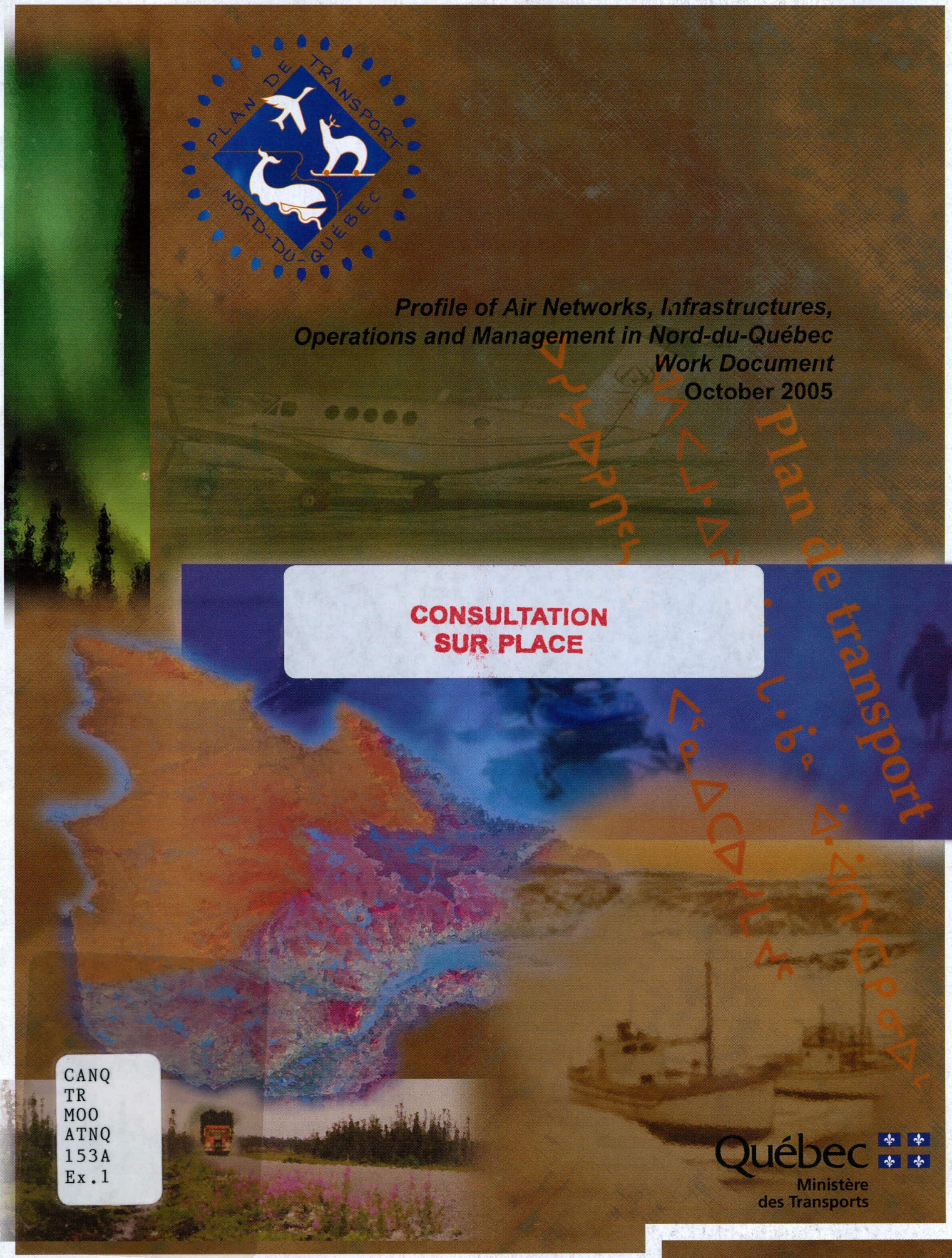

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Work Document

October 2005

Plan de transport

CONSULTATION SUR PLACE

Québec
Ministère des Transports

The cover page illustrates the various modes of transportation present in Nord-du-Québec.

The aerial view of the edge of Québec shows the importance of the surface of this region within the rest of the province. As a resource region, the road transport is represented by a heavy truck transporting lumber, and the marine transport by the native fishing boats. The snowmobile remains one of the means of transportation most frequently used for leisure and utility purposes. As for air transport, it is represented by a propeller airplane as it is the type of airplane most frequently used in Nord-du-Québec. The rail transport is also present on this territory, but it covers only the south of the region.

As for the logo, it repeats the theme of the three modes of transportation with the following symbols : the bird for air transport, the caribou for surface transport and the whale for marine transport. The doted line surrounding the logo represents the nine cree villages, the fourteen inuit municipalities, the five jamesian localities, the provincial government and the federal government all gathered around the same table in view of establishing a partnership in the planning process of the ***Transportation Plan of Nord-du-Québec***.

Transportation Plan of Nord-du-Québec

Technical Study

Profile of Air Transport Networks, Infrastructures, Operations and Management in Nord-du-Québec

WORKING DOCUMENT

Transports Québec

October 2005

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ACRONYMS

100LL	100-octane aviation fuel, low lead content
ACAP	Airports Capital Assistance Program
AFR	Air Fare Reduction Program for the residents of Nunavik
AGL	Above Ground Level
AQL	Aviation Québec Labrador
ARCAL	Aircraft Radio Control of Aerodrome Lighting
ATF	Aerodrome Traffic Frequency
ATR-42	Regional Airliner 42
AWOS	Automated Weather Observation System
B-737	Boeing 737
C-310	Cessna 310
CAI	Canadian International Airlines
CARs	Canadian Aviation Regulations
CARS	Community Aerodrome Radio Station
CTA	Canadian Transport Agency
CTC	Canadian Transport Commission
CV-580	Convair 580
DASH-8	Commercial name of the DHC-8 series (De Havilland Canada 8)
DEW	Distant Early Warning
DHC-6	De Havilland Canada 6
DME	Distance Measuring Equipment
DRCO	Dial-up Remote Communications Outlet
E/D	Embarked/Disembarked
EMB-110	Embraer 110
EVAQ	Évacuations aéromédicales du Québec
FCNQ	Fédération des coopératives du Nouveau-Québec
FIC	Flight Information Centre
FSS	Flight Service Station
GPS	Global Positioning System
HGS	Heads-up Guidance System
HQ	Hydro-Québec
HS-748	Hawker Siddley 748
IFR	Instrument Flight Rules
ILS	Instrument Landing System
JBM	James Bay Municipality
JBNQA	James Bay and Northern Quebec Agreement

KRG	Kativik Regional Government
LOC	Localizer for Non-Precision Approach Procedures
LWIS	Limited Weather Information System
MTQ	Ministère des Transports du Québec
NAP	National Airports Policy
NDB	Non-Directional Beacon
ODALS	Omni-Directional Approach Lighting System
PAPI	Precision Approach Path Indicator
PNR	Prior Notice Required
RCO	Remote Communications Outlet)
RIL	Runway Identification Lights
SDBJ	Société de développement de la Baie James
SMRQ	Société minière Raglan du Québec limitée
SOPFEU	Société de protection des forêts contre le feu
STOL	Short take-off and landing airplane
TCAS	Traffic Alert & Collision Avoidance System
TP-312	Technical Paper 312 "Aerodromes-Recommended Standards and Practices"
VASIS	Visual Approach Slope Indicator System
VFR	Visual Flight Rules
VOR	VHF Omnidirectional Range

NOTICE TO READER

Unless indicated otherwise by the context, the following expressions and words mean:

"technical study"	**This technical study has no scientific pretence. It is not an opportunity study by any means, nor an exhaustive research on the subject. It aims at drawing up an overview of the situation in this specific area of transportation in Nord-du-Québec. Although the study is internal, the Ministère is nonetheless pleased to make it available to the public.**
"the Ministère"	**Ministère des Transports du Québec.**

In the text, words in italics are found in the glossary except for laws, regulations and document titles.

SUMMARY

Territory Under Study

The territory under study corresponds to the administrative region of Nord-du-Québec. This vast region, measuring approximately 1,700 kilometres in length on a south to north axis, and approximately 1,000 km in width in its widest part, covers an area of some 840,000 km^2, that is, 55% of Québec. The Nord-du-Québec region is divided into two territories, James Bay from the 49^{th} to the 55^{th} parallel and Nunavik north of the 55^{th} parallel. In 2004, its population accounted for 39,234 inhabitants. Based on different criteria, four areas can be identified, namely, southern James Bay, the James Bay Cree villages, the hydroelectric development area of James Bay and Nunavik. A fifth area, Schefferville, will also be included in the territory under study.

The Airport Network

There are 27 airports in Nord-du-Québec. of the fourteen airports that are part of the Nunavik airport network, twelve were built from 1985 to 1992 following an agreement between Canada and Québec under the James Bay and Northern Quebec Agreement (JBNQA). The two other airports were built in the 40's for military purposes. In the same period, the federal government undertook to build three airports to serve some of the Cree communities of James Bay. Moreover, as part of the James Bay hydroelectric project, Hydro-Québec and the Société de développement de la Baie James (SDBJ) have built several airports, five of which are still in operation. The airports of Matagami, Chibougamau, Lebel-sur-Quévillon, Chisasibi and Raglan Mine complete the airport network. The Schefferville airport, located in the Côte-Nord region, gives access to outfitting businesses in southeastern Nunavik.

Most of these airports are owned by three government agencies, that is, Transports Québec (15), Transport Canada (5) and Hydro-Québec (4). In terms of their operation, the Kativik Regional Government (KRG) has the responsibility of the 14 airports in Nunavik. The Cree councils operate the airports in their villages, Hydro-Québec does the same for its airports and Transports Québec operates its two state-managed airports in southern James Bay. The Nord-du-Québec airport network is relatively recent, modern and in good condition. All the public airports accommodating scheduled air traffic must have the status of certified airport.

The airports of the Cree villages and eleven of the fourteen airports located in the Nunavik northern villages share several similarities, one of them being their gravel runways approximately 3,500 feet in length. Three airports in Nunavik - Kuujjuarapik, Puvirnituq and Kuujjuaq - have runways measuring 5,000 or 6,000 feet long. The four Hydro-Québec airports share technical similarities with one another, providing pilots with gravel runways 5,000 feet long. Finally, the four other airports of the region have paved runways 3,700 to 6,500 feet long. Almost all airports are equipped with lighting systems of medium intensity and ARCAL systems; a few have approach lights and visual approach slope indicators.

All the airports in the region have a terminal and most of them have the buildings needed to store and service the equipment. They also have the specialized motor equipment such as service trucks, wing plows, independent or loader-mounted snowblowers, loaders, graders for gravel runways and sweepers for paved runways. No airport is required to provide fire protection services to the airports specified in Subparts 3 and 8 of the CARs, although several airports have agreements to that effect with their municipality or offer specialized services like the La Grande Rivière airports and the ones of Hydro-Québec. Furthermore, fuel is available all over the region, except for aviation fuel (100LL) in Nunavik, available in drums at certain airports only, except in Kuujjuaq where it is available at the pump.

With regard to navigational aids, the public *VHR Omnidirectional Range/Distance measuring Equipment* (VOR/DME), which form the basis of the Canadian air navigation system, are only found near the La Grande Rivière, Kuujjuaq and Schefferville airports. On the other hand, the airports in Nord-du-Québec, except for Chisasibi, are equipped with *Non-Directional Beacons* (NDBs) for enroute navigation and approaches. Kuujjuaq is the only airport in Nord-du-Québec with an *Instrument Landing System* (ILS) system for precision landings. Until recently, the La Grande Rivière airport and the ones of Hydro-Québec were equipped with a localizer system (LOC) that usually allows landings with minima below those of VOR and NDB systems. They have however been removed, the GPS approach now being used.

NAV Canada does not operate any *control tower* in Nord-du-Québec, but the regional Air Control Centre of Montreal (ACC) ensures control in the high level airspace (18,000 feet and above), while the low level airspace (below 18,000 feet) is not controlled except for the terminal control area of La Grande Rivière airport. The airports of the Cree villages, except Chisasibi, provide *Community Aerodrome Radion Station* (CARS) services. In Nunavik all the airports provide the service, except for the airports of Kuujjuarapik and Kuujjuaq where *Flight Service Station* (FSS) are in place. Elsewhere in Canada, NAV Canada finances CARS but in Nunavik, they are completely provided by Transports Québec.

In the region, helicopters and seaplanes use many temporary sites for their daily operations. However, their operating bases are usually set up in a more permanent manner and can include maintenance garages and permanent supply points. For many years, helicopters have assumed the role traditionally played by sea planes in the exploration and development of forest, mining and hydroelectric resources. Seaplanes are still part of the picture and now occupy a specific commercial niche, that is, the transport of trappers to their traplines and hunters and fishermen to the outfitters scattered in the region.

The four registred heliports are located in southern James Bay (2), LG-3 and also Fermont, south of Schefferville. The heliport owners are also the operators. There are just a few permanent water aerodromes and the registered ones in 2003 are located in southern James Bay (2), and the Caniapiscau–Schefferville area (2). They are owned by the air carriers.

In 1995, Transport Canada initiated the *Airports Capital Assistance Program* (ACAP). But ACAP appears to be an administrative burden, particularly when several stakeholders are involved, like the provincial government which decision-making processes can be long. It would be desirable that the MTQ and Transport Canada define a particular framework for the application of the ACAP program to Nord-du-Québec projects. Nevertheless, a few airports, including Chisasibi, Kuujjuarapik, La Grande Rivière, Puvirnituq and Kangirsuk benefited from that program between 1997 and 2005.

Air Transport Services

Nord-du-Québec is served by commercial air carriers operating scheduled air services, chartered flights and cargo transport services. Hydro-Québec and the Société minière Raglan du Québec limitée operate their own planes to transport their employees.

