting from previous road developments in Labrador.

2) Migratory birds (with emphasis on waterfowl and including but not limited to Harlequin Duck)

3) Raptors

4) Caribou

5) Fish and Fish Habitat

In consultation with Fisheries and Oceans Canada (DFO), and in compliance with the guidance document "Standard Methods Guide for Freshwater Fish and Fish Habitat Surveys in Newfoundland and Labrador: Rivers and Streams" (1998), field survey information using the Beak Classification System (e.g., qualitative assessment of fish habitat types, approximate stream width and length, area, bank material and backslope, vegetation, presence of potential barriers, etc.) shall be required upstream and downstream (250 m each way depending upon stream morphology) of all proposed watercourse crossings identified from 1:50,000 mapping, aerial photography and aerial reconnaissance. Any additional fish habitat information requirements (e.g., quantitative assessment, ground survey, etc.) for purposes of assessment identified during consultation with DFO shall also be provided. In addition to describing the quality and quantity of fish habitat, the proponent should also discuss existing fish species and fisheries (e.g., recreational, commercial, subsistence, etc.). DFO will require such information in order to fully

assess the potential impacts of the proposed undertaking and ensure the protection of fish and fish habitat.

Qualitative descriptions of fish populations, including abundance and life history parameters, in each of the four watersheds that the highway will traverse shall be provided.

Fish population sampling is to be conducted in accordance with the sampling protocol developed by Inland Fish and Wildlife Division. Sampling may occur as construction proceeds.

6) Historic Resources

The Component Study and the EIS shall not contain any data or maps which indicate the exact locations of known historic resources. All data or maps should reference specific historic resource locations in a general context, within a one kilometer block. Exact locations of known historic resources shall be provided only to the proponent, the Innu Nation and the Provincial Archaeology Office, on a confidential basis.

7) Tourism and Recreation

Describe existing sport and recreational fishing and hunting, adventure tourism and other tourism and recreational activities carried out within the study area, including outfitting camps, and identifying the contribution of the tourism and recreation industry to the local economy, including employment, expenditures and revenue generated.

8) Community Life, Employment and Business

Describe the functioning and health of the socio-economic environment, addressing a broad range of matters that affect the people and communities in the study area. Describe the local economies of individual communities and the region as a whole. Describe the production and supply of goods and services within individual communities and the region.

4.3 Data Gaps

Information gaps from a lack of previous research or practice shall be described indicating baseline data/information which is not available or existing data which cannot accurately represent environmental conditions in the study area over four seasons. If background data have been extrapolated or otherwise manipulated to depict environmental conditions in the study area, modeling methods and equations shall be described and shall include calculations of margins of error.

4.4 Future Environment

The predicted future condition of the environment described under 4.1 within the expected life span of the undertaking, if the undertaking were not approved. This information is required when attempting to distinguish highway-related environmental effects from environmental change due to natural processes, such as, surface erosion, cyclical population changes, etc. Specific characteristics of the future environment to be considered if the undertaking were not approved include degree of forest habitat fragmentation, boundaries of the potential Mealy Mountain National Park, greenhouse gas (GHG) emissions and losses of GHG sinks, negative and positive environmental effects of forest fires, variations in wildlife abundance and distributions, and demographic and socio-economic trends. Boundaries and scale of such descriptions shall be appropriate to those elements of the environment discussed, e.g., site-specific or landscape-level; biological, socio-economic, cultural, etc.

5. ENVIRONMENTAL EFFECTS

The EIS shall describe the scope of the assessment being conducted for the undertaking.

The EIS must also address environmental effects as defined under CEAA. "Environmental effect" refers to any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, and includes any change in the project that may be caused by the environment.

The EIS shall contain a comprehensive analysis of the predicted environmental effects of each project alternative for the VEC's and on any other environmental components, processes, and interactions that are identified to be of public concern or that the proponent considers likely to be affected by the proposed highway. If the effects are attributable to a particular phase of the project (construction, operation or maintenance) then they will be designated as such. As part of the comprehensive analysis the following must receive particular attention:

• land and resource use: predictions of any change in land and resource use resulting from the highway, for each phase (construction, operation, modification, abandonment). Discuss the negative effects and benefits of the project on the use of lands and resources by Innu people and other residents of Labrador with particular attention paid to considerations related to the contemporary use of lands and resources by Innu people;

- proposed Akamiuapishku/Mealy Mountain National Park: potential effects of the highway on the establishment and operation of the proposed Akamiuapishku/Mealy Mountain National Park, with an emphasis on the potential effects of the highway on the establishment, operation and ecological integrity of the proposed park;
- fish and fish habitat: identification and assessment of fish stocks potentially affected by the highway; an assessment of ecosystemic considerations relating to the health and productivity of aquatic resources potentially affected by the highway, including migratory patterns and sensitive periods; a quantification of any aquatic habitat loss, impairment of ecosystem function, or potential change in productivity or population likely to result from the highway;
- water resources: identify and discuss water resources issues associated with the highway, effects of erosion, sedimentation, diversions, channeling resulting in changes in water quality, quantity or rate of flow. Potential sources of contamination resulting from all phases of the highway (e.g., petroleum products, road chemicals including road salt and dust control agents) shall be assessed;
- tourism and recreation: an assessment of the likely effects of the highway on tourism and recreation within the study area, including any increase or decrease in existing activities or the introduction of new activities; an assessment of likely effects of the project on the establishment or operation of federal and provincial parks, sanctuaries or preserves (other than the Akamiuapishku/Mealy Mountains National Park), including the potential for designation of the Eagle River under the Canadian Heritage Rivers System; and
- community life, employment and business: identification of direct and indirect effects of the highway on local economies of individual communities and the region as a whole; identification of the effects of the highway on the production and supply of goods and services within individual communities and the region; identification of employment and business opportunities during each phase of the highway, including construction and highway maintenance, which would be available to local people, with particular reference to members of the Innu Nation; description of training and education requirements required for local people, with particular reference to members of the project, and discussion of how such training and education requirements might be met prior to each stage; discussion of the effects of the project on employment and business opportunities for women; discussion of any environmental effects of the highway which may affect women differently than men; description of predicted effects of the project on the availability of goods and services throughout the region; description of

predicted effects of the project on transportation and shipping within the region, including any mode shifting that may occur.

