



GOVERNMENT OF  
NEWFOUNDLAND AND LABRADOR

Department of Environment

Honourable Kevin Aylward  
Minister

September 2002

## **G U I D E L I N E S**

for

# **Environmental Impact Statement**

**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 identify the potential environmental impacts associated with the proposed undertaking and to identify appropriate mitigative measures. Component Studies will be carried out to address baseline information gaps for particular Valued Ecosystem Components (VECs). The EIS will 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 negotiated with 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 impacts. The EIS will 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 impacts may be required to be considered by the Minister as recommended by the Environmental Assessment Committee,.

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

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

## **1. EXECUTIVE SUMMARY**

The executive summary will contain the following information: identification of the proponent; a detailed project description; predicted environmental effects; mitigative measures; residual impacts; cumulative impacts; an outline of the component studies; proposed monitoring programs and a summary of the fundamental conclusions of the EIS. The summary will allow reviewers to focus immediately on areas of concern.

The summary will be written in terms understandable to the general public and it will include a Table of Concordance which will identify where specific Guideline requirements are addressed in the EIS. Sufficient quantities of the Executive Summary will be made available in Innu-aimun to allow for consultation by 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 boundary of the prospective site is to be presented, accompanied by maps of an appropriate scale showing the entire area of each alternative with:

- principle structures and appurtenant works,
- types and quantities (ha) of habitat to be disturbed.

The information on the boundary and extent of the project 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 will 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 will 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 will detail the process the proponent undertook to determine potential corridors, including discussion of all alignments considered. The proponent's public consultation process will 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 will be provided. The discussion will 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 supported by Innu members after the proponent's consultations with the Innu community as one of the alternative methods of carrying out the undertaking.

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

- avoidance of wetland areas
- avoidance of tourism impact and enhancement of tourism potential
- avoidance of environmentally sensitive areas
- avoidance of additional stress on land and resources through increased access

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. State reasons for the rejection of those alternatives.

### *3.4 Relationship to Legislation, Permitting, Regulatory Agencies and Policies.*

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

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

### 3.5 *General Project Description*

The EIS will describe the scope of the project for which an assessment is being conducted.

The EIS will 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, 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
  - temporary sewage and waste disposal facilities
  - methods of handling waste and refuse at work and camp locations

### 3.6 Construction

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

- general 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, their proposed infrastructure (e.g., bridge, culvert), and 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
- instream activities (i.e., scheduling, duration)
- structures required for any proposed wildlife corridors
- 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
- 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
- removal of temporary operations
- site rehabilitation and monitoring

In order to properly assess the socio-economic impacts in the region specific information on the 2,800 seasonal construction jobs will 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 will be provided. Initiatives to increase opportunities for women in occupations in which they are under-represented will be described using the experience of employment of women for the Red Bay to Cartwright Trans Labrador Highway to establish targets.

### 3.7 *Operation and Maintenance*

All aspects of the operation and maintenance of the proposed development will 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, 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 will be indicated. If the project is not intended to operate in perpetuity, details regarding decommissioning and abandonment will be presented.

## 4. ENVIRONMENT

### 4.1 *Existing*

The EIS will identify the study area and will describe the existing biophysical and socio-economic environment of the study area, and the resources within it, emphasizing **Valued Ecosystem Components (VEC's) (as defined by Beanlands and Duinker, 1983)**. In addition, the EIS will describe environmental interrelationships and sensitivity to disturbance. Description will 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 will 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 will 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 project
- 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 will 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, including features such as lakes, streams, wetlands, and topography within a minimum of 500 metres of the centreline of the proposed alignment(s) and those features outside 500 metres which influence features within the proposed corridor(s)
- 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 will take into account all wetlands which will potentially be impacted directly or indirectly
- flora, including typical species, 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. 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
- fish, including, but not limited to, Eastern Brook Trout

The identification of known data gaps is imperative.

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

- Raptors
- Caribou
- Furbearers, utilizing surveys conducted as construction proceeds, or surveys conducted during component studies
- 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 as it may be affected by 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 cultural sites, archaeological, paleontological, burial, cultural, spiritual, and heritage sites
- Tourism (emphasis on sport and recreational fishery and effects of increased access on trout and other inland fish populations)
- Mealy Mountain National Park Study Area establishment, including size, geographic area, ecological integrity and wilderness character (including vistas and noise-scapes) of the proposed National Park
- Resource use and users including:
  - information on contemporary land use by the Innu, as well as other residents of Labrador, will be described
  - 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 effects upon its candidacy
  - wilderness character
- Fish and fish habitat including:
  - 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.) will 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 will 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

- sampling of fish populations, for abundance and life history parameters, in each of the four watersheds that the highway will traverse in conformance with the sampling protocol developed by Inland Fish and Wildlife Division. Sampling may occur as construction proceeds.