Air Creebec provides scheduled flights in James Bay and to outside destinations, like Montréal, Roberval, Val-d'Or, the Ontario coast of James Bay and Whapmagoostui in Nunavik. Air Inuit and First Air serve Nunavik. Air Inuit offers intraregional connections as well as flights from Montréal to most of the west coast airports. This airline also provides a Sept-Îles–Schefferville connection and a Montréal–Québec–Schefferville–Kuujjuaq connection twice a weeks. With regard to First Air, it offers daily Boeing 727 connections between Montréal and Kuujjuaq and all-cargo B-727 flights between Val-d'Or and Kuujjuaq. It also offers a connection from Kuujjuaq to Iqaluit, in Nunavut. The paved and sufficiently long runway of the Kuujjuaq airport allows jet connections from Montréal and Val-d'Or towards to Kuujjuaq. On the west coast, no runway can accommodate B-727 planes; Kuujjuarapik and Puvirnituq have gravel runways 5,000 feet long, which are too short for this type of plane.

Chartered flights in Nord-du-Québec, more particularly to the Cree villages and Nunavik, are used for business or medical purposes. Most of them are mainly from the Abitibi-Témiscamingue, Montréal and Québec cities areas as well as Kuujjuaq. In addition to passenger transport, chartered flights can also be used for unplanned or emergency transport of cargo that would have normally been routed by ship or regular air service.

Évacuations aéromédicales du Québec (EVAQ) is a government air transport agency serving sick people in remote regions, including Nord-du-Québec. EVAQ interventions are made from the Jean-Lesage airport in Québec City, to the airports of Kuujjuaq, Puvirnituq and Kuujjuarapik in Nunavik and Chibougamau, Matagami, La Grande Rivière, La Grande-3, La Grande-4, Nemiscau and Fontanges in James Bay, which runways are long enough to accommodate the Challenger. Aeromedical evacuations are also available via the Propair company based in Rouyn-Noranda, mainly in James Bay.

Air Traffic

In 2003, the airports of Kuujjuaq and La Grande had the largest number of itinerant movements with respectively 10,201 and 8,477 movements, followed by Kuujjuarapik, Chibougamau and Waskaganish. The other airports each report under 2,000 movements. At the Kuujjuaq and Kuujjuarapik airports, the movements of the regular air carriers would respectively account for approximately 35% and 50% of the total itinerant movements of these airports. This ratio is higher for the other Nord-du-Québec airports.

All the villages in Nunavik have scheduled flights distributed over five or six days per week, the largest receiving 31 flights (Kuujjuaq) and 27 flights (Puvirnituq), the less populated still being served respectively by seven flights (Aupaluk) and eight flights (Kangiqsualujjuaq). Embarked/Disembarked (E/D) passenger traffic for Nord-du-Québec accounted for 205,733. In 1999, of which 47,605 E/D passengers for Kuujjuaq, 23,298 for Puvirnituq and 18,585 for Kuujjuarapik.

The James Bay airports served by commercial flights (which excludes Matagami, Lebel-sur-Quévillon and the Hydro-Québec airports) are desserved six days a week.

Air Fares and Transport Assistance Programs

The companies Air Creebec and Air Inuit each constitute a monopoly, in Nunavik the first in James Bay and the second as First Air desserves only Kuujjuaq. Despite this fact, comparative evaluations with the rest of Québec show the impartiality of air fare policies, and that the chief explanatory variable for air rates are distance and number of passengers. These carriers are owned by Aboriginal corporations that fulfill both social and economic viability objectives. This particular ownership feature could explain why these carriers in a monopoly situation, do not show the behaviour often observed in such situations, consisting in a rate increase. However, this impartiality of the fares does not contradict the fact that air transport from the various Nord-du-Québec communities to Montréal and within the region is very expensive.

To reduce the costs of air transport and supply of perishable goods and cargo for Nord-du-Québec residents, the governments of Québec and Canada have implemented three assistance programs, that is, the Air Fare Reduction Program for Nunavik Residents (Provincial), the Financial Assistance Concerning the Reduction of Freight Charges to Nunavik (Provincial) and the Food Mail Program (Federal).

Improvements to Be Made to the Air Transport Network

There is a sufficient number of airports in Nord-du-Québec and they are in a relatively good condition and equipped with appropriate public equipment. Nevertheless, a few improvements could be made to enhance airport efficiency and service quality. It would be justified to evaluate the need to extend the runway of certain airports in the region to 5,000 or 6,000 feet to permit their use by heavier and more performing airplanes, such as turbojets. At the same time, it could be appropriate to pave some runways as the

demand should increase in most villages, and that airlines might want to offer a turbojet service on certain routes to reduce flying time.

The addition of ODALS and PAPI visual systems could contribute to increase landing reliability and safety. As well, the installation of perimeter fences at all the airports would increase their safety level. In this respect, the Ministère des Transports du Québec is evaluating the possibility to instal perimeter fences at the airports under his responsibility. Control over the access to the airports' *apron* must also be increased to reduce accident hazards.

CARS services available in almost all the James Bay territory and Nunavik should also be made available in Chisasibi and Schefferville. CARS capital and operating costs in Nunavik should be paid by NAV Canada as is the case in James Bay and the rest of Canada. Finally, NAV Canada should consider to provide low level airspace control service to increase flight safety.

Competent airport personnel is also of prime importance for reasons of efficiency and safety. If he received a good initial training but was left to themselves afterwards. Therefore, it is important to develop and implement a continuous training program for all the personnel assigned to the airports' maintenance and operation.

A few other improvements, such as the installation of 100LL gas pumps at certain airports, the better maintenance of airport buildings and a follow-up on GPS technology would also be required.

As is the case for the infrastructures, the air services provided by the carriers are of good quality and only need adjustments to make them even more efficient and pleasant. Basically, shortfalls exist with regard to flight duration for the connections between Montréal and Hudson Bay's west coast, the great number of stopovers on several flights and the age of the airplanes. These shortcomings have no impact on air service efficiency and reliability but do reduce passenger comfort.

It is presently not possible for air carriers to reduce flight duration as the solution to the problem, that is the use of turbojets, is conditional to having longer and preferably paved runways. As well, a minimum number of passengers must be maintained in order for the carries to gain enough benefits from providing the service with such aircrafts.

The numerous stops on many flights make flight duration substantially longer. However, the region's low population, its distribution in many small villages, the social and family ties between each village and the linear nature of the airport network, justify the inclusion of stopovers for viability purposes.

Both in James Bay and Nunavik, passenger transportation is partly done with aged airplanes that no longer meet accepted standards of comfort, operating costs and noise, and they will need be replaced in a relatively short time. Airlines are gradually introducing modern airplanes to their network.

Nord-du-Québec is a unique region where air transport will continue to be of prime importance. When all these improvements are made, scheduled air services will have reached a maximum quality. But the governments will have to sustain its efforts and work closely with airline companies and the regional stakeholders to acquire a better knowledge of the needs, maintain a quality airport network, contribute to the supply of efficient and less expensive air services in order to foster the region's economic development.

INTRODUCTION

This study is part of the development process of the *Transportation Plan of Nord-du-Québec*. First of all, it is a profile of air transport in this region, with respect to both airport infrastructures and air services. It identifies the strengths and weaknesses of the Nord-du-Québec air transport network and highlights future issues.

In the first Chapter, the study presents a profile of the region and highlights the elements that had the strongest impact on the nature and structure of air transport and its various components. Then, five distinct areas are identified, with common physical, human and economic characteristics. After defining the regulatory and normative framework particular to air transport, Chapter 1 discusses the various components of airport infrastructures, such as airport ownership, operation and status, as well as terminal and maintenance buildings, equipment, servicing and navigational aids. A summary description is given of the seaplane bases and heliports. Furthermore, this chapter deals with the environmental hazards related to the infrastructures and with the government assistance programs to airport capital assets.

The second Chapter of the study focuses on a description of air services, which are the purpose of the infrastructures. It reviews the scheduled air services offered in the region, as well as chartered flights, specialized air services and corporate air services. It also reports on the importance of air traffic with regard to airport movements, transported passengers and goods, and addresses the issue of air fares. In this respect, the study will examine the measures taken by the governments to lower transportation costs for both passengers and cargo.

Finally, the profile of air transport in Nord-du-Québec is further developed in Chapter 3 with the identification of the constraints, strengths and weaknesses of the different air transport areas. Chapter 4 identifies the trends for the future and the intervention leads that should be favoured to provide the region's populations with efficient air transport in response to their needs.

1. AIRPORT NETWORK IN NORD-DU-QUÉBEC

1.1 Territory and Population

Occupying 55% of the surface of Québec, Nord-du-Québec is spread out over 840 178 km^2 (Map 1). Bordered to the east by Labrador and Côte-Nord, to the south by the Saguenay-Lac-Saint-Jean, Mauricie and Abitibi-Témiscamingue and to the west by Ontario, Nord-du-Québec is also surrounded by the James bay, Hudson Bay, Hudson strait and Ungava bay. According to the 2001 census, the total population of Nord-du-Québec was be of 38 575 people, thus 0.5% of the Québécois population. In 2004, the population was of 39 234 people.

The region comprises two distinct territories: north of the 55th parallel, Nunavik covers nearly 490 000 km^2 for a population of 10 410 inhabitants (Statistics Canada, 2001). The population is gathered in 14 Inuit municipalities and a Cree village located along the coasts of Hudson Bay, Hudson strait and Ungava Bay. There are Kuujjuarapik, Umiujaq, Inukjuak, Puvirnituq, Akulivik, Ivujivik, Salluit, Kangiqsujuaq, Quaqtaq, Kangirsuk, Aupaluk, Tasiujaq, Kuujjuaq, Kangiqsualujjuaq and of the Cree village of Whapmagoostui.

Between the 49th and 55th parallel, covering approximately 350 000 km^2, we find the territory of James Bay. This territory consists of the Municipalité de Baie-James (MBJ), of category I lands as defined by the James Bay and Northern Québec Agreement (JBNQA), as well as enclaved towns in the MBJ, thus Chibougamau, Chapais, Lebel-sur-Quévillon and Matagami. The Municipalité de Baie-James includes the localities of Radisson, Villebois and Valcanton (merge of Val-Paradis and Beaucanton), the hamlets of Miquelon, Desmaraisville and Rapide-des-Cèdres, as well as a vast wide spread little inhabited. In total, the MBJ and the enclaved towns count 16 314 people (Statistics Canada, 2001). As for the category I lands, defined by the JBNQA as being of exclusive use of the Crees and where are located the Cree villages, it counts 11 851 people divided in eight communities: Mistissini, Oujé-Bougoumou, Waswanipi, Nemaska, Waskaganish, Eastmain, Wemindji and Chisasibi.

The only Naskapi village, Kawawachikamach, is located at about fifteen kilometres at the north-east of Schefferville. It takes part of the Côte-Nord region (09), but the community has the use of category IB and II lands located in Nunavik, under the terms of the North-Eastern Québec Agreement (NEQA).

In 2001, the town of Chibougamau has the largest population in James Bay with 8,503 inhabitants, followed by the Cree village of Chisasibi with 3,432 inhabitants and Lebel-sur-Quévillon with 3,337 people. In Nunavik, the northern village of Kuujjuaq has the largest population with 2,099 persons, followed by Inukjuak and Puvirnituq with respectively 1,387 and 1,327 inhabitants[1]. The Nord-du-Québec region is therefore characterized, among others, by a small population distributed over a vast territory.

1 Ministère des Transports du Québec, *Transportation Plan of Nord-du-Québec*, Public Transportation and Public Services, Work document, Final version, Preliminary, May 2002, p. 9.

1.2 Areas of the Nord-du-Québec Region

The composition and distribution of the region's population, as well as its particular economic activities and a rudimentary road network are also basic features of the region that have a major impact on the structure of the airport network and air services. Thus, we can say that southern James Bay, meaning the territory between Chibougamau, Matagami and the Ontario border, is active in the market economy, more particularly in forest development and mining, and has a well structured road network. The Chibougamau and Matagami airports are somewhat like outposts to the north for certain types of airplanes, in particular the piston-powered twin-engine aircrafts, while the Lebel-sur-Quévillon airport serves this municipality specifically.

More to the north on the James Bay coast, four Cree villages were built, the most important being Chisasibi. The four other Cree villages of James Bay are located inland. Presently, the public sector represents approximately 60% of the jobs[2] and part of the population is still active in hunting, fishing and trapping activities. Except for the village of Chisasibi, the Cree coastal villages were not linked in the past to the Matagami–Radisson highway. Therefore, in winter, people exclusively used the plane to travel and get their supplies and marine transport of goods was also possible in summer. In the last few years, the situation has changed and all the Cree villages of James Bay are now linked to the southern road network.

The east-west corridor that extends over some 500 kilometres between Radisson and Caniaspiscau corresponds to the hydroelectric development area of La Grande River. In this area, maintenance and improvement operations are presently going on although most of the activities are aimed at the production of electricity. Hydro-Québec owns and operates four private airports, three located in that sector, for the movement of their employees between their place of work and their home town as well as to convey products and material needing faster transport.

As for the Société de développement de la Baie James (SDBJ), it owns and operates the La Grande Rivière airport. This airport infrastructure, located at the northern end of the Matagami-Radisson highway, is an unloading and transhipment point for all cargo and perishable goods required in the villages of Hudson Bay and Hudson Strait. This airport is used by Air Inuit and Air Creebec to serve the villages and provide connection to the south, as well as by Hydro-Québec.

Nunavik begins at the 55th parallel. It is a territory essentially inhabited by Inuit people. There is one Cree village, Whapmagoostui, adjacent to the Inuit village of Kuujjuarapik. Nunavik accounts for approximately ten thousand inhabitants who all live on the Hudson Bay, Hudson Strait and Ungava Bay littoral. 70% of all the jobs are related to the public and health sectors[3]. Part of the population carries out hunting and fishing activities.