The EIS shall also assess the effects of the environment on the highway, and measures to address those effects (e.g., road salt) and the effects on the environment of such measures as well as the potential environmental effects of structural failures that may result from effect of the environment on the highway.

The capacity of renewable resources that are likely to be significantly affected by the highway to meet the needs of the present and those of the future must be addressed.

Predicted environmental effects (positive and negative, direct and indirect, short and long-term) shall be defined quantitatively and qualitatively for each alternative and for each valued ecosystem component. In this regard, the EIS shall offer the study strategy, methodology and boundaries of the assessment which includes the following considerations:

- the VEC within the study boundaries and the methodology used to identify the VEC;
- definition of the spatial and temporal study boundaries for the interactions of the highway, as proposed or subject to subsequent modification, with VECs and the methodology used to identify the study boundaries;
- the temporal boundaries (i.e., duration of specific project activities and potential effects) for construction and operation;
- the strategy for investigating the interactions between the project and each VEC and how that strategy will be used to coordinate individual studies undertaken;
- the strategy for assessing the project's contribution to cumulative effects on each VEC;
- the strategy for predicting and evaluating environmental effects, determining necessary mitigation, remediation and/or compensation, and for evaluating residual effects;
- definition of effect significance criteria against which to evaluate the potential effect of interactions;
- description of potential interactions;
- discussion of issues and concerns which relate to specific interactions;
- discussion of the existing knowledge on information related to the interactions; and
- analysis of potential effects (significance, positive or negative, etc.).

In the latter regard, the proponent shall offer a definition of significance for each category examined (eg. biological, physical, economic, social, cultural, archaeological, etc.) and shall indicate to whom these concerns are important and the reasons why, including social, economic, recreation, cultural, spiritual, and aesthetic considerations.

Environmental effects shall be defined and discussed in the following terms for the phases of the highway (construction, operation, modification and decommissioning): nature, spatial extent, frequency, duration, magnitude (qualitative and quantitative), significance, and level of certainty.

The environmental effects of the project, including the environmental effects of malfunctions or accidental events that may occur in connection with the project shall be discussed with respect to risk, severity and significance. Consequences of low probability, high impact events, including design failure, shall also be described. In particular, the potential for forest fires must be addressed due to the remote nature of the road. The proponent must demonstrate adequate prevention, control and fire fighting capabilities.

Sustainable Development

The contribution of the project to sustainable development shall be assessed in the EIS, with emphasis on the following objectives:

- the preservation of ecosystem integrity, including the capability of natural systems to maintain their structure and functions and to support biological diversity;
- respect for the right of future generations to the sustainable use of renewable resources; and,
- the attainment of durable and equitable social and economic benefits.

The EIS shall include an evaluation of:

- the extent to which the highway may make a positive overall contribution towards the attainment of ecological and community sustainability, both at the local and regional levels;
- how the planning and design of the highway have addressed the three objectives of sustainable development stated above;
- how the monitoring, management and reporting systems will attempt to ensure continuous progress towards sustainability; and,
- the identification of appropriate indicators to determine whether this progress is being maintained.

Cumulative Environmental Effects

Consideration of any cumulative effects on valued ecosystem components that are likely to result from the project in combination with other projects or activities that have been or will be carried out shall be discussed in the EIS. Particular emphasis shall be placed on the significant increase in human access and the attendant implications for increased development pressure along with induced development (e.g., forest harvesting, fish harvesting, fur harvesting). The assessment of cumulative environmental effects shall specifically address, but shall not be limited to, a consideration of the impact of the highway on:

- future road and related infrastructure development scenarios in central and southern Labrador;
- the Akamiuapishku/Mealy Mountain National Park Feasibility Study and potential establishment of a National Park;
- hydroelectric developments, including transmission infrastructure;
- forestry development;
- tourism and recreation; and
- use of lands and resources by Innu and other residents of Labrador.

Addressing cumulative environmental effects shall involve considering:

- temporal and spatial boundaries;
- interactions among the highway's environmental effects;
- interactions between the highway's environmental effects and those of existing projects and activities;
- interactions between the highway's environmental effects and those of planned projects and activities; and,
- mitigation measures employed toward a no-net-loss or net-gain outcome (e.g., recovery and restoration initiatives pertinent to a VEC that can offset predicted effects).

6. Environmental Protection

6.1 *Mitigation*

Mitigative measures that are technically and economically feasible, that have or will be taken, to avoid, minimize or eliminate the negative, and enhance the positive environmental effects, shall be described and discussed with emphasis on pollution prevention, avoidance of environmental effect and best management practices. Mitigation includes the elimination, reduction or control of the adverse effects or the significant environmental effects of the highway and may include restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

The policies and any specific commitments on the part of the proponent for environmental protection shall be identified.

In addition to any preferred mitigation measures identified, the EIS shall indicate what other mitigation measures were considered and explain why they were not adopted. Trade-offs between cost savings and effectiveness of the mitigation measures shall be evaluated. The EIS shall identify who is responsible for the implementation of these measures and the system of accountability, including the obligations of all contractors and subcontractors.