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

- **Migratory birds (with emphasis on waterfowl and including but not limited to Harlequin Duck)**
- **Raptors**
- **Caribou**
- **Fish and Fish Habitat**
- **Historic Resources** (The Component Study and the EIS will 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 will be provided only to the proponent, the Innu Nation and the Provincial Archaeology Office, on a confidential basis.)

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

(i) Rationale/Objectives

In general terms, the rationale for a component study is based on the need to obtain additional data to determine the potential for significant impact 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 will vary depending on the valued ecosystem component being investigated.

(iii) Methodology

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

(iv) Study Outputs

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

## 4.2 *Data Gaps*

Information gaps from a lack of previous research or practice will 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.

## 4.3 *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 project-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, and negative and positive environmental effects of forest fires.

## **5. ENVIRONMENTAL EFFECTS**

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

The EIS will contain a comprehensive analysis of the predicted environmental effects of each project alternative for the VEC's. If the impacts are attributable to a particular phase of the project (construction, operation or maintenance) then they will be designated as such.

The EIS will also assess the effects of the environment on the highway.

The capacity of renewable resources that are likely to be significantly affected by the project 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) will be defined quantitatively and qualitatively for each project alternative and for each valued ecosystem component. In this regard, the EIS will 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 project, 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 impact significance criteria against which to evaluate the potential impact 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;
- analysis of potential impacts (significance, positive or negative, etc.).

In the latter regard, the proponent will offer a definition of significance for each category examined (eg. biological, physical, economic, social, cultural, archaeological).

Environmental effects will be defined and discussed in the following terms for the phases of the project (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 will be discussed with respect to risk, severity and significance. Consequences of low probability, high impact events, including design failure, will 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.

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.

### **Cumulative Environmental Effects:**

Consideration of any cumulative effects on valued ecosystem components, with particular emphasis on the Mealy Mountain National Park Study Area, that are likely to result from the project in combination with other projects or activities that have been or will be carried out will be discussed in the EIS. Particular emphasis will 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).

Addressing cumulative environmental effects will involve considering:

- temporal and spatial boundaries;
- interactions among the project’s environmental effects;
- interactions between the project’s environmental effects and those of existing projects and activities;
- interactions between the project’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, will 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 project and may include restitution

for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

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: if it is to be used, establish a road salt management strategy
- 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 on 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.

Proposed mitigative strategies integral to the phases of the project (construction, operation, modification and decommissioning) will be clearly identified and addressed. The effectiveness of the proposed mitigative measures will be discussed and evaluated. Where possible and appropriate, compensation for losses that cannot be mitigated by any other means will be examined. Mitigation failure will be discussed with respect to risk and severity of consequence.

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.

## 6.2 *Emergency Response/Contingency Plan*



An emergency response plan will 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 will 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 project will 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:

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

Discussion will 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 will be detailed and specific numbers by occupation, gender and period of employment during each year of construction will be provided to the Minister of Environment 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.

## **6.4 Rehabilitation**

A plan of proposed rehabilitation measures for the construction activities associated with the highway will 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 will list and contain a detailed discussion and evaluation of residual effects, which will 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 will be clearly distinguished from those effects that will not be mitigated or avoided. Positive residual effects will also be discussed and evaluated.

Particular attention will 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 will contain a concise statement and rationale for the overall conclusion relating to the significance of the residual adverse environmental effects. The EIS will, for ease of review, include a matrix of the environmental effects, proposed mitigation and residual 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, will 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 will be outlined. Open House Public Information Sessions will be held to present the proposal and to record public concerns. The proponent will hold public information sessions in the communities of Port Hope- Simpson, Cartwright, North West River/Sheshatshiu and Happy Valley-Goose Bay. Public concerns will 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 B.

## **9. ENVIRONMENTAL PROTECTION PLAN**

A site specific Environmental Protection Plan (EPP) for the proposed undertaking will be submitted and approved by the Minister of Environment and Labour *before* any construction on the project begins. For the purposes of the EIS, an outline of the EPP will be included. The EPP will 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 will be restricted to the EIS. The target audience for the EPP will be the resident engineer, site foreman/supervisor, proponent compliance staff and the provincial environmental surveillance officer. Therefore the EPP will concentrate on addressing such issues as construction/operation mitigation, permit application and approval planning, monitoring activities, contingency planning for accidental and unplanned events and contact lists. In addition, the EPP will 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.

## **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 will be provided.

## **12. COPIES OF REPORTS**

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

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