2 Ministère des Transports du Québec, *Transportation Plan of Nord-du-Québec*, Public Transportation and Public Services, Work document, Final version, Preliminary, May 2002, p. 7.
3 Ibid., p. 7.

There is no road to the south from any of the Inuit villages, therefore supplies arrive by ship in summer and by plane all year round. Ship supplying is mainly concerned with the transportation of ponderable and bulky material. All other cargo and perishable goods are transported by plane, whether in a passenger/cargo combination or an all-cargo flight. Due to the particular geographic situation of Nunavik and the distribution pattern of the population over the territory, air transport is of prime importance for the region. Let us also mention the Raglan Mine and their private airport at Kattiniq, west of the Inuit village of Kangiqsujuaq.

Finally, the Naskapi village of Kawawachikamach, located in the Côte-Nord region, north of Schefferville, had a population of 581 inhabitants in 2001[4]. Aboriginal people from this community use Category I-B, II and III lands located in Nunavik. The Schefferville airport serves the population of the city (240 inhabitants in 2001), of the Naskapi Reserve, and of the Innu Reserve of Matimekosh (450 inhabitants in 2001). The airport is also a gateway to Nunavik for aircrafts leaving from the Côte-Nord and Gaspésie, and those flying to the region's outfitters.

It is impossible to understand and analyse the structure and nature of air traffic in Nord-du-Québec without having an excellent knowledge of the characteristics of the different areas that make up the region. Therefore in this study, references will be made to the following areas described above:

- southern James Bay;
- James Bay Cree villages;
- the hydroelectric development area of La Grande River;
- Nunavik;
- the Schefferville area.

1.3 Nord-du-Québec Airports

1.3.1 Regulatory and Normative Framework

Aeronautics, aerodromes and airports are all under the authority of the federal government. Enforcement of the related laws, regulations and standards therefore falls under the Department of Transport of Canada, called Transport Canada. Any powers, responsibilities and obligations of Transport Canada and airport *operators* are established in the *Aeronautics Act*, Part III of the *Canadian Aviation Regulations* (CARs) and in various recommended standards and practices.

According to the CARs, an aerodrome includes any land or water expanse developed to receive aircrafts. A registered aerodrome is one that is published in the Canada Flight Supplement (CFS) while an airport is an aerodrome for which Transport Canada has

4 Ministère des Transports du Québec, *Transportation Plan of Nord-du-Québec*, Public Transportation and Public Services, Work document, Final version, Preliminary, May 2002, p. 9.

issued an airport certificate. Let us point out that, for certification purposes, a certified heliport and a registered water aerodrome are airports.

Section 302.01 of the CARs specifies that the certification of an aerodrome only applies to the aerodromes located in the built area of a town/city or village, to land aerodromes used by an air operator with a view to provide scheduled passenger air transport, and to any aerodrome for which the Minister is of the opinion that an airport certificate would be in the public interest.

An airport (certified aerodrome) *operator* is bound to abide by airport development standards established in the Transport Canada document titled "Aerodromes - Recommended Standards and Practices" (TP-312) published in March 1993 in its fourth edition or any previous editions according to the construction date of the airport and equivalent documents with respect to certified heliports and certified seaplane bases. The operator is also required to have in his possession an airport operations manual approved by Transport Canada.

1.3.2 Brief Historical Background

In the 1930's, exploration and cartography flights were performed in the Nord-du-Québec region, in particular, by Canada's Military Forces. World War II and the Cold War with the communist block were at the origin of the construction and development of several military airports in the Canadian North, among them, the Kuujjuarapik (Great Whale River) and Kuujjuaq (Fort-Chimo) airports in the 40's.

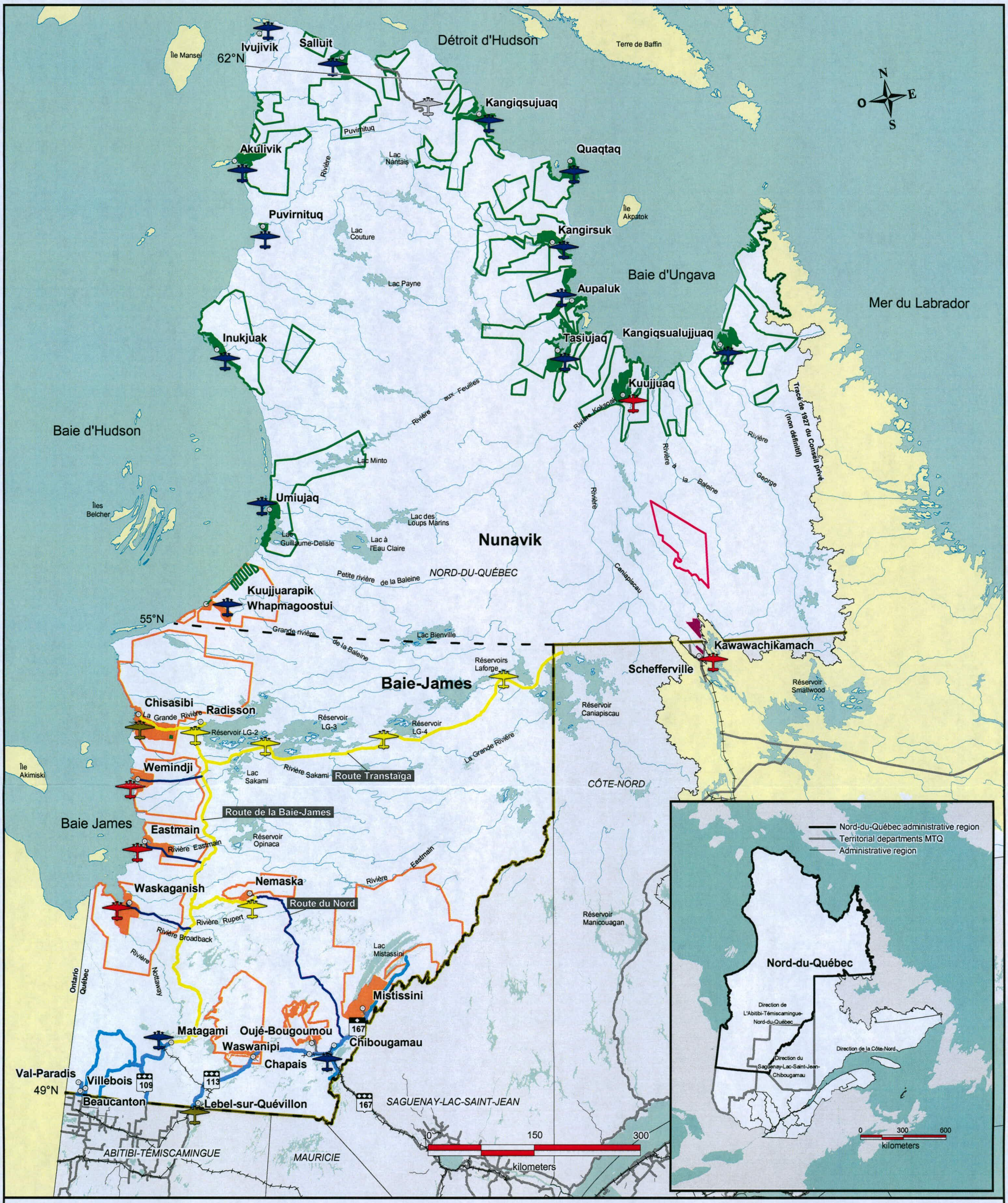
The present airport network in Nunavik was built between 1985 and 1992, following the 1983 agreement between Canada and Québec. This agreement follows the commitment of the two levels of government under the James Bay and Northern Quebec Agreement (JBNQA) to build 12 airports along the Hudson Bay, Hudson Strait and Ungava Bay coasts. Prior to this airport construction campaign, Nunavik had two real airports, Kuujjuarapik and Kuujjuaq, and makeshift runways built by Air Inuit near each village. In 1997, the Société minière Raglan du Québec built the private airport of Kattiniq, located west of the village of Kangiqsujuaq, for their own needs.

On the James Bay territory, two distinct areas have beneficiate from airport construction. First of all, as part of the La Grande hydroelectric project, Hydro-Québec and the Société de développement de la Baie James (SDBJ) built several airports, five of which are still in operation. Three of these airports are located in the La Grande River hydroelectric development area and one is Nemaska. Secondly, the federal government undertook during the construction of the airports in Nunavik, the construction of three airports to serve the Cree coastal communities of James Bay. Finally in 1998, the Cree Council of Chisasibi built the airport located in their village, on a former SDBJ airport site.

The Nord-du-Québec airport network is completed by the southern James Bay airports, that of Lebel-sur-Quévillon built in 1968, Matagami in 1972, and Chibougamau in 1982. Let us also mention the airport of Schefferville, built in 1954 by Transport Canada when the mining company Iron Ore Corporation was developing a site to mine iron deposits in the vicinity.

1.3.3 Location, Ownership, Operation and Status of the Airports

Map 1 presents the location of the Nord-du-Québec airports and identifies the organizations financially responsible for them.



Transports Québec

Coordination du Nord-du-Québec

Map 1: Location of the airports in Nord-du-Québec

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Source:
- Ministère des Transports du Québec

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1 : 250,000 and 1 : 8,000,000

October 2005

Land regime

(category I) (category II)

- Cree
- Inuit
- Naskapi

Note:The limits of the Oujé-Bougoumou territory are defined under the Cree-Québec Agreement of February 7, 2002.

Administrative limit

- Municipalité de Baie-James
- South limit Nord-du-Québec region
- Other Québec regions

Others

- Railway
- City, village or town

Road

Financial responsability

- MTQ - National, regional, collector
- MTQ - Acces roads
- MTQ - Other roads *
- Hydro-Québec
- Other roads

* Financial responsability for maintenance only

Airport

Financial responsability

- Ministère des Transports
- Transport Canada
- Hydro-Québec
- Cree council / Municipality
- Other

Three government agencies own most of the airports: Transports Québec, Transport Canada and Hydro-Québec. The former own 13 airports in Nunavik, plus the Matagami and Chibougamau airports. Transport Canada owns three airports located in Cree villages, and the Kuujjuaq and Schefferville airports. Hydro-Québec owns four private airports located in the La Grande River hydroelectric development area and at Nemaska. The other Nord-du-Québec airports are each owned by a municipality (Lebel-sur-Quévillon), the SDBJ government agency (La Grande Rivière), a Cree council (Chisasibi) and a private company, the Raglan Mine (Kattiniq).

Concerning airport operations, the Kativik Regional Government (KRG) has been operating 13 airports in Nunavik on behalf of Transports Québec since 1996 and the Kuujjuaq airport for Transport Canada since 1995. Transports Québec has a fixed financial agreement with KRG while Transport Canada is leasing the airport operation with a financial contribution agreement. As well, the local Cree councils operate the airports of Wemindji, Eastmain River and Waskaganish for Transport Canada. Transports Québec operates its Matagami and Chibougamau airports while Hydro-Québec does the same with its four airports. The town of Lebel-sur-Quévillon operates its *airport* and the Société aéroportuaire de Schefferville operates the Schefferville *airport* for Transport Canada. As for the SDBJ, it operates its La Grande Rivière *airport*. The Société minière Raglan du Québec operates its own *airport* in Kattiniq. The *operator* of an *airport* is the person or organization responsible for the *airport* and holder of the *airport* certificate.

Lets mention again that the Schefferville *airport*, wich is not located in the territory under study but rather in the Côte-Nord region, is a traffic hub for the various outfitting businesses located in James Bay and Nunavik. For this reason, it is included in is study.

Table 1 presents a summary of this information, that is, location, owner, operator, year of construction and status indicators of the airports. It appears clearly that, except for the airports of Kuujjuaq, Kuujjuarapik and Schefferville, the construction of the Nord-du-Québec airport network is relatively recent and therefore, should be modern and in good condition. Indeed, 24 airports were built since 1970, 19 of which since 1980. Finally, all the public airports accommodating scheduled air traffic must have the status of a certified airport, which certificate is issued by Transport Canada. Certification testifies that an airport was built according to Transport Canada standards and its operation complies with them. The Hydro-Québec airports are not certified as they are private airports with corporate traffic only. It should be noted that a registered *aerodrome* can also meet the construction standards of Transport Canada but is not certified because its use does not require it to be, according to the *Canadian Aviation Regulations (*CARs*).*

TABLE 1
OWNER, OPERATOR AND STATUS OF AERODROMES

Airport	Code	Owner	Operator	Year of Construction	Status
Akulivik	CYKO	Transports Québec	KRG	1989	Certified
Aupaluk	CYLA	Transports Québec	KRG	1990	Certified
Chibougamau	CYMT	Transports Québec	Transports Québec	1982	Certified
Chisasibi	CSU2	Cree Council of Chisasibi	Cree Council of Chisasibi	1998	Certified
Eastmain River	CZEM	Transport Canada	Cree Council of Eastmain	1986	Certified
Fontanges	CTU2	Hydro-Québec	Hydro-Québec	1977	Registered
Inukjuak	CYPH	Transports Québec	KRG	1986	Certified
Ivujivik	CYIK	Transports Québec	KRG	1984	Certified
Kangiqsujuaq	CYKG	Transports Québec	KRG	1987	Certified
Kangiqsualujjuaq	CYLU	Transports Québec	KRG	1988	Certified
Kangirsuk	CYAS	Transports Québec	KRG	1985	Certified
Kattiniq	CTP9	Société minière Raglan du Québec	SMRQ	1997	Registered
Kuujjuaq	CYVP	Transport Canada	KRG	1945	Certified
Kuujjuarapik	CYGW	Transports Québec	KRG	1945	Certified
La Grande Rivière	CYGL	SDBJ	SDBJ	1974	Certified
LG-3	CYAD	Hydro-Québec	Hydro-Québec	1976	Registered
LG-4	CYAH	Hydro-Québec	Hydro-Québec	1977	Registered
Lebel-sur-Quévillon	CSH4	Town	Town	1968	Registered
Matagami	CYNM	Transports Québec	Transports Québec	1972	Registered
Némiscau	CYHH	Hydro-Québec	Hydro-Québec	1984	Registered
Puvirnituq	CYPX	Transports Québec	KRG	1990	Certified
Quaqtaq	CYHA	Transports Québec	KRG	1987	Certified
Salluit	CYZG	Transports Québec	KRG	1985	Certified
Schefferville	CYKL	Transport Canada	Société aéroportuaire de Schefferville	1954	Certified
Tasiujaq	CYTQ	Transports Québec	KRG	1991	Certified
Umiujaq	CYMJ	Transports Québec	KRG	1988	Certified
Waskaganish	CYKQ	Transport Canada	Cree Council of Waskaganish	1987	Certified
Wemindji	CYNC	Transport Canada	Cree Council of Wemindji	1987	Certified

Source: Owners of the network's airports:
-Cree Council of Chisasibi
-Hydro-Québec
-Ministère des Transports du Québec
-Société de développement de la Baie James
-Société minière Raglan du Québec ltée.
-Transport Canada
-Ville de Lebel-sur-Quévillon

1.3.4 Functional Classification of the Airports

In July 1994, the federal government published its "National Airports Policy" (NAP) in which it announced, among other things, that it would maintain ownership of the 26 airports identified as part of the National Airport Network, but that it would lease them to

Canadian airport administrations responsible for their financial and operational management. Furthermore, the NAP confirmed that ownership of the regional, local and other small *airports*, would be ceded to regional interests. It also stated that the remote airports, like Kuujjuaq, that provide an exclusive and reliable service all year to remote communities and that receive assistance from the federal government, would continue to obtain support for their capital assets and operations.