Mitigative measures specific to the following must be addressed in particular:

- air quality: through dust control during highway construction, operation and maintenance;
- noise effects: mitigation of increased noise levels during highway construction and operation;
- surface water quality and quantity: outline siltation, erosion and run-off control features, storm drainage management procedures and measures, including specific reference to seasonal variation, that will be used in the following situations: (a) clearing and grubbing of the corridor; (b) installation of watercourse structures; (c) subgrade work; (d) construction of service roads; and, (e) highway maintenance;
- contaminated soils: if they are to be disturbed, discuss methods to minimize adverse effects;
- road salt and dust control chemicals: if proposed to be used, a management strategy must be described;
- flora species: discuss measures to be taken to minimize effects of road construction, operation and maintenance. Include any plans for landscaping and preservation of existing vegetation. Demonstrate how priority will be placed on the use of native species for revegetation efforts. Describe steps to prevent the introduction of invasive species;
- fauna species: describe measures to be taken to minimize effects of road construction and operation on terrestrial and aquatic fauna (including avifauna). Include any plans for preservation of existing habitat and compensation for loss or degradation of aquatic and terrestrial habitat (i.e., habitat rehabilitation or replacement);
- wetland resources: discuss avoidance of wetland de-watering and mitigation measures to maintain ecological and hydrological integrity of wetlands. Identify plans for preservation of existing wetlands and compensation for loss or degradation of the functional values of wetlands affected by the highway. Include plans to monitor the success of mitigative action. Demonstrate how an emphasis will be placed on avoidance of potential losses of wetland function; and,
- use of land and resources by Innu and other resource users in the study area: discuss measures which can be taken to mitigate adverse impacts of the project on Innu land use and to avoid conflict between Aboriginal and non-aboriginal resource users in the study area.

Proposed mitigative strategies integral to the phases of the project (construction, operation, modification and decommissioning) shall be clearly identified and addressed. The effectiveness of the proposed mitigative measures shall be discussed and evaluated. Where possible and appropriate, compensation for losses that cannot be mitigated by

There must be full consideration for the precautionary principle which states, "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." The best available technology and best management practices must be considered. Consideration must be given for impact avoidance through implementation of scheduling and siting constraints and pollution prevention opportunities. The EIS shall assess how the highway conforms to the precautionary principle, including but not limited to consideration of the following in relation to each VEC:

- policies, plans or strategies which avoid creating adverse environmental effects;
- policies, plans or strategies to mitigate adverse environmental effects of the highway;
- contingency plans to address worst-case scenarios, including risk assessments and evaluations of any uncertainty;
- monitoring programs which are designed to ensure rapid response in the event adverse effects are detected; and,
- provisions for liability in the event of adverse effects and associated damage.

Where data is not available, the EIS shall describe the means by which the proponent intends to implement a precautionary approach to avoid or prevent adverse environmental effects, and any proposed follow-up studies to address data gaps and monitor the effectiveness of mitigation.

6.2 Emergency Response/Contingency Plan

An emergency response plan shall be outlined that details measures to be taken to effectively respond to any foreseeable mishap that may occur as a result of the undertaking. The following items should be considered when developing such a plan:

- proper first-aid kits,
- numbers of workers trained in first aid, to the appropriate level,
- backboards/stretchers,
- communication devices suitable for the work sites,
- emergency names and numbers,
- arrangements for medivac of injured to Happy Valley-Goose Bay, and
- action plan (roles and responsibilities of work crews).

A contingency plan shall be outlined that details measures to be taken to effectively respond to a spill event in a timely manner. The plan should reflect a consideration of the risk of spills associated with construction, operation and maintenance of the road and the environmental sensitivities to such a spill. The contingency plan must specifically address contamination or drainage to surface water and/or groundwater resources and protection of water quality, contingency and remediation plans for drainage to aquatic and terrestrial habitat as a result of accidental events.

6.3 Environmental Monitoring and Follow-up Programs

Environmental compliance and effects monitoring programs for construction, operation, maintenance, modification and decommissioning phases of the highway shall be described. Programs must allow for testing of the accuracy of impact predictions and effectiveness of mitigation measures. Programs must support an adaptive management approach and demonstrate preparedness for a range of potential outcomes to be confirmed through follow-up.

Important ingredients of monitoring programs include:

- elements of the environment (i.e., air emissions, erosion, habitat use, etc.) that are to be monitored;
- where monitoring will occur;
- frequency and duration of monitoring;
- identification of resource agencies that will review program design and results;
- consultation with, and appropriate involvement of, aboriginal groups;
- submission of results; and,
- protocols for the interpretation of results and subsequent actions to be taken based on findings.

Discussion shall be presented on the feasibility of establishing sample plots, established at various points along the alignment and at various distances from the right-of-way across the full range of representative eco-types to determine any long-term changes in plant communities related to effects of increased access.

Monitoring of employment on the construction positions shall be detailed and specific numbers by occupation, gender and period of employment during each year of construction shall be provided at the conclusion of each construction season.

Known or planned follow-up programs specifically related to detecting and monitoring cumulative environmental effects are to be described. Objectives, methodology, duration and reporting covered by the program evaluating effectiveness of avoidance and mitigation measures on long-term effects from the project, and subsequent induced development, are to be described. Programs may be proposed specifically for wildlife (including migratory birds) and their habitats, species-at-risk and their habitat, wetlands, air quality, water quality and increased use of all-terrain vehicle (ATV) traffic along the highway corridor and surrounding area.

The EIS shall include an assessment of the present capacity of resource agencies to mitigate and monitor cumulative environment effects resulting from increased access to the study area.

6.4 Rehabilitation

A plan of proposed rehabilitation measures for the construction activities associated with the highway shall be given with an explanation of how the measures will reduce or eliminate various negative effects during construction, operation and decommissioning.

7. RESIDUAL EFFECTS AND SELECTION CRITERIA FOR PREFERRED OPTION

7.1 Residual Effects

Residual effects are those adverse effects or significant environmental effects which cannot or will not be avoided or mitigated through the application of environmental control technologies, best management practices or other acceptable means.

The EIS shall list and contain a detailed discussion and evaluation of residual effects, which shall be defined in terms of nature, spatial extent, frequency, duration, magnitude (qualitative and quantitative), significance (including the criteria for determining significance) and level of certainty. Those effects that cannot be mitigated or avoided shall be clearly distinguished from those effects that will not be mitigated or avoided. Positive residual effects shall also be discussed and evaluated.

Particular attention shall be paid to residual effects of increased access on potential for forest fires and unauthorized use of resources such as illegal harvesting of fish, wildlife and forest resources.

The EIS shall contain a concise statement and rationale for the overall conclusion relating to the significance of the residual adverse environmental effects. The EIS shall, for ease of review, include a matrix of the environmental effects, proposed mitigation and residual positive and adverse effects.

7.2 Effects Evaluation and Selection of Preferred Alternative

This section (as compared to Section 3.3 - Alternatives) is intended to provide a detailed discussion and comparison of the residual effects relative to the preferred option and viable alternatives (as applicable).

All selection criteria, including environmental, economic, social, and technical, shall be presented and discussed in sufficient detail to allow a comparative analysis with regard to costs, benefits and environmental risks associated with both the preferred and alternative options.

8. PUBLIC PARTICIPATION

A proposed program of public information shall be outlined. Open House Public Information Sessions shall be held to present the proposal and to record public concerns. The proponent shall hold public information sessions in the communities of Port Hope-Simpson, Cartwright, North West River/Sheshatshiu and Happy Valley-Goose Bay. Public concerns shall be addressed in a separate section of the EIS. Protocol for these sessions will comply with Section 10 of the Newfoundland and Labrador Environmental Assessment Regulations, 2000. Public notification specifications are outlined in Appendix A.

9. Environmental Protection Plan

A site specific Environmental Protection Plan (EPP) for the proposed undertaking shall be submitted and approved by the Minister of Environment before any construction on the project begins. Consultation with the Innu Nation shall also be required prior to submission of the EPP. For the purposes of the EIS an outline of the EPP shall be included. The EPP shall be a "stand alone" document with all relevant maps and diagrams. Statements regarding the commitment to and philosophy of environmental protection planning and self-regulatory and compliance monitoring shall be restricted to the EIS. The target audience for the EPP will be the resident engineer, site foreman/supervisor, proponent compliance staff and any environmental surveillance Therefore the EPP shall concentrate on addressing such issues as officer. construction/operation mitigation, permit application and approval planning, monitoring activities, contingency planning for accidental and unplanned events and contact lists. In addition, the EPP shall contain a tabular breakdown of major construction and operational activities into sub-components, followed by permits required, field mitigation and contingency planning where appropriate. The objective is to present concise, comprehensive and easily accessed environmental protection information for field use by the target audience.

The EPP should not include any analysis of impact prediction or mitigation. The EPP is intended to summarize all of the environmental protection commitments outlined in an acceptable EIS, in a concise, formatted document for primary use in the field.

10. REFERENCES CITED

Provide a bibliography of all citations in the EIS. Provide a bibliography of all project-related documents already generated by or for the undertaking.

11. PERSONNEL

Brief descriptions of the expertise and qualifications of personnel involved in the completion of the EIS shall be provided.

12. COPIES OF REPORTS

Copies of reports produced for any studies undertaken specifically in connection with this Environmental Impact Statement shall be submitted.

APPENDIX A

Public Notices

Under the provisions of the Environmental Assessment Regulations 2000, Section 10, and where the approved Guidelines require public information session(s), the following specified public notification requirements must be met by the proponent prior to each meeting:

Minimum information content of public advertisement - (Proponent to substitute appropriate information for italicized items):

PUBLIC NOTICE

Public Information Meeting on the Proposed

NAME OF PROPOSED UNDERTAKING

LOCATION OF PROPOSED UNDERTAKING

Will be held at

DATE AND TIME

LOCATION

This meeting will be conducted by the proponent

PROPONENT NAME AND CONTACT PHONE NUMBER

as part of the required environmental assessment process for this project. The purpose of this meeting is to describe all aspects of the proposed project, the activities associated with it, and to provide an opportunity for all interested persons to request information or state their concerns.

ALL ARE WELCOME

Minimum newspaper ad size: 2 column widths.

Minimum posted ad size: 7" x 5"

Minimum newspaper ad coverage: Weekend preceding meeting and 3 consecutive days prior to meeting date; to be run in newspaper locally distributed within meeting area or newspaper with closest local distribution area.

Minimum posted ad coverage: Local Town or City Hall or Office, and local Post Office, within town or city where meeting is held, to be posted continually for 1 full week prior to meeting date.

Any deviation from these requirements for any reason must receive prior written approval of the Minister of Environment.

APPENDIX B

Study Team

Study Team Biographical Statements

Karen Roberts, MEDes, MCIP, is an Environmental Planner with expertise in environmental management, land use planning, environmental and socio-economic assessment, and stakeholder involvement. Ms. Roberts has managed or participated in a number of environmental and socio-economic assessments in Newfoundland and Labrador, including: managing the Trans Labrador Highway - Phase II (Red Bay to Cartwright) environmental assessment; environmental assessment of proposed remediation/disposal options for stockpiled PCB-contaminated soil at Saglek, Labrador; socio-economic assessments for the Voisey's Bay Mine/Mill and Smelter/Refinery Projects; environmental assessment for the Newfoundland Transshipment Terminal; and an assessment of an accidental event scenario (oil spill) along the Placentia Bay shipping route for the transshipment terminal. Ms. Roberts also recently coordinated a biophysical scoping study for a proposed road development in northwestern Nunavut.