The NAP is not a national policy in the strict sense as it applies only to the airports that are owned by the federal government, more specifically by Transport Canada. It does not at all affect the infrastructures owned by municipalities, provinces, government agencies and private companies. In fact, it is an official document in which Transport Canada announced its withdrawal from the ownership and operations of the airports and explained what will become of them.

In reaction to the NAP, and considering that the federal government wanted to transfer its regional and local airports to regional interests, particularly to municipalities, the Gouvernement du Québec felt the need to develop its own airport policy, for both the airports under its responsibility and all the other airports of the Québec network. Therefore, in 1995, it published "La politique du gouvernement du Québec en matière d'infrastructures aéroportuaires" (The airport infrastructures policy of the Gouvernement du Québec).

This document presents the history of airport interventions by the Gouvernement du Québec and sets out the orientations and guidelines in this respect. To this end, a functional classification of all airports is presented. The airport network is subdivided into a primary network and a local network. The airports part of the larger network are seen as essential in a national perspective while the local airports appear as more accessory. Then the future decisions of the Gouvernement du Québec relative to airports must take this classification into account as well as the government's latest National Air Transport Policy.

All the Nord-du-Québec airports, except Matagami, Chisasibi and Lebel-sur-Quévillon, are part of the larger airport network because of their geographical catchment area, their impact on regional development, their remoteness or isolation. It is important to note that the 14 Nunavik Inuit villages and one Cree village are not linked to the provincial road network, and the Cree villages of Waskaganish, Eastmain River and Wemindji have just been recently linked. Also, let us note that the four Hydro-Québec airports and the Raglan Mine airport are not part of this classification, being private.

Beyond this classification, some airports of the region play a dominant or hub role at various levels, as will be revealed in this study. Thus, the La Grande Rivière *airport* is the gateway to James Bay and the Nunavik west coast, and the airports of Puvirnituq and Kuujjuaq are the most important in Nunavik. The same way, the Schefferville *airport* gives access to the Nord-du-Québec outfitters located north and west of Schefferville.

1.3.5 Description of the Airports and their Equipment

This part of the study presents an overview of the Nord-du-Québec airports, with a particular look at the infrastructures and equipment that support their operations. Map 2 lists certain characteristics specific to each site. Moreover, a detailed index sheet of each *airport* is presented in Appendix 1.

IVUJIVIK 139'
08-26; 3,500' x 100'
gravel

SALLUIT 742'
04-22; 3,500' x 100'
gravel

AKULIVIK 66'
09-27; 3,510' x 100'
gravel

PUVIRNITUQ 76'
01-19; 5,000' x 100'
gravel

INUKJUAK 83'
07-25; 3,500' x 100'
gravel

UMIUJAQ 244'
03-21; 3,500' x 100'
gravel

KUUJJUARAPIK 34'
04-22; 5,052' x 150'
sand/gravel

CHISASIBI 43'
14-32; 3,792' x 100'
gravel

WEMINDJI 46'
10-28; 3,510' x 100'
gravel

EASTMAIN RIVER 21'
02-20; 3,510' x 100'
gravel

WASKAGANISH 79'
06-24; 3,500' x 100'
gravel

MATAGAMI 918'
15-33; 5,000' x 100'
asphalt

LEBEL-SUR-QUEVILLON 960'
15-33; 3,712' x 100'
asphalt

KATTINIQ/DONALDSON 1,888'
12-30; 6,100' x 140'
gravel

KANGIRSUK 403'
04-22; 3,521' x 100'
gravel

AUPALUK 116'
05-23; 3,521' x 100'
gravel

TASIUJAQ 122'
06-24; 3,519 ' x 100'
gravel

KANGIQSUJUAQ (WAKEHAM BAY) 511'
15-33; 3,511' x 100'
gravel

QUAQTAQ 103'
01-19; 3,520' x 100'
gravel

KUUJJUAQ 129'
07-25; 6,000' x 150'
asphalt
13-31; 5,000' x 150'
gravel

KANGIQSUALUJJUAQ (GEORGES RIVER) 215'
16-34; 3,521' x 100'
gravel

FONTANGES 1,551'
10-28; 4,900' x 150'
gravel

LA GRANDE RIVIÈRE 639'
13-31; 6,500' x 150'
asphalt

LA GRANDE-3 775'
11-29; 5,000' x 150'
gravel

LA GRANDE-4 1,005'
09-27; 5,000' x 150'
gravel

NEMISCAU 802'
09-27; 5,000' x 150'
gravel

CHIBOUGAMAU 1,270'
05-23; 6,496' x 150'
asphalt

SCHEFFERVILLE 1,709'
18-36; 5,000' x 150'
asphalt

62°N
55°N
49°N

Détroit d'Hudson
Terre de Baffin
Île Mansel
Île Akpatok
Baie d'Ungava
Mer du Labrador
Baie d'Hudson
Îles Belcher
Île Akimiski
Baie James
Baie-James
Nunavik
NORD-DU-QUÉBEC
CÔTE-NORD
SAGUENAY-LAC-SAINT-JEAN
ABITIBI-TÉMISCAMINGUE
MAURICIE
GASPÉSIE-ÎLES-DE-LA-MADELEINE
BAS SAINT-LAURENT

Puvirnituq
Rivière
Lac Nantais
Lac Couture
Lac Payne
Rivière aux Feuilles
Rivière Koksoak
Lac Minto
Lac des Loups Marins
Lac Guillaume-Delisle
Lac à l'Eau Claire
Petite rivière de la Baleine
Grande rivière de la Baleine
Lac Bienville
Réservoirs Laforge
Réservoir Caniapiscau
Réservoir Manicouagan
Réservoir Smallwood
La Grande Rivière
Réservoir LG-2
Réservoir LG-3
Réservoir LG-4
Lac Sakami
Rivière Sakami
Rivière Eastmain
Réservoir Opinaca
Eastmain
Rivière Rupert
Rivière Broadback
Rivière Nottaway
Lac Mistassini
Ontario
Québec
Rivière à la Baleine
Rivière George
Caniapiscau
Tracé de 1927 du Conseil privé (non définitif)

N
O
E
S

Transports Québec
Coordination du Nord-du-Québec

Map 2: Characteristics of the Nord-du-Québec Airports and Runways

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Sources:
- Ministère des Transports du Québec
- Canada Flight Supplement, 2005

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1: 250,000 and 1: 8,000,000

October 2005

Airport
Financial responsability

- Ministère des Transports
- Transport Canada
- Hydro-Québec
- Cree council / Municipality
- Other

Name and elevation in feet of the airport
Orientation; length and width of runway
Runway surface

Administrative limit

- Municipalité de Baie-James
- South limit Nord-du-Québec region
- Other Québec regions

Runways and Lighting

The airport network under study has 28 airports including Schefferville. The airports located in the Cree villages and most of the Nunavik airports have some similarities as they were designed and built in the same spirit and at the same period. Thus, these airports have gravel runways approximately 3,500 feet long by 100 feet wide[5].

There are some exception to that rule. Chisasibi, on the James Bay coast, has a 3,800 feet runway. It was built in 1988 by the Société de développement de la Baie James. It was renovated in 1998 through the Airports Capital Assistance Program (ACAP), therefore, quite some time after the construction of the airports in the Cree and Inuit villages. Also, three airports in Nunavik have different runway parameters, those of Kuujjuarapik, Kuujjuaq and Puvirnituq. The first two are former military airports that were built in 1945. Initially, the Kuujjuarapik airport had two landing strips in a cross shape. The secondary strip was removed some twenty years ago to build houses. The Kuujjuaq airport is certainly the most important in Nunavik. It has two landing strips, the main runway is paved and 6,000 feet long by 150 feet wide (07-25), and a secondary one in gravel and measuring 5,000 feet long by 150 feet wide (13-31). As for the Puvirnituq airport, it has a gravel runway 5,000 feet long by 100 feet wide. This airport, built under the Inuit airport construction program, has a longer runway because the village hosts the Hudson coast regional hospital. Also, this runway has a category 3 graded area, that is 45 m on each side of the central runway axis while only 23 m are required. Therefore, it could be possible to extend this runway to 6,000 feet for example, while saving on the costs since it is already a category 3 runway with regard to graded area as required by aeronautic specifications.

All the Cree and Nunavik airports have a similar lighting system, except for Kuujjuarapik, Kuujjuaq and Puvirnituq. Basically, the runway lighting systems at these airports are of medium intensity with three adjustable levels. They usually include runway identification lights (RIL) at both thresholds and a pilot radio control of aerodrome lighting (ARCAL). Since recently, the Kuujjuarapik airport also offers an omnidirectional approach lighting system (ODALS) and *precision approach* path indicators (PAPI). As for the Kuujjuaq airport, one of its runways has a high intensity lighting system and high intensity approach lights. A PAPI is available on one of the paved runway tresholds, and a VASIS is present on one of the graveled runway tresholds. Finally, the Puvirnituq airport has a PAPI system on one of the runway thresholds to facilitate night approaches. It is important to note that the installation of PAPI on 3,500 feet long runways reduces significantly the length of runway available for landing, regarding the operational requirements of airplanes. It is therefore not always profitable to add such equipments on 3,500 feet runways.

The four Hydro-Québec airports also have technical similarities, providing pilots with lighted gravel runways 5,000 feet long by 150 feet wide. They also have visual approach

5 Considering that airplane performances at take-off and landing are calculated in feet, runway parameters are also always expressed in feet.

slope indicators of the VASIS or PAPI type. These airports are privately owned and are accessible upon authorization only.

The technical profile of the other airports in the territory shows more variety and often depends on the date of construction, their owner and their vocation.

Thus, the Matagami and Chibougamau airports are owned by Transports Québec and respectively have paved runways 5,000 by 100 feet and 6,500 by 150 feet. Both have a medium intensity lighting system, low intensity approach lights, visual approach slope indicators of the PAPI type and an ARCAL system. The airport of Chibougamau owns an ODALS on treshold 05.

The La Grande Rivière airport has a paved and lighted runway 6,500 feet long by 150 feet wide. A PAPI system is available at both runway thresholds. The Lebel-sur-Quévillon runway is paved and 3,700 feet long by 100 feet wide, with low-intensity lighting and an ARCAL system. Finally, the airports of Schefferville and Kattiniq respectively have a paved runway 5,500 feet long by 150 feet wide and a gravel strip 6,100 feet long by 140 feet wide. The lighting system is of medium intensity at the Schefferville airport and low intensity at Kattiniq. Both airports have visual approach slope indicators of the PAPI type. In addition to the runways, all these airports have lighted taxiways and *aprons* of a sufficient size for their needs. In Kuujjuaq an extension to the apron will be financed by Transport Canada.

Airport Equipment

In addition to runways, taxiways and *aprons*, the operation of an airport also requires reception and service buildings, as well as maintenance equipment. All this material is proportional to the airport's traffic level and the size of the *movement areas*. In all the Nord-du-Québec airports, there are passenger terminals, whether they be rudimentary buildings like a prefabricated unit in Matagami and a trailer in Chisasibi, or a luxurious terminal building like the one at the La Grande Rivière airport. All the terminals of the Cree villages and most of the Nunavik are identical, comprising a room for the CARS, an airline counter and a waiting area. However, the Kuujjuaq terminal is larger and a rebuilding project, financed by Transport Canada, will be carried out in 2005-2006. Transports Québec will build a new terminal in Kuujjuarapik in 2005-2006.

As will be shown in Chapter 2, air transport of cargo, particularly of perishable goods, is essential for the Inuit villages as they have no road link to the south. Despite this fact, except for the La Grande Rivière airport at the head of the cargo distribution network and the Kuujjuaq and the Kuujjuarapik airports, all the others have no storage or distribution warehouse. The air carriers have, for every airport, a small storage room for parcels adjacent to the airport counter.

Summer and winter maintenance requires specialized equipment and service buildings for their maintenance and storage. All the airports of the region, except for Chisasibi and Lebel-sur-Quévillon, have on site a service building, a garage or a shelter for service and maintenance vehicles. These buildings are essential because of severe weather

and heavy snowfalls. For the airports' summer and winter maintenance, specialized motor equipment is available on site including service trucks, plow trucks, independent or loader-mounted snowblowers, loaders, and either graders for gravel strips or sweepers for paved runways.