Ms. Roberts has experience in designing, implementing and evaluating public involvement programs, and has managed or participated in local, provincial and national level consultation programs. Ms. Roberts managed the public consultation program for Husky Energy's proposed White Rose oilfield development, which involved six key informant workshops, eight public information sessions and a series of stakeholder meetings. She also coordinated activities associated with Husky Energy's participation in the public hearings on the White Rose development, and assisted with the national public consultation for the five-year review of CEAA. Ms. Roberts also carried out consultation programs for the Trans Labrador Highway - Phase II (Red Bay to Cartwright), Newfoundland Transshipment Terminal, pole line upgrading/re-routing activities for Newfoundland Power and NewTel Communications, Terra Nova Development's environmental effects monitoring program and North Atlantic Refining's proposed co-generation development.

Ellen Tracy, BSc, is a Project Officer at JW in St. John's, Newfoundland. Ms. Tracy provided senior review for the Trans Labrador Highway (Red Bay to Cartwright) EIS. In addition, she has conducted an environmental overview of Trans Canada Highway re-alignment, Petitcodiac to Moncton, New Brunswick, socio-economic analysis for an environmental impact assessment of Highway 104 between Salt Spring and Alma, Nova Scotia, fish habitat and population survey of a proposed upgrade and interchange for Route 1 (Prince of Wales), New Brunswick, fish habitat survey of a proposed twinning and re-alignment of Route 126 (Shediac to Cap Pelé), New Brunswick, a Specific Environmental Evaluation of the Northumberland Strait Crossing Project (Confederation Bridge), preparation of an Initial Environmental Strait Crossing Project (Confederation Bridge), and an Environmental Overview of Miramichi Bridge No. 3, Newcastle, New Brunswick. Ms. Tracy's experience on the above projects included project management, senior internal review of reports, client and regulatory liaison and public consultation.

Yves Labrèche, **BSc**, **MSc** (**Anthropology**), a senior scientist with Jacques Whitford Environment Limited (JW), is currently providing archaeological and ethnographic and services in Newfoundland, Labrador and Québec. Mr. Labrèche specializes in research and assessment of Labrador and Northern Québec Aboriginal subsistence and settlement (land and resource use) from precontact times to the present. Mr. Labrèche is a qualified researcher in this domain, with appropriate background in cultural anthropology and archaeology consolidated by experience in conducting field research programs with the Innu (since 1996) and other Aboriginal groups (Cree and Inuit).

Mr. Labrèche has been involved in northern research and impact assessment for over 25 years and has worked closely with Aboriginal communities in Québec (e.g., Kangiqsujuaq and Salluit) and Labrador (e.g., Nain, Davis Inlet and Sheshatshiu), notably in the context of hydroelectric projects, mineral development and civil construction projects. He has also conducted background research, ethnographic interviews and mapping exercises integrating land use data from Québec and Labrador (e.g., Churchill River Power Project; Trans Labrador Highway from Red Bay to Cartwright and from Bob's Brook to Churchill Falls). His research interests include the integration of land use data, ethnographic sources and archaeological data and he has developed and applied integrative methods to several field programs (e.g., Churchill River Power Project, Voisey's Bay Mine/Mill).

Barry Wicks, B.Sc., is a Freshwater Fisheries Biologists with JW's St. John's office. Mr. Wicks has over 10 years experience with all aspects of freshwater fish biology, including execution of field work, program design, data analysis and report writing. Prior to joining JW, he was Planner/Manager for the Indian Bay Ecosystem Corporation, a non-government organization involved in implementing a community- based fishery resource management program. Since joining JW, Mr. Wicks has acted as crew leader for field programs associated with the Star Lake Hydro Development environmental effects monitoring project and the Iron Ore Company of Canada's tailings management project. He has also conducted a number of habitat assessments, fish population assessments and water, sediment and benthic sampling programs.

Kathy Knox, BSc (Honours), is an environmental scientist specializing in terrestrial ecology. Most recently, she coordinated the preparation of a document outlining drill cuttings disposal options for the White Rose oilfield and preparation of the registration for the Garden Hills oilfield, the first onshore oil development in Newfoundland and Labrador. She has been involved in numerous field investigations and prepared environmental assessments for a number of clients, including DND, Voisey's Bay Nickel Company Limited, WST, CHI Energy, Thundermin Resources, and the Labrador Hydro Project. Ms. Knox has participated in a number of surveys characterizing wetland types and their use by waterfowl and other migratory birds. She also coordinated the 1999 and 2001 Terrestrial Effects Monitoring Program for NARL, which included analysis of lichen cover and distribution, as well as assessment of the effects of emissions on balsam fir and other vascular species. Ms. Knox also assisted in coordinating logistical support to other contractors involved in the Lower Churchill River Power Project in Labrador. While working with the provincial Wildlife Division, Ms. Knox coordinated interagency projects and programs, including research on marten, caribou, bats, small mammals and raptors. Her work included assessments of habitat suitability for several species based on the structure and spatial configuration of available vegetation types. She also participated in numerous stakeholder working groups aimed at developing an integrated resource management planning process and coordinated wildlife input into the development of a wildlife-timber decision support system.

Steve Bonnell, MA, is an Environmental Assessment Specialist with JW St. John's, NF office. He holds a Masters Degree in Geography from Memorial University of Newfoundland, focussing on cumulative environmental effects assessment and management. Mr. Bonnell has extensive experience in working with both the provincial and federal environmental assessment processes, and has been involved in assessments conducted in relation to a wide range of projects. He was a key member of the study team for the Trans Labrador Highway - Phase II (Red Bay to Cartwright) environmental assessment, authoring its socioeconomic effects assessment and various other sections of the EIS and Addendum. Other recent assessments include those conducted in relation to the Duck Pond Copper-Zinc Mine in west-central Newfoundland, the White Rose Oilfield Development, and the Voisey's Bay Mine/Mill Project. He has also published and presented papers on environmental assessment processes, principles and methodologies. Mr. Bonnell also worked on the Churchill River Power Project, where he was responsible for coordinating Innu involvement in the design, conduct and review of the environmental studies conducted in relation to that project, and in planning for its future environmental assessment. He has also held related term positions with Public Works and Government Services Canada, the Western Newfoundland Model Forest Inc., and the Canadian Forest Service.

Peter R. Menchenton, BscFE, MASc, is an Environmental Management Consultant in JW's St. John's office. Since joining JW, Mr. Menchenton has worked on environmental auditing projects for Newfoundland Power, Richmont Mines and Envirosoil. Mr. Menchenton has also assisted with the development of an Emergency Response Plan for IOC and Environmental Emergency Response Plans for BLJC. Prior to working with JW, he worked with the Environmental Protection Branch of Environment Canada and with several of J.D. Irving, Ltd.'s woodlands divisions in the Maritimes. He has completed a Master of Applied Science in Environmental Engineering at Memorial University, completing coursework in the areas of pollutant sampling, environmental risk assessment, oil and gas operations, and environmental toxicology.

Caroline Hong, BSc, is an environmental scientist with JW's Happy Valley-Goose Bay office. Ms. Hong has participated in environmental baseline studies for Voisey's Bay Nickel Company, NDT Ventures and the Churchill River Power Project. During the 1995 and 1996 field seasons, Ms. Hong coordinated logistics for JW's environmental baseline characterization studies at Voisey's Bay. In this capacity, she was responsible for shipping/receiving dangerous goods, general freight and samples for analysis, and coordinating personnel moves to and from Happy Valley-Goose Bay and at the base camp located on *MV Sir John Franklin*, Anaktalak Bay. Acting in a similar capacity, Ms. Hong was project manager and coordinator for logistics during the 1998 and 1999 field seasons for environmental baseline studies for the Churchill River Power Project. Ms. Hong was responsible for co-ordination, planning and scheduling of transportation, accommodations, equipment storage, equipment and sample shipments and deliveries, communications, orientation, health and safety training to contractors conducting 20+ programs and assisting in the development of on-the-job training mentorship program.

Ms. Hong coordinated a public consultation program on solid waste management practices throughout Newfoundland. The communications and logistics aspect of this project were key to the success of this extensive consultative effort in the province for the Department of Environment. Ms. Hong has also been involved in logistics, field sampling and report preparation on other projects such as 1995 to 1998 Raptor/Harlequin Duck Monitoring Programs and Investigation of Jet Aircraft Effects on Nesting Osprey for the Department of National Defence; environmental baseline characterization and preparation of an environmental protection plan for NDT Ventures Limited; noise environment monitoring for Urban Aerodynamics Limited and Universal Helicopters Limited; several Phase I and Phase II investigations; field sampling surveys for water, soil, vegetation, and PCB contaminants; and aerial survey studies.

APPENDIX C

Representative Photographs of Watercourse Crossings



035 Crossing #1



036 Crossing #2



037 Crossing #3



038 Crossing #4



039 Crossing #5



040 Crossing #6



041 Crossing # 7



042 Crossing # 8



043 Crossing # 9



044 Crossing # 10

23. 9. 2002



10045 Crossing # 10046 Crossing # 11Photographs of TLH-Phase III Stream Crossings



047 Crossing # 12



048 Crossing # 13



049 Crossing # 14



050 Crossing # 15



051 Crossing # 16



052 Crossing # 17



053 Crossing # 18



054 Crossing # 19



055 Crossing # 20



056 Crossing # 21 Phote



23.9.20

21057 Crossing # 22058 Crossing # 23Photographs of TLH-Phase III Stream Crossings



059 Crossing # 24



060 Crossing # 25



061 Crossing # 26



062 Crossing # 27



063 Crossing # 28



064 Crossing # 29



065 Crossing # 30



066 Crossing # 31



067 Crossing # 32



068 Crossing # 33 Photog



23. 9. 2002

33069 Crossing # 34070 Crossing # 36Photographs of TLH-Phase III Stream Crossings



071 Crossing # 37



072 Crossing # 38



073 Crossing # 39



074 Crossing # 40



075 Crossing # 41



076 Crossing # 42



077 Crossing # 43



078 Crossing # 44



079 crossing # 45



080 Crossing # 46 Pho



46081 Crossing # 47082Photographs of TLH-Phase III Stream Crossings



082 Crossing # 48 ings



083 Crossing # 49



084 Crossing # 50



085 Crossing # 51



086 Crossing # 52



087 Crossing # 53



088 Crossing # 55



089 Crossing # 56



090 Crossing # 58



091 Crossing # 59



092 Wrong Stream Photog



am 093 Crossing # 60 094 Photographs of TLH-Phase III Stream Crossings



094 Crossing # 62 sings



095 Crossing # 63



096 Crossing # 64



097 Crossing # 65



098 Crossing # 66



099 Crossing # 67



100 Crossing # 68



101 Crossing # 69



102 Crossing # 70



103 Crossing # 61



104 Crossing # 71 Phot



25. 9. 2002

71105 Crossing # 72106 Crossing # 73Photographs of TLH-Phase III Stream Crossings



107 Crossing # 74



108 Crossing # 75



109 Crossing # 76



110 Crossing # 77



111 Crossing # 78



112 Crossing # 79



113 Crossing # 80



114 Crossing # 81



115 Crossing # 82



116 Crossing # 83 Phot





83 117 Crossing # 84 118 Crossing # 86 Photographs of TLH-Phase III Stream Crossings