Airports must be operated in a safe manner. Perimeter fences are important in this respect as they prevent non authorized people and animals from entering the *movement areas*. In Nunavik (except for the Kuujjuaq airport) and at the Cree villages airports, fences had first been put up around the terminal building and garage only. It had not been evaluated that caribou herds in their annual migrations or individuals would foray on runways to such an extent that perimeter fences would be required. They were not included in the Canada-Québec Agreement relative to the construction of these airports. However, the situation evolved over the years, threatening the safe operation of the airports. The MTQ (Ministère des Transports du Québec) therefore started, a few years back, to install perimeter fences at its airports. The only villages where such fences have not been installed are Kangirsuk, Kangiqsujuaq and Quaqtaq. The Ministère is evaluating the relevance of providing these airports with such equipments.

The fight against aircraft fires at the airports is governed by two sets of regulations, those of Subparts 3 and 8 of Part III of the *Canadian Aviation Regulations* (CARs). Subpart 3, titled "Aircraft Rescue and Fire Fighting at Airports and Aerodromes", has been effective for several years and refers only to the most important airports in Canada. There are currently 28 airports, specifically identified in the regulations, that are required to provide protection services. No airport in Nord-du-Québec is on the list.

Subpart 8, titled "Aircraft Emergency Intervention at Airports" has been effective since June 10, 2002 and refers to less important airports compared to those subject to Subpart 3. The former applies to airports accommodating aircrafts of 20 or more passengers and for which monthly statistics show a total 2,800 or more annual movements for scheduled flights. In Nord-du-Québec, no airport achieves this traffic volume and, as a result, none is required to provide the protection described in Subpart 8 regulations, wich is as follow:

- an officer must be at the airport during the service hours established under section 308.05;
- the extinguishing agents and equipment prescribed in section 308.12 are serviceable and readily available;
- an officer is able to achieve a response time of five minutes from the time the alarm is sounded to the time he/she reaches the midpoint of the farthest runway;
- the airport must have a communication and alerting system that meets the requirements of section 308.14.

The airports closest to this volume are Kuujjuaq and Kuujjuarapik with respectively 2,100 and 1,650 movements of scheduled flights approximately[6]. If eventually these two

6 Boulay Louis, (2002), Personal communication, Kativik Regional Government.

airports respectively exceeded 2,800 annual movements and became required to provide the services defined in the CARs 308, then solutions will need to be considered to compensate for the fact that it would not be presently possible to meet the 5-minute response time required by the CARs. Let us mention that the airports receiving planes with 20 or more passengers are required to compile monthly statistics of their movements according to Section 308.03 of the CARs.

Moreover, under Section 302.08 (4) c) (viii) of the CARs and Section 9.1 of the TP-312 titled "Aerodrome Emergency Plan", certified airports must detail the emergency measures in a manual, to wich refers the operations manual. Several airports that owned specialized aircraft fire fighting vehicles before the CARs 308 were published, continue to provide a certain fire protection service without being in the obligation to do so. Thus, the municipalities of Kuujjuaq and Kuujjuarapik and the various Nunavik municipalities offer fire protection service at the airports with the available fire fighting vehicles, that often include the specialized foam/powder equipment to fight aircraft fires[7]. Agreements with the municipalities of Matagami and Chibougamau make fire protection services available at their airports with the specialized aircraft fire fighting equipment that formerly belonged to the airports before they were transferred to the said municipalities[8]. The latter keep the fire trucks and extinguishers in good running condition[9]. Finally, the airports of La Grande Rivière and Hydro-Québec (LG-3, LG-4, Fontanges, Nemiscau) offer specialized aircraft fire fighting services although no regulations oblige them to do so[10].

With respect to air transport, it is essential that fuel be available. Map 3 shows the fuel supply network in Nord-du-Québec. Supply points are well organized in the region, but fuel prices are high due to supply distances. Thus, the Nunavik airports get their fuel supply by ship from Montréal while the Cree airports receive it by truck.

7 Boulay Louis, (2002), Personal communication, Kativik Regional Government.
8 Boulanger Serge, (2002), Personal communication Chibougamau airports.
9 Ibid., May 2003.
10 Grenier Marc, (2002), Personal communication, Hydro-Québec.

IVUJIVIK
100 LL (D) ltd
Jet-A
PNR

SALLUIT
100 LL (D) ltd
Jet-A
PNR

KANGIQSUJUAQ (WAKEHAM BAY)
100LL (D) ltd
Jet-A
PNR

AKULIVIK

QUAQTAQ

KATTINIQ/DONALDSON

PUVIRNITUQ
100 LL (D)
Jet-A
Jet-B (B)

KANGIRSUK
100 LL (D) ltd
Jet-A
PNR

INUKJUAK
100 LL (D) ltd
Jet-A
PNR

AUPALUK

KUUJJUAQ
100 LL
Jet-A
Jet-B (D)

KANGIQSUALUJJUAQ (GEORGES RIVER)
Jet-B (D) ltd
PNR

TASIUJAQ

UMIUJAQ

KUUJJUARAPIK
100 LL (D)
Jet-A
PNR

FONTANGES
Jet-B
PNR

LA GRANDE RIVIÈRE
100 LL
Jet-B

CHISASIBI

SCHEFFERVILLE
100 LL
Jet-B
Jet-B(D)
PNR

WEMINDJI

LA GRANDE-3
Jet-B
PNR

LA GRANDE-4
Jet-B
PNR

EASTMAIN RIVER

NEMISCAU
Jet-B
PNR

WASKAGANISH

CHIBOUGAMAU
100 LL
Jet-B

MATAGAMI
100 LL
Jet-B

LEBEL-SUR-QUÉVILLON
100 LL

Détroit d'Hudson
Terre de Baffin
Île Mansel
62°N
Puvirnituq
Rivière
Lac Nantais
Île Akpatok
Lac Couture
Lac Payne
Baie d'Ungava
Mer du Labrador
Baie d'Hudson
Rivière aux Feuilles
Rivière Koksoak
Rivière à la Baleine
George
Tracé de 1927 du Conseil privé (non définitif)
Lac Minto
Îles Belcher
Lac des Loups Marins
Lac Guillaume-Delisle
Lac à l'Eau Claire
Nunavik
Petite rivière de la Baleine
NORD-DU-QUÉBEC
Caniapiscau
55°N
Grande rivière de la Baleine
Lac Bienville
Réservoirs Laforge
Baie-James
Réservoir Caniapiscau
Réservoir Smallwood
La Grande Rivière
Réservoir LG-2
Réservoir LG-3
Réservoir LG-4
Île Akimiski
Lac Sakami
Rivière Sakami
CÔTE-NORD
Baie James
Rivière Eastmain
Réservoir Opinaca
Eastmain
Réservoir Manicouagan
Rivière Rupert
Rivière Broadback
Rivière Nottaway
Lac Mistassini
Ontario
Québec
SAGUENAY-LAC-SAINT-JEAN
49°N
ABITIBI-TÉMISCAMINGUE
MAURICIE
GASPÉSIE-ÎLES-DE-LA-MADELEINE
BAS-SAINT-LAURENT

N
O
E
S

Map 3: Types of Fuel Available in Nord-du-Québec

Transports Québec

Coordination du Nord-du-Québec

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Sources:
- Ministère des Transports du Québec
- Canada Flight Supplement, 2005

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1: 250,000 and 1: 8,000,000

October 2005

Airport
Financial responsability

- Ministère des Transports
- Transport Canada
- Hydro-Québec
- Cree council / Municipality
- Other

Administrative limit

- Municipalité de Baie-James
- South limit Nord-du-Québec region
- Other Québec regions

Type of fuel

100 LL - Aviation gasoline
Jet-A - Turbine fuel, kerosene type
Jet-B - Turbine fuel, wide cut
(D) - Fuel available from drum only
ltd - Limited quantities
PNR - Prior Notice Required

In James Bay, the Cree airports do not have any fuel distribution facilities, the reason being that fuel is available in the proximity (Matagami and La Grande Rivière). Only aviation fuel (for piston-engine aircrafts) is available at Lebel-sur-Quévillon, but jet fuel (for turboprop aircrafts and turbojets) is available nearby in Chibougamau. Aviation fuel and jet fuel are also available at the Schefferville airport while only jet fuel is available at Hydro-Québec's private airports, but a prior notice is required for purchase.

In Nunavik, the situation is more complex and varied. A majority of airports offer JET-A or JET-B fuel to the air carriers through the Fédération des coopératives du Nouveau-Québec (FCNQ) and Shell company. When 100LL aviation fuel is available, it is sold in drums, except at the Kuujjuaq airport where it is sold at the pump. The reason is that air transport in Nunavik is mostly commercial and that air carriers mostly use turbine-engine propelled aircrafts. Air carriers and private owners using piston-engine aircrafts being rather rare in Nunavik, the expected sales volume does not seem to justify the construction of tanks and dispensing stations for aviation fuel.

The Canada Flight Supplement does not mention that de-icing or anti-ice fluid is available in the region's airports. However, the main regular air carriers keep, at the airports they serve, the necessary equipment and required quantities of these fluids. Carriers making chartered flights with small aircrafts have these fluids aboard.

1.3.6 Airport Maintenance

An airport *operator* can use various formulas for the summer and winter maintenance of his airport, winter maintenance being by far the most critical, particularly in Nord-du-Québec where the weather is a serious operational constraint.

In Appendix 1, the data sheet indicates the organization responsible for maintenance, the maintenance frequency as well as the equipment used in certain cases. In James Bay, summer and winter maintenance is done on force account by the employees of the Lebel-sur-Quévillon municipality, by the MTQ employees for the Matagami and Chibougamau airports, and by the employees of the respective Cree councils for the airports of the Cree villages. The same is true for the four Hydro-Québec airports while a private contractor takes care of snow removal at the La Grande Rivière airport.

In Nunavik, KRG operates the airports for Transports Québec (13 airports) and for Transport Canada (Kuujjuaq). But maintenance is done by the local municipalities following an agreement with KRG. The gravel airstrips require sporadic and local corrections as well as periodical reshaping to ensure they keep a proper longitudinal and transversal profile. To compensate for the loss of fine material, it is also required to resurface the runways using the stone chipping reserves placed in the vicinity of each airport. To perform these various tasks, loaders are available at each airport and/or graders are left permanently at the Kuujjuaq, Puvirnituq and Kuujjuarapik airports. For the maintenance of the other airports, two graders are transported by ship from one site to the other.

During the year, machinery operators are also required to do the regular maintenance and snow removal of the *movement areas* with the specialized equipment on site. Moreover, the employees of the Société aéroportuaire de Schefferville and the Société minière Raglan du Québec are responsible for the summer and winter maintenance of the Schefferville and Raglan (Kattiniq) airports respectively.

The Cree and Nunavik airports have a lighting system that needs regular maintenance and also more thorough technical verifications to evaluate the overall condition of the system and its component wear. For the regular maintenace, the employees on site make sure that the system works and that the broken components, such as light bulbs, are replaced. More important problems are reported to specialists. As for the more thorough technical verifications, aiming prevention maintenance, it is done every three years at Transport Canada airports. It also has been done in 2003 at the MTQ airports, but it would seem as if the latter task had not been performed for several years.

1.3.7 Navigational Aids and Services to Pilots

Modern aviation, with increasingly performing aircrafts and the general growth of air traffic, requires enroute and approach navigational aids, air traffic services and aviation advisory services. This is also true of Nord-du-Québec where the weather is an almost permanent constraint and distances between airports are considerable.

Helicopters, seaplanes and private airplanes usually follow visual flight rules (VFR), according to which pilots must always have a visual reference with the ground, day and night. Commercial multi-engine airplanes generally follow instrument flight rules (IFR). Instrument flight refers to a flight operation and management method whereby a set of specific procedures allow, among other things, to fly from point A to point B in and over the clouds and to perform *instrument approaches* to runways for which there are approach maps normally based on ground navigational aids close to the runways. Instrument flight increases flight safety and reliability. Since a few years now, GPS (Global Positioning System) *instrument approaches* are available, as it is the case for all airports in the region. Approved GPS receivers aboard allow enroute navigation and *instrument approaches* to the airports. For the moment though, GPS can only ensure non-precision approaches. But in a few years, the technology will improve and precision approaches will be possible based on ground stations.

The traditional instrument flight method (i.e. without GPS) requires ground radio transmitters. Enroute navigation is done with the assistance of high-frequency omnidirectional radio ranges (VOR), coupled or not with distance measuring equipment (VOR/DME, VORTAC) to obtain the following parameters: azimuth, distance, ground speed and flight duration. Medium and low frequency non-directional beacons (NDB) can also be used for enroute navigation and coupled with distance measuring equipment (NDB/DME). VORs and NDBs can be used in non-precision landing approaches where the pilot only receives azimuth information. The ILS *instrument approach* system allows for precision landing approaches based on the azimuth and glide-slope information it provides. Finally, the LOC-type lateral localizer (the first

component of ILS) permits *non-precision approaches* with minima lower than with VORs and NDBs.

Map 4 locates the navigation and approach aids described above. VORs/DMEs are only found near the La Grande Rivière, Kuujjuaq, Schefferville and Kattiniq airports. Note that the first three belong to NAV Canada and the fourth one to Raglan Mine. There are only a few of these localizers in the region because of their high acquisition costs. On the other hand, all the Nord-du-Québec airports, except for the Chisasibi airport, are equipped with NDB for enroute navigation and approaches. The relatively low acquisition costs of these aids and their relative precision before the advent of GPS technology, explains why so many of these localizers are found in the region.

Transports Québec

Coordination du Nord-du-Québec

Map 4: Enroute and Approch Navigational Aids in Nord-du-Québec

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Sources:
- Ministère des Transports du Québec
- Canada Flight Supplement, 2005

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1: 250,000 and 1: 8,000,000

October 2005

Airport
Financial responsability

- Ministère des Transports
- Transport Canada
- Hydro-Québec
- Cree council / Municipality
- Other

Administrative limit

- Municipalité de Baie-James
- South limit Nord-du-Québec region
- Other Québec regions

Navigational Aids

DME - Distance Mesuring Equipment
ILS - Instrument Landing System
NDB - Non-Directional Beacon
VOR - VHF Omnidirectional Range
LOC - Localizer for Non-Precision Approach Procedure

Only one airport in Nord-du-Québec, Kuujjuaq, is equipped with an ILS system that can allow precision landings down to a minimum of 200 feet/ground (AGL). Until recently, the Hydro-Québec airports were each equipped with a localizer system (LOC), the azimuth component of the ILS system that usually permits landings with minima lower than with VOR and NDB systems. But the LOC were removed, GPS now being preferred.

NAV Canada, a non-share capital, private corporation incepted in 1996, is the exclusive provider of Canada's civil air navigation services (ANS). NAV Canada's revenues come almost exclusively from service loyalties paid by users, that is, air carriers and private aircraft owners. A*irport operators* do not contribute to NAV Canada's financing.

NAV Canada does not operate any *control tower* in the region, but the Montreal Area Control Centre (ACC) controls the high level airspace (18,000 feet and above); the low level airspace is not controlled, except for the terminal area of the La Grande Rivière airport. The Centre d'information de vol de Québec (Québec City Flight Service Station) coordinates all Québec flight service stations (FSS), including the La Grande Rivière, Kuujjuarapik and Kuujjuaq FSS located in the region and the Rouyn-Noranda, Val-d'Or and Roberval FSS located just outside the region. FSS provide pilots with weather reports and radio communications services, they manage the flight plan system and control ground vehicles at the airports where they are set up.

FSS also provide technical support to the Community Aerodromes Radio Stations (CARS). Through these radio stations, aviation support services are made available to certain isolated airports in the Northwest Territories, Nunavut and Nord-du-Québec. Services are provided by trained observers and communicators. In addition to providing services to pilots, observers keep meteorological records for Environment Canada.

In Nunavik, observer and communicator services (CARS) are available for all airports (except for Kuujjuaq and Kuujjuarapik wich have FSS). Monday through Friday from 8 a.m. to 5 p.m. But in some places, there are times when the services are not available for lack of personnel. Also, because Air Inuit operations or aeromedical evacuations sometimes take place outside the CARS schedule and because CARS are not always available on call, it happens that landings are made without the minimal information required by regulation. Then, these operations can be qualified as marginally safe. In 1999, Air Inuit initiated steps to correct the situation which as been done partly by an increased disponibility of the CARS after hours. A possible solution would be to install automated weather observation systems (AWOS or LWIS) at the airports of Puvirnituq, Salluit and Quaqtaq as it was done in Inukjuak. This airport now has an AWOS station, which means that pilots now have access via the radio and outside the CARS schedule, to the most current and important meteorological parameters such as altimeter setting, wind direction and speed, ceiling, temperature and dew point.

In Nunavik, CARS are totally financed by Transports Québec while NAV Canada pays for the CARS' capital and operating costs in James Bay and elsewhere in Canada. This situation results from the agreement signed between the federal government and the provincial government in 1983 relative to the construction of the northern airports. The context has evolved significantly since then, including the inception of NAV Canada in

1996. It would be relevant that a new agreement be negotiated between the two levels of government with a view to transferring the costs of the CARS in Nunavik to NAV Canada or Transport Canada.

In James Bay, CARS services are available at the airports of the Cree villages, except for Chisasibi where the traffic is managed by an aerodrom traffic frequency (AFT), under the full responsibility of the pilots taking-off from and flying to this airport. Although the Matagami and Chibougamau airports offer a unicom radio service, the Rouyn-Noranda and Québec City FSS provide a radio advisory service for these two infrastructures via remote communication outlets (DRCO and RCO). Such a service is available at the Schefferville airport also via the Québec City station (FIC). NAV Canada has recently centralized at the Québec City station all the enroute radio communications made on frequency 126,7 which were formerly taken care of by each FSS. The latter are now only responsible for the airport advisory service within a 5-nautical mile radius of their airports. The local air traffic at the Kattiniq and Lebel-sur-Quévillon airports is managed by an aerodrome traffic frequency (ATF).

The navigation and approach aid system seems to meet pilots' needs in general. NAV Canada makes constant improvements to the equipment, but it must be admitted that the advent of GPS is a radical shift from the former technology. The NDB navigational aids will probably not be replaced at the end of their service life. The introduction by NAV Canada of new radars would make a *controlled airspace* possible in the low level airspace (below 18,000 feet), which would increase air safety in Nord-du-Québec.

1.3.8 Qualitative Evaluation of the Airports and Equipment

As previously mentioned, most of the airports of the Nord-du-Québec network were built around 1975 for the Hydro-Québec airports and since 1980 for the Nunavik and Cree villages airports. From a planning perspective, it is important to assess the present condition of the infrastructures and equipment. This was done, through a consultation with the person in charge of the operations and maintenance at the Kativik Regional Government, the person in charge of airport operations at Transport Canada and the person responsible for maintenance at NAV Canada for the Nunavik airports. The same consultation was done for the other airports with the person responsible for maintenance at the Ministère des Transports du Québec, Transport Canada, Hydro-Québec, the town of Lebel-sur-Quévillon, the La Grande Rivière airport director and the Cree Council of Chisasibi representative.

Table 2 presents an evaluation of the condition of the network's airport facilities and equipment in 2001.

TABLE 2
TECHNICAL PARAMETERS AND CONDITION OF AIRPORT INFRASTRUCTURES AND EQUIPMENT IN NORD-DU-QUÉBEC IN 2001

CONDITION OF FACILITIES AND EQUIPMENT
E = Excellent, G = Good, B = Bad

Airports	Movement Areas	Lighting	Navigational Aids	Buildings	Equipment
Akulivik	Runway 09-27 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Aupaluk	Runway 05-23 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Chibougamau	Runway 05-23 G Taxiway G Apron G	Runway lights G PAPI G RILS G ARCAL G ODALS B	NDB G DME G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G Grader G Sweeper G
Chisasibi	Runway 14-32 E Taxiway E Apron E	Runway lights E PAPI E RILS E ARCAL E		Terminal G	Truck G Snowplow E Snowblower E Loader E Grader E Compactor E Mobile tank E
Eastmain River	Runway 02-20 B Taxiway B Apron B	Runway lights B ARCAL G RILS B	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G Grader G
Fontanges	Runway 10-28 G Taxiway G Apron G	Runway lights G RILS G PAPI E	NDB G	Terminal G Barrack G	Fire truck G
Inukjuak	Runway 07-25 G Taxiway G Aprons G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Ivujivik	Runway 08-26 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Kangiqsualujjuaq	Runway 16-34 G Taxiway G Apron G	Runway lights G RILS B ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G

Continued

Airports	Movement Areas	Lighting	Navigational Aids	Buildings	Equipment
Kangiqsujuaq	Runway 15-33 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Kangirsuk	Runway 04-22 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Kattiniq	Runway 12-30	Runway lights Approach lights RILS PAPI	NDB VOR/DME		
Kuujjuaq	Runway 07-25 E Runway 13-31 E Taxiway A E	Runway lights 07 E Runway lights 13 E RILS E VASIS G PAPI E Approch lights E	NDB G VOR/DME G VOT G	Terminal G Garage B Barrack G	Snowplow P-82 G Snowplow P-81 G Snowblower P-142 G
	Taxiway B E Apron G		ILS G LOC/DME G		Snowblower P-143 G Loader P-152 G Grader G Sweeper S-32 G Sweeper 324 D G Compactor G
Kuujjuarapik	Runway 04-22 B Taxiway A B Apron B	Runway lights E PAPI E ODALS E RILS E	NDB G	Terminal B Garage B	Truck G Snowplow G Snowplow G Snowblower G Snowblower G Loader G Grader G Compactor G
La Grande Rivière	Runway 13-31 E Taxiway A E Taxiway B E Apron E	Runway lights E PAPI E RILS E	NDB G VOR/DME G	Terminal E Service building E Barrack E	Grader E Snowblower E Snowplow E Snowplow G Loader B Sweeper E Sweeper E Fire/Truck G
LG-3	Runway 11-29 G Taxiway G Apron G	Runway lights G VASIS G	NDB G	Service building G Barrack G	Fire/Truck G
LG-4	Runway 09-27 G Taxiway G Apron G	Runway lights G VASIS G	NDB G	Service building G Barrack G	Fire/Truck G

Continued

Airports	Movement Areas	Lighting	Navigational Aids	Buildings	Equipment
Lebel-sur-Quévillon	Runway 15-33 G Taxiway G Apron G	Runway lights G ARCAL G	NDB G	Terminal G	Town equipment
Matagami	Runway 15-33 G Taxiway G Apron G	Runway lights G PAPI G ARCAL G RILS G ODALS G	NDB G	Terminal E Garage E	Truck G Snowplow G Snowplow G Snowblower G Loader G Sweeper G Grader G Spreader/Truck G
Némiscau	Runway 09-27 G Taxiway G Apron G	Runway lights G RILS G VASIS G	NDB G	Service building G Barrack G	Fire/Truck G Under contract
Puvirnituq	Runway 01-19 G Taxiway G Apron G	Runway lights G RILS G PAPI G ARCAL G	NDB G DME G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G Grader G Compactor G
Quaqtaq	Runway 01-19 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Salluit	Runway 04-22 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Schefferville	Runway 18-36 E Taxiway E Apron E	Runway lights E RILS E PAPI E ARCAL E	NDB G VOR/DME G	Terminal building/ G Garage G	Truck E Snowplow E Snowblower E Loader G Grader G Sweeper G
Tasiujaq	Runway 06-24 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G
Umiujaq	Runway 03-21 G Taxiway G Apron G	Runway lights G RILS G ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G

Continued

Airports	Movement Areas	Lighting	Navigational Aids	Buildings	Equipment
Waskaganish	Runway 06-24 B Taxiway B Apron B	Runway lights B RILS B ARCAL G	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G Grader G Spreader roller G
Wemindji	Runway 10-28 E Taxiway E Apron E	Runway lights E RILS E ARCAL E	NDB G	Terminal G Garage G	Truck G Snowplow G Snowblower G Loader G Grader G Spreader roller G

Sources: Airport owners and operators, November 2001:
KRG: Louis Boulet, Serge Paillé
Cree Council of Chisasibi: John Lameboy
Hydro-Québec: René Collin
Ministère des Transports du Québec, Raymond Jacques
NAV Canada: Robert Vincent
SDBJ: Jean-Yves Létourneau
Société aéroportuaire de Schefferville: Yvon Blain
Société minière Raglan du Québec ltée: Serge Côté
Transport Canada: Daniel Bleau, Yvon Levreault
Ville de Lebel-sur-Quévillon: Jacques Trudel

The data in this table reveal that the airport network's infrastructures and equipment generally are in good condition. The most striking deteriorations are:

The gravel surfaces of the *movement areas*, that is the airstrip, taxiway and *apron*, of the Eastmain River airport built in 1986, that are classified as poor in the condition report of Transport Canada. The structure of the airstrip shows important subsidence. As well, the lighting system of the *movement areas* has reached the end of its service life. Transport Canada started rebuilding the *movement areas* and lighting system in the fall 2001 and completed these works in the summer 2002.

The existing garage at the Kuujjuaq airport was built at the beginning of the 50's. Its structure is in bad condition. The building does not meet fire protection standards and requires major renovations. A major rebuilding project of the airport is presently under development at Transport Canada, whereby a new terminal will be built and the apron and parking area will be extended.

A report on the condition of the *movement areas* at the Kuujjuarapik airport indicates that the gravel surfaces are in bad condition and that major reworking works must be undertaken as soon as practicable. The Ministère des Transports du Québec has performed at the corrective works in 2003-2004, the costs of which have been paid through the Airports Capital Assistance Program (ACAP) of Transport Canada. The terminal building and the garage are also in bad condition and the Ministère is planning the construction of a new terminal and a garage for maintenance vehicles.

At the La Grande Rivière airport, the wheel loader has reached the end of its service life. A demand for financial assistance has been submitted through ACAP for its replacement, and was accepted in 2003.

A report from Transport Canada on the condition of the *movement areas* of the Waskaganish airport, built in 1987, indicates that the gravel surfaces showed signs of degradation and that resurfacing was necessary. Also, the lighting system had reached the end of its service life. The necessary work has been completed in 2003.

1.4 Heliports and Water Aerodromes in Nord-du-Québec

1.4.1 Operational Context

Helicopters and seaplanes fly almost exclusively according to visual flight rules (VFR) and use many temporary and rudimentary sites in the region for their daily operations. However, their operating bases usually have more permanent facilities and can include permanent maintenance garages and supply points.

For many years helicopters have assumed the role traditionally played by seaplanes in the past in the exploration and development of forest, mining and hydroelectric resources. This change in vocation can be explained by the greater operational flexibility of this aircraft compared to the seaplane. But the seaplane is still part of the picture with a particular commercial niche, that is the transport of trappers to their traplines and hunters and fishermen to the outfitters scattered in the region. The seaplane can move these people quickly and at reasonable costs. It is also important to stress that several seaplane owners have made their air operations part of their outfitting businesses and vice-versa. This analysis of the heliports and water aerodromes covers only the permanent heliports and water aerodromes.

1.4.2 Heliports

Map 5 locates, in the region and its surroundings, the heliports recorded in the Canada Flight Supplement while Table 3 presents their main characteristics.