119 Crossing # 87



120 Crossing # 88



121 Crossing # 89



122 Crossing # 90



123 Crossing # 96



124 Crossing # 96 Gr.



125 Crossing # 96 Gr.



126 Crossing # 95



127 Crossing # 94



128 Crossing # 94 Gr. Phote



Gr.129 Crossing # 94 Gr.130Photographs of TLH-Phase III Stream Crossings



130 Crossing # 93 sings



131 Crossing # 92



132 Crossing # 91



133 Crossing # 91 Gr.



134 Crossing # 91 Gr.



135 Crossing #8 Gr



136 Crossing # 9 Gr



137 Crossing # 13 Gr



138 Crossing #16 Gr



139 Crossing #22 Gr



140 Crossing # 23 Gr. Photo



Gr.141 Crossing # 24 Gr142 GPhotographs of TLH-Phase III Stream Crossings



142 Crossing # 28 Gr ossings



143 Crossing # 28 Gr



144 Crossing # 36 Gr



145 Crossing # 36 Gr



146 Crossing # 37 Gr



147 Crossing # 38 Gr



148 Crossing # 38 Gr



149 Crossing # 90 Gr



150 Crossing # 90 Gr



151 Crossing # 89 Gr



152 Crossing # 89 Gr Phot



Gr153 Crossing # 89 Gr154 GrPhotographs of TLH-Phase III Stream Crossings



154 Crossing # 88 Gr ssings



155 Crossing # 88 Gr



156 Crossing # 87 Gr



157 Crossing # 87 Gr



158 Crossing # 82 Gr



159 Crossing # 82 Gr



160 Crossing # 79 Gr



161 Crossing # 79 Gr



162 Crossing # 73 Gr



163 Crossing # 73 Gr



164 Crossing # 68 Gr Photo



Gr 165 Crossing # 68 Gr 166 C Photographs of TLH-Phase III Stream Crossings



166 Crossing # 67 Gr ossings



167 Crossing # 67 Gr



168 Crossing # 65 Gr



169 Crossing # 65 Gr



170 Crossing # 64 Gr



171 Crossing # 64 Gr



172 Crossing # 61 Gr



173 Crossing # 61 Gr



174 Crossing # 56 Gr



175 Crossing # 56 Gr



176 Crossing # 55 Gr Phot



Gr177 Crossing # 55 Gr178Photographs of TLH-Phase III Stream Crossings



178 Crossing # 55 Gr ssings



179 Crossing # 53 Gr



180 Crossing # 53 Gr



181 Crossing # 52 Gr



182 Crossing # 52 Gr



183 Crossing # 52 Gr



184 Crossing # 52



185 Crossing # 52



186 Crossing # 51 Gr



187 Crossing # 51 Gr



188 Crossing # 48 Gr Phot



Gr 189 Crossing # 48 Gr 190 Photographs of TLH-Phase III Stream Crossings



190 Crossing # 48 Gr ssings



191 Crossing # 42 Gr



192 Crossing # 42 Gr



193 Crossing # 41 Gr



194 Crossing # 41 Gr



195 Crossing # 40 Gr



196 Crossing # 40 Gr

APPENDIX D

Trans Labrador Highway - Phase III Waterway Use Interview Guide

TRANS-LABRADOR HIGHWAY – PHASE III WATERWAY USE - INTERVIEW GUIDE

Introduction (Note: You may not require this formal introduction):

• State the purpose of the call: *My name is ---; I'm calling from Jacques Whitford Environment Ltd. in St. John's. As part of the on-going environmental assessment of the proposed Trans-Labrador Highway Happy Valley-Goose Bay to Cartwright Junction), I am interested in obtaining information on navigable watercourses along the proposed highway route (and/or the use of waterways for travel in the region).*

- Identify the specific areas under consideration:
 - 1) Waterways between Happy Valley-Goose Bay and Cartwright Junction, specifically the major crossings (list in the table).
 - 2) I was hoping that you might be able to provide some information by answering a few questions.
- Confirm whether the individual is willing to participate in the interview

(Where possible, interviewees will be given the option of receiving a topographic map of the area(s) under consideration by fax. In cases where maps are requested / required, an alternative time for the telephone interview will be arranged).

Is this section of the river (refer to list of major crossings) used for navigational purposes?
Was it used for travel in the past?

If YES, details on:

- by whom?;
- for what purpose? (e.g., commercial fisheries, canoeing, small boat access to inland fishing areas and cabins, access to hunting/trapping grounds or to transport firewood after freeze-up, etc.);
- the time of year used;
- the type of vessels/vehicles used
- 2) Are you aware of any other waterways or sections of waterways that are / were used for travel in central Labrador. Details on:
 - the name of the river;
 - what specific sections(s) of the river are/were used for travel?;
 - used by whom?;
 - for what purpose? (e.g., commercial fisheries, canoeing, small boat access to inland fishing areas and cabins, access to hunting/trapping grounds or to transport firewood after freeze-up, etc.);
 - the time of year used;
 - the type of vessel/vehicle used;
- how do current levels of use compare with those in the past? (i.e., is there an overall trend towards an increase or a decrease in the use of these waterways)
- 3) Can you suggest any other persons who would be able to provide information regarding the use of waterways in central Labrador (around the preferred highway route) for travel? (Record individuals' names, contact information and date of communication/correspondence)

APPENDIX E

Trans Labrador Highway - Phase III Outfitter Interview Guide

TRANS LABRADOR HIGHWAY (HAPPY VALLEY – GOOSE BAY TO CARTWRIGHT JUNCTION) ENVIRONMENTAL ASSESSMENT

LAND AND RESOURCE USE COMPONENT STUDY

INTERVIEWS WITH OUTFITTERS					
Date:					
Name of Outfitter:					
Nome of Comp(s).					
Name of Camp(s):					
Location of Camps:					
-					
Area of Operations:					
Issues or Concerns Regarding Proposed TLH – Phase III:					

APPENDIX F

Trans Labrador Highway - Phase III Issue Scoping Interview Guide

TRANS-LABRADOR HIGHWAY – PHASE III ISSUE SCOPING - INTERVIEW GUIDE

Introduction:

• State the purpose of the call:

My name is ---; I'm calling from Jacques Whitford in St. John's. We are conducting the environmental assessment of the proposed Trans-Labrador Highway from Happy Valley-Goose Bay to Cartwright Junction. I am calling to:

- *check that you received the information about the project that we mailed to about two weeks ago; and*
- follow-up to see whether your community (organization) has any issues or concerns about the proposed highway development.
- Confirm whether the municipal council or organization received the information. [Note: The information sent was the brochure and comment form from the open houses].
- If they have not received the information, ask whether they would like to have the information faxed or emailed to them. [Note: Confirm that they have access to a fax machine or email].
- Confirm whether they have a moment to answer a few questions about the TLH Phase III and previous TLH work.
- Ask the following questions: [Note: They may say they want to see the information first, in this case a second call will be required].