TABLE 3
HELIPORTS IN NORD-DU-QUÉBEC (2005)

HELIPORTS	CODE	OWNER/OPERATOR	STATUS
Chibougamau	CSB4	Canadian Helicopters Ltd.	Certified
Chibougamau (Hydro-Québec)	CSE2	Hydro-Québec	Registered
Fermont	CSD5	Héli Fermont enr.	Registered
Poste Lemoyne (LG-3)	CSY6	Hydro-Québec	Registered

Source: Canada Flight Supplement, Natural Resources Canada, effective until July 2005

Transports Québec

Coordination du Nord-du-Québec

Map 5: Location of Registered Heliports in Nord-du-Québec

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Source:
- Ministère des Transports du Québec
- Canada Flight Supplement, 2005

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1: 250,000 and 1: 8,000,000

October 2005

Airport
Financial responsability

- Ministère des Transports
- Transport Canada
- Hydro-Québec
- Cree council / Municipality
- Other

Heliport

Name of heliport
Location indicator
Owner
PPR - Prior Permission Required

Administrative limit

- Municipalité de Baie-James
- South limit Nord-du-Québec region
- Other Québec regions
- City, village or town

POSTE LEMOYNE (Complexe LG-3)
CSY6
HYDRO-QUÉBEC
PPR

FERMONT
CSD5
HÉLI FERMONT ENR.
PPR

CHIBOUGAMAU (Hydro-Québec)
CSE2
HYDRO-QUÉBEC
PPR

CHIBOUGAMAU
CSB4
LES HÉLICOPTÈRES CANADIENS LTD
PPR
Certifed

A quick look at the map and table tells us that three of the heliports are located in James Bay and one in Fermont, south of Schefferville. This particularity does not mean that helicopters do not operate more to the north; it only gives the location of the permanent heliports. Of course, helicopters and the companies operating these aircrafts can use the airports located in the territory. But the location of the heliports indicates the primary role of helicopters in the region, that is, the inspection of Hydro-Québec power lines and other needs the company has, as well as mining exploration and forest monitoring.

As well, the table shows that the owners of heliports also are their operators. These heliports are privately owned and prior authorization is required to use them. Three of the four indexed heliports have a registered heliport status, meaning that they are built outside an urban area. A registered heliport is not bound by Transport Canada construction standards.

Table 4 presents certain operational characteristics of the indexed heliports like the size of the take-off areas and the arrival and departure sectors, as well as the availability of fuel. Since these heliports are private, fuel supply is subject to owner's prior consent.

TABLE 4
TECHNICAL PARAMETERS OF THE HELIPORTS IN NORD-DU-QUÉBEC (2005)

Heliports	Decks	Fuel	Restrictions
Chibougamau	200 X 305 feet	Jet-B	Arrivals and departures between 135 and 270 degrees
Chibougamau (Hydro-Québec)	100 X 100 feet	Jet-B	None
Fermont	85 X 85 feet	Jet-B	None
Poste Lemoyne (LG-3)	115 X 115 feet		None

Source: Canada Flight Supplement, Natural Resources Canada, effective until July 2005

1.4.3 Water Aerodromes

Map 6 locates the water aerodromes indexed in the Canada Water Aerodrome Supplement while Tables 5 and 6 identify the owners of these infrastructures and give certain characteristics. As is the case for heliports, there are just a few water aerodromes in the region. Three are located in southern James Bay, two in Nunavik and two in the Schefferville area. Water aerodromes are owned by air carriers, and as for the heliports, prior authorization is required to use the boarding docks and supply facilities.

Transports Québec

Coordination du Nord-du-Québec

Map 6: Location of Registered Water Aerodromes in Nord-du-Québec

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Source:
- Ministère des Transports du Québec
- Canada Water Aerodrome Supplement, 2005

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1: 250,000 and 1: 8,000,000

October 2005

Airport
Financial responsability

- Ministère des Transports
- Transport Canada
- Hydro-Québec
- Cree council / Municipality
- Other

Water Aerodrome

Name of Water Aerodrome
Location indicator
Owner

Administrative limit

- Municipalité de Baie-James
- South limit Nord-du-Québec region
- Other Québec regions
- City, village or town

There are a hundred outfitters in Nord-du-Québec, of which approximaltly 28 are accessible only by plane[11]. Although many James Bay outfitters are accessible by road, the long distances from urban centres make air transport necessary.

The availability of 100LL aviation fuel at the water aerodromes can be explained by the fact that most air carriers with seaplanes use C-206, Beaver and Otter airplanes propelled by internal combustion engines. A few carriers can use the new turboprop aircrafts requiring jet fuel, but the high acquisition cost limits the ambitions of the carriers in this respect.

TABLE 5
REGISTERED WATER AERODROMES IN NORD-DU-QUÉBEC (2005)

Water Aerodromes	Code	Owners/Operators	Status
Lac Pau (Caniapiscau)	CTP4	Air Saguenay (1980) inc.	Registered
Matagami	CSW8	North American Bushman	Registered
Mistissini	CSE6	Waasheshkun Airways Ltée	Registered
Schefferville/Squaw Lake	CSZ9	Air Saguenay (1980) inc.	Registered

Source: Canada Water Aerodrom Supplement, Natural Resources Canada, effective until March 16, 2006.

It is important to note that there are non registered water aerodromes in the region and that they could be registered again in the years to come.

TABLE 6
A FEW PARAMETERS OF THE WATER AERODROMES IN NORD-DU-QUÉBEC (2005)

Water Aerodromes	Docks	Fuel
Lac Pau (Caniapiscau)	Yes	100LL PNR
Matagami	Yes	100LL
Mistissini	Yes	100LL limited PNR
Schefferville/Squaw Lake	Yes	100LL

Source: Canada Water Aerodrom Supplement, Natural Resources Canada, effective until March 16, 2006.

1.5 Environmental Hazards

One of the main causes of pollution in the airports, heliports and water aerodromes is certainly fuel spillage when fuelling aircrafts. Several permanent and temporary water aerodromes and heliports, and a few airports have only rudimentary systems, fuelling directly from the drums. But in most cases, handling errors causing fuel spillage at these sites and at modern fuelling facilities, are rare and of small quantity.

11 Tremblay Carmelle, (2003), Personnal Communication, Federation of Québec Outfitters.

Airports have at their disposal absorbent material, but do not necessarily have an environmental emergency plan for efficient intervention if an accidental fuel or chemicals spillage were to occur. Nonetheless, mesures are foreseen in the Emergency measures plan under elaboration at each airport. As most *movement areas* of Nord-du-Québec airports are in gravel, any spillage must be dealt with as quickly as possible to prevent soil contamination and water table.

The glycol used to de-ice the aircrafts is also a potential pollutant of runoff water, it must then be used with precaution and preferably recovered. Air Inuit and First Air use de-icers at the La Grande Rivière, Kuujjuaq, Kuujjuarapik, Puvirnituq and Salluit airports [12]. Air Creebec has de-icing equipment at all the airports it accommodates[13] and it is the same for Hydro-Québec airports[14]. It is worth mentioning that de-icers are used during a relatively short period of time and that only small quantities are sprayed on the aircrafts. However, glycol cannot be recovered from gravel *aprons*. As most facilities are in gravel, there is no known solution to this problem for now other than using the product moderately.

With regard to using urea as a de-icer on the paved *movement areas*, this substance causes the formation of nitrate in the surrounding soils, which can contaminate groundwater. Potassium formate, a solid de-icer approved by Transport Canada, is now a good substitute to urea although its price is much higher. This product contains no nitrogen nor phosphate, and requires 50% less spraying than urea for comparable results and would be effective down to a temperature of –18°C compared to –7°C for urea, according to the manufacturer[15]. In the region, only the Kuujjuaq airport uses potassium formate exclusively. Chibougamau airport uses both options, but urea is used at the Matagami, Lebel-sur-Quévillon and La Grande Rivière airports.

In summer, aircraft movements on gravel runways create dust clouds causing problems to the surrounding villages. Transport Canada is presently looking into potential dust control liquids that could be approved for use on the airports' *movement areas*.

Finally, private pilots lacking information can occasionally land on water bodies that are the drinking water supply of Nunavik villages. An accidental fuel spill could make drinking water supply difficult for these communities during the contamination period. However, the risk of occurrence of such an incident is small.

1.6 Subsidies to Airport Capital Assets

In 1995, Transport Canada, through its National Airports Policy, initiated an Airports Capital Assistance Program (ACAP). This program was created to assist airport *operators* in financing airport infrastructure projects related to air safety. The federal airports eligible to the program are those in the remote airports category and that are

12 Pelletier André, (2002), Personal communication, Air Inuit.
13 Desmarais Pierre-Luc, (2002), Personal communication, Air Creebec.
14 Charron Pierre, (2002), Personal communication, Air Inuit.
15 This information was taken from technical publicity document.

indexed in the federal policy document[16]. In the region, the following airports are part of this category: Kuujjuaq, Waskaganish, Wemindji, Eastmain River. Schefferville is also part of that category.

The airports that are not owned by the federal government must meet certain conditions to be eligible to the assistance program. Thus, airports must be served year round by a regular air carrier, must be certified, and have accommodated through regular air carrier(s) a minimum of 1,000 passengers per year in the three years prior to the application for financial assistance. It should be noted that airports owned by provincial governments are eligible to the program under those criteria; this situation applies to the 15 Nord-du-Québec airports owned by the MTQ.

The financial assistance allocation process sets out four priority levels: the first is for runway-related projects (reworking of runways, taxiways, lighting ...), the second for airstrip maintenance vehicles, the third for buildings and the fourth for access to airport and garages. The financial assistance cannot be used to buy land nor can it be allocated for economic development purposes. Finally, the program requires the applicants' financial contribution. A local financial contribution can vary from 0 to 15% of the project value for those under the first priority while the expected local contribution for those under the fourth priority is 50%.

The ACAP was thoroughly modified in June 2000 following a national consultation with airport *operators*. The authorized annual budget is now $190 M over five years (2000 to 2005). From 1995 to 1999, the assistance program paid over $80 M to *airport operators* for improvement projects, of which 99% were used to improve *movement areas* and lighting and acquire maintenance vehicles[17]. Transport Canada annonced in January 2005, the extension of the ACAP programm until March 2010, with a budget of $190 M.

A priori, the ACAP may seem like an interesting funding avenue to improve and renovate the Nord-du-Québec airports. However, the ACAP schedule is not necessarily adapted to the context of airports that belong to organizations subject to lengthy decision-making processes with regard to budgets, and that are located in regions where particular material and equipment supply problems exist. The ACAP appears to be an administrative burden, especially for organizations like the provinces. Indeed, the usual ACAP schedule, from the application for assistance to the beginning of the work, is one year. Projects are accepted in January-February and they must be carried out through a federal-provincial agreement. Before the signing of the latter, no work nor any purchase can be done.

Considering the budget process of the Gouvernement du Québec and the time required for sea transport to Nunavik, it is often difficult to spend the amounts within the set time

16 The generic information is from Transport Canada's ACAP information brochure.

17 Aerodrome Safety Specialty Course. Airports Capital Assistance Program (ACAP) January 30, 2002. Transport Canada Aviation Learning Services Branch. P. 12, Airports Capital Assistance Program, Transport Canada, June 2000.

frame. It would be desirable that the MTQ and Transport Canada define a particular framework for the application of the ACAP program to Nord-du-Québec projects.

Despite these problems, a few Nord-du-Québec airports benefited from the program in the past. Table 7 below presents the projects funded by ACAP, the year of execution and the amount of the contribution.

TABLE 7
PROJECTS FUNDED THROUGH ACAP

Airports	Types of Project	Year	$ Dollars
Chisasibi	Rebuilding runway, lighting	1997	1,844,700
Chisasibi	Purchasing heavy equipment	1999	710,000
Kangirsuk	Reloading of the airstrip	2003	727,883
Kuujjuarapik	Rebuilding lighting	2001	795,000
Kuujjuarapik	Rebuilding runway	2002-2003	3,531,600
Kuujjuarapik	Fences and gates	2003-2004	480,000
La Grande Rivière	Rebuilding runway, lighting	1997	2,880,100
La Grande Rivière	Purchasing heavy equipment	1999	305,500
La Grande Rivière	Purchasing grader	2000	249,400
Puvirnituq	Reloading of the airstrip	2003-2004	721,000

Source: Transport Canada – 2002, Transports Québec -2004.

2. AIR SERVICES IN NORD-DU-QUÉBEC

Nord-du-Québec is serviced by commercial air carriers operating scheduled air services, chartered flights and cargo carrying services. The Gouvernement du Québec is also involved in the region with the EVAQ service (aeromedical evacuations) operated by the Service aérien gouvernemental (SAG) and the Société de protection des forêts contre le feu (SOPFEU). Hydro-Québec (HQ) and Raglan Mine have their own planes for their employees' transportation.

Appendix 2 includes an information sheet on the major commercial air carrier as well as on the fleet of SOPFEU.

2.1 Air Carriers

2.1.1 Legal and Regulatory Framework[18]

The Canadian Transportation Agency (CTA) is responsible for the application of the *Canada Transportation Act*[19] and the *Air Transportation Regulations* that regulate air transportation activities in Canada. The Agency is an independent quasi-judicial tribunal, which makes decisions on a great number of economical issues mostly concerning air transport; its role is mainly one of economic regulation. The law enables the Agency to implement the Federal Government's transport policies.

The Air and Accessible Transportation Branch handles licence and charter permit applications for Canadian and foreign air carriers, and ensures compliance to licensing requirements.

To carry out air transport activities within Canada, and thus within Nord-du-Québec, an air carrier must hold a domestic air transport license issued by the Canadian Transportation Agency. The company must be owned and controlled by Canadians, must be insured against liability relating to the air service offered and meet the Agency's financial requirements if the service uses medium-size and widebody airplanes. A medium size aircraft has a capacity of 39 to 89 passengers while a widebody aircraft has a capacity of more than 89 passengers.