TLH - Phase III:

[Note: This is the main question for all communities/organizations.]

- 1) Does your community (organization) have any issues or concerns about the TLH Phase III development? If so, what are the issues/concerns?
 - •
 - •
 - •
 - •
 - •

- 2) Are you aware of any other groups or organizations in your community that have any issues or concerns about the TLH Phase III development? If so, what groups? [Note the names of any groups and a contact person if possible.]
 - •
 - •
 - •

TLH - Phase II:

[Note: This question is for all communities/organizations from Cartwright south to the Labrador Straits.]

- 3) Did (or does) your community (organization) have any issues or concerns about the development of the TLH between Cartwright and Red Bay? If so, what are/were the issues/concerns?
 - •
 - ٠
 - •
 - •
 - •
- 4) Are you aware of any groups or organizations in your community that have any issues or concerns about the TLH Phase II work? If so, what groups? [Note the names of any groups and a contact person if possible].
 - •
 - •
 - ٠
- 5) What has been the general response of people to the TLH Phase II? [Note: Try to determine whether people view it as a positive thing? Negative? Have social and/or business activities changed because of the highway going through?]
 - •
 - •
 - •
 - •
- 6) Were there any problems experienced during the TLH Phase II development? If so, what were the problems or concerns?
 - •
 - •
 - •
 - •

- 7) What was done to address any problems experienced during the TLH Phase II development?
 - ٠
 - •
 - •
 - •

TLH - Phase I (Between Western Labrador and Happy Valley-Goose Bay):

[Note: This question is for all communities/organizations in Western Labrador.]

8) Use same questions as for Phase II part, just switch Phase II reference to Phase I.

APPENDIX G

Innu Place Names

Innu Place Names

Toponym No.	Innu Toponym	Geographic Feature/ English Toponym	NTS Topographic Map No.	Source/Remark
1	Akamiuapishk ^u	Mealy Mountains	13 G/05, G/06, G/11	Armitage 1990: 12
2	Amishku-shipiss	Etagautet River, South shore of Lake Melville	13 G	Armitage 1990: 56
3	Amishku-shipu	Paradise River	13 H/04	Armitage 1990
4	Cipitapsinakan	Lake		Tanner 1977: 88
5	Iyatuwegabau or Iatuwegabew	Park Lake		Tanner 1977: 87, 88
6	Komisikomot	Laka		Tenner 1077
0	Kamistikamat	Lake		Tanner 1977: 88
/	Kamistikamat	Lake		Tanner 1977: 88
8	Kamunekuskat	Lake		Tanner 1977: 88
9	Kayıwatuwesikat	Lake		Tanner 1977: 88
10	Mamwak Nipi			Tanner 1977: 88
11	Manatueu-shipiss	Traverspine River	13 F/01	Armitage 1990: 5
12	Mishta-shipu	Churchill River	13 F/08	Armitage 1990: 5
13	Mistassini	Lake		Tanner 1977
14	Mistinipi	Lake		Tanner 1977: 87
15	Mistissini	Lake		Tanner 1977: 88
16	Mistuwacaskw	Lake		Tanner 1977
17	Nutapinuant-shipu	Eagle River	13 G/01	Armitage 1990
18	Nekwanakaw	Lake		Tanner 1977: 88
19	Papakamak	Lake		Tanner 1977: 88
20	Pushew Nipi	Lake		Tanner 1977: 88
21	Tshenuamiss-shipu	Kenemich River	13 G/05	Armitage 1990
22	Tshenuamiu-nipi	Carter Basin, mouth of Kenemich River	13 G/05	Armitage 1990: 55
23	Tshenuamiu-shipu	Kenamu River	13 G/04	Armitage 1990: 45
24	Uapashku-shipu	Eagle River	13 H/12	Armitage 1990
25	Ushukapisska-shipu	Eagle River	13 H/05	Armitage 1990
26	Ustakwan Cinisaw			Tanner 1977: 88
27	Uwskaw Nipi			Tanner 1977
28	Wabisinibish	Lake		Tanner 1977: 88
29	Winikus Usakumesin	Lake		Tanner 1977: 88
31	Sheshatshiu	North West River, Labrador		53.31 N, 60.09 W; McManus & Wood 1991: 62, 63
32	Utshimassits	Davis Inlet, Labrador		55.53 N, 60.54 W; McManus & Wood 1991: 58

Toponym No.	Innu Toponym	Geographic Feature/ English Toponym	NTS Topographic Map No.	Source/Remark
33	Pakuashipi	Saint-Augustin, Québec	12 O/2	51.14N, 58.40W; CTQ 1994: 513
34	Ulaman	La Romaine, Québec	12 K/2	50.13 N, 60.40 W; CTQ 1994: 350
35	Natsahquan	Natashquan, Québec	12 K/4	50.08 N, 61.48 W; CTQ 1994: 472
36	Ekuanitshu	Mingan, Québec	22 I/8	50.18 N, 64.02 W; CTQ 1994: 441
37	Uashat-Maliotenam	Sept-Îles, Québec	22 J/1	50.13 N, 66.24 W; CTQ 1994: 744, 791
38	Makuanu	Musquaro	12 K/3	50.34 N, 61.05 W; CTQ 1994: 466