Finally, an air carrier will only be issued a domestic license if it also holds an aircraft operator certification issued by Transport Canada, which certifies it meets all safety requirements. It should be noted that air carriers do not need to submit their fares and have them approved with the Agency. However, the organization is structured in such a way as to oversee the enforcement of compliance by air carriers and respond to complaints lodged by customers.

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18 The information was taken from various public documents published by the Canadian Transportation Agency.

19 *Canada Transportation Act* (C. A. (1996), ch.10).

2.1.2 Brief Historical Background

We cannot understand the nature and structure of air services in Nord-du-Québec without knowing at least the highlights of the history and evolution of air transport in this region. During the 60's, air services were mainly carried out by southern air carriers. Now these air services are much more developed and are provided by air carriers owned by Cree and Inuit organizations.

The Kuujjuaq and Kuujjuarapik airports were built during World War II for purely military reasons. After the war and because of the onset of the Cold War between the western bloc and the communist bloc, the military vocation of these infrastructures was enhanced by the DEW line (Distant Early Warning), a radar network construction program. Several air carriers were then created to meet specific needs in terms of personnel and equipment.

During the 60's, the Nordair air carrier was set up in the context of the DEW line and started flights between Montréal and Fort-Chimo (Kuujjuaq), while a few float and ski-equipped aircraft owners maintained local links. This embryonic air transport structure developed in the region following the implementation by the Federal Government of its regional air transport policy in 1966, dividing Canada in regional markets sheltered from competition. This policy granted the Far North to Nordair while Air Canada provided services on the Montréal–Val-d'Or axis and Québecair achieved a leading position in the east of the province. This policy only affected national (Air Canada and CP Air) and regional carriers, even if at the local level, air carriers were required to obtain an operating permit from the regulatory agency, that is the Canadian Transportation Commission (CTC). The market was then totally protected and competition was very weak, if not absent[20].

In 1978, air transport deregulation in the United States had a considerable impact in Canada and the population strongly pressured the Federal Government for air transport liberalization in the country. In 1984, Canada launched its new policy that set all air carriers on the same footing and abolished restrictions related to permits and price setting. One consequence of this new regulation was the disappearance of several regional air carriers such as Nordair and Québecair, which were integrated into Canadian International airlines. This context explains the presence, a few year ago, of Nordair and then Canadian and its subsidiary Inter-Canadian in many Nord-du-Québec airports, among which the Kuujjuaq and Kuujjuarapik airports.

Incidentally, the James Bay development project and the execution of the James Bay and Northern Quebec Agreement (JBNQA) in 1975 had a significant impact on air transport development in these regions and the emergence of Aboriginal corporations as economical stakeholders.

20 Ministère des Transports du Québec, SNC-Lavalin, *Étude descriptive et analytique sur l'industrie du transport aérien au Québec et ses perspectives d'avenir*, June 1995, p. 1.

After the JBNQA ratification, the Cree Regional Authority had a unique opportunity to extend its operations in the field of transports. The Air Creebec carrier was established in 1979 and when it started operating in 1982, Crees held a 51% participation and Austin Airways 49% (a regional air carrier of Northern Ontario). In 1988, the Crees acquired the partner's participation and now own the air carrier exclusively. Air Creebec operates a fleet comprising one HS-748 cargo, four DHC-8-100, one DHC-8-300, one Beech-1900D and one King Air-100 for medical evacuation purposes[21].

During the same period, a similar development occurred for the Inuit of Nunavik. In 1978, Air Inuit was set up to provide services to the Nunavik population. Because there were no regulatory airstrips in the beginning, the air carrier started its operations on makeshift runways. Air Inuit currently owns five Dash-8-100, four HS-748, seven DHC-6-300 Twin Otters and two King Air-100. Air Inuit also operates under contract Hydro-Québec's plane fleet[22]. Makivik Corporation, which manages royalties and compensations received following the execution of the JBNQA, is the owner of the Air Inuit carrier. This corporation also owns First Air, which has its head office in Carp, Ontario. First Air provides services to 28 destinations in Northern Canada, Kuujjuaq being the only one in Nunavik. First Air presently operates a fleet of 19 planes including B-727, B-737, HS-748, DHC-6, ATR-42-300 airplanes and one Super-Hercules[23].

Hydro-Québec is also active in Nord-du-Québec as a private air carrier for the transportation of its employees, from the public corporation's head office in Montréal and their places of residence, to energy production sites in the James Bay territory. The Raglan Mine corporation does the same for its employees working at the Kattiniq mining site in Nunavik from Rouyn-Noranda located in Abitibi-Témiscamingue. Finally, several Québec air carriers specialized in chartered flights, such as Aeropro, Avionair, Pascan Aviation and Propair, are active in the region. Flights are usually by turboprop or turbojet business airplanes and mostly cater to private enterprises, and public and parapublic organizations.

There have been many changes in the operational and regulatory environment of air transport in the region and many would say that it was for the best. The main towns and localities as well as the majority of Aboriginal villages now enjoy regular air services. Moreover, residents own the most important air carriers in the region.

2.1.3 Scheduled Air Services

Map 7 shows the air connections and Table 8 gives details on certain connections operated by regular air carriers in the region.

21 Internet address: http://aircreeebec.ca/ and Air Creebec, (2005), Personal communication.
22 Internet address: http://www.airinuit.com and Air Inuit, (2005), Personal communication.
23 Internet address: http://www.firstair.ca/ and First Air, (2005), Personal communication.

Transports Québec

Coordination du Nord-du-Québec

Map 7: Scheduled Air Services

Transportation Plan of Nord-du-Québec

Profile of Air Networks, Infrastructures, Operations and Management in Nord-du-Québec

Source:
- Ministère des Transports du Québec

Basic map:
- Ministère des Ressources naturelles, digital maps, scale 1: 250,000 and 1: 8,000,000

October 2005

Air Services

- Airport desserved by scheduled air service
- Other airport
- City, village or town

Route by company

- Air Creebec
- Air Inuit (Passengers and cargo or all cargo)
- First Air (Passengers and cargo)
- First Air (Cargo)
- Nolinor (Seasonal)

James Bay

Air Creebec operates scheduled flights between the Cree villages of the region, Chibougamau, La Grande Rivière airport and other Québec regions, namely Montréal, Val-d'Or, Roberval and the Ontario Cree villages of the West coast of James Bay. These services are performed using the following airplanes: Dash 8-100 (37 passengers), Dash 8-300 (46 passengers), Beech-1900 (19 passengers) and EMB-110 (15 passengers).

Five times a week, a Dash-8 connects Waskaganish, La Grande Rivière and Kuujjuarapik to Montréal and Val-d'Or, while the smaller Beech-1900 flies five times a week to the Cree coastal villages of James Bay and Nemaska, as well as Chibougamau's airport which is closest to the Cree villages of Ouje-Bougoumou and Mistissini. The Dash-8 also links Montréal and Val-d'Or to Cree coastal villages on Sundays. Finally, with an EMB-110, Air Creebec provides services six times a week to the Waskaganish and Nemaska communities as well as six northern Ontario communities: Timmins and five Cree communities.

We can note that trips from Montréal are relatively lengthy to most James Bay west coast airports. The number of stops and significant distances starting from Montréal can explain this, even if the Dash 8 and the Beech 1900 are rapid turboprop airplanes. Flight times would be shorter if air connections would be done with CRJ-200 type jet airplanes (50 seats), for example. This option however, is not very feasible due to acquisition costs for these airplanes, the traffic volume and the predominance of gravel runways.

Nunavik

Air Inuit and First Air provide services in Nunavik. Air Inuit offers flights with a Dash-8 from Montréal to most airports of Nunavik's west coast with seven flights every week. The northern villages of Ungava Bay and Hudson strait are linked by Dash-8 or Dash-6 from Kuujjuaq. The Dash-8 also flies Montréal-Québec-Shefferville-Kuujjuaq twice a week. A Sept-Iles-Schefferville flight is offfered six days a week with a King Air-100, with the possibility to go to Kuujjuaq on Sundays. Table 8 gives details on certain flights but not all of them, since Air Inuit offers more than 90 flights (including several stops) every week on both coasts and between Montréal and Nord-du-Québec. For flights between the various villages of Nunavik, distances are relatively short and flight duration is still acceptable whatever aircraft type used and number of stops made. Comments made above concerning stops and flight duration from Montréal also apply to Nunavik.

First Air offers daily connections by Boeing 727 between Montréal and Kuujjuaq. The availability of a paved runway of sufficient length at the Kuujjuaq airport makes possible a jet connection from Montréal. As for the Hudson Bay coast, more precisely Kuujjuarapik and Puvirnituq, there are only gravel runways of 5,000 feet, too short for a B-727 type aircraft. It should be noted however that the technology of this aircraft is older and shows poor performances at landing and take-off.

As for Aviation Québec Labrador (AQL), it operated scheduled air services using an EMB-110 aircraft to the Schefferville airport from Sept-Îles, with one flight per day, six

days a week, and this, until operations were terminated in April 2003 following bankruptcy. Air Inuit now operates the Sept-Îles-Schefferville connection six days a week and a Schefferville-Kuujjuaq connection with the King Air-100 on Sundays. As for the Nolinor airline, it has daily flights using a CV-580 aircraft linking Montréal and Schefferville during the caribou-hunting season.

TABLE 8

PARAMETERS OF SOME REGULAR FLIGHTS TO NORD-DU-QUÉBEC (2005)

Air Carriers	Airplanes	Regular Flights Fixed Schedule	Flight Duration	Distance (km)	Frequency: Times/Week
AIR INUIT	DHC-8	Montréal Kuujjuarapik Umiujaq Inukjuak Puvirnituq	3 h 00 30 min 45 min 30 min	1,075 175 240 180	Return trip 7 times a week with different stops depending on the day of the week
	DHC-6	Puvirnituq Akulivik Ivujivik Salluit	25 min 45 min 30 min	110 175 120	Return trip 6 times a week with different stops depending on the day of the week
	King Air-100	Kuujjuaq Inukjuak Puvirnituq	2 h 25 45 min	570 180	Return trip 3 times a week
	DHC-6	Kuujjuaq Kangiqsualujjuaq	40 min	170	Return trip 8 times a week
AIR CREEBEC	Beech-1900	Montréal Chibougamau Waskaganish Eastmain Wemindji Chisasibi	1 h 15 1 h 45 25 min 20 min 20 min	405 380 90 80 80	Return trip 5 times a week
	Dash 8-100	Montréal Val-d'Or Waskaganish La Grande Rivière Kuujjuarapik	1 h 15 1 h 10 10 min 45 min	520 470 40 175	Return trip 5 times a week
	Emb-110	Moosonee Waskaganish Némiscau	35 min 20 min	190 90	Return trip 5 times a week
FIRST AIR	B-727	Montréal Kuujjuaq	2 h 25	1,530	Return trip 7 times a week
NOLINOR	CONVAIR 580	Montréal Schefferville	2 h 30	700	Return trip 7 times per week during hunting season

Source: Air carrier flight schedules

2.1.4 Chartered Flights

It is more difficult to figure out the nature and importance of chartered flights than regular flights since there are no published schedules for these services; it is still possible to assess them however. Firstly, chartered flights in Nord-du-Québec have nothing in common with chartered flights to Europe and the West Indies for example, as those operated by Air Transat are dedicated to vacations and rest.

In Nord-du-Québec, chartered flights are mainly carried out for business and health care purposes. They mostly originate from the regions of Abitibi-Témiscamingue, Montréal and Québec cities as well as Kuujjuaq. The users of these services are suppliers of public services, such as telephone and electricity, health care services and various provincial and federal departments and agencies. The area's vastness and the need to remain efficient, explain why these companies and public organizations use chartered flights for their operations. Apart for transporting persons, it can be necessary to charter flights for non-scheduled or emergency transport of material goods that would normally be delivered by boat or by regular air services. Because of the structure of economic activities in Nord-du-Québec, chartered flights mostly originate in the south which is not the case for medical transport. In the Cree communities, air transport in and out of the trap lines is frequent, and small charters are used occasionally by small groups to assist specific events in other communities, such as funeral.

Chartered flights in Nord-du-Québec are mainly carried out by Propair and Boréal Aviation (cargo flights) from Abitibi-Témiscamingue, by Aéropro from Québec City and by Avionair from Montréal. Various air carriers established in Nord-du-Québec such as Air Inuit, Air Creebec, Air Wemindji, Atai Air Charters, Johnny May's Air Charters also provide such services. Finally, it is also possible to rent helicopters from various operating bases in Val-d'Or, La Sarre, Sept-Îles, Radisson and Kuujjuaq. The main airplanes used are the following: C-206, C-208 Caravan, DHC-2 Beaver, DHC-3 Otter, DHC-6 Twin Otter, Piper Aztec, Piper Navajo, Beech King Air 100, 200, 350, DC-3, Bell 206, Astar 350.

2.1.5 Specialized Air Services

Government Air Service (Service aérien gouvernemental - SAG)

Through its SAG air service, the Gouvernement du Québec, owns and operates a fleet of 22 airplanes including 14 water bombers, three business planes (also used for aeromedical evacuations) and five helicopters[24]. The airplanes are made available to various public and parapublic organizations, such as Sûreté du Québec, various government departments, the Société de protection des forêts contre le feu (SOPFEU) and the Regional Health and Social Services Board, according to well-founded service agreements.

24 Rochefort Rodrigue, (2002), Personal communication, Service aérien gouvemental.

Aeromedical Evacuations (EVAQ)[25]

Évacuations aéromédicales du Québec (EVAQ) is a government agency providing air transport services for patients in remote areas, including Nord-du-Québec. For aeromedical transport, EVAQ owns a Challenger 601-1A twinjet equipped as an intensive care unit that can accommodate five persons on stretchers and a baby. Exceptionally, it can transport seven persons on stretchers. This aircraft is equipped with a "gravel kit" and thus can land on gravel runways of a minimal length of 4,500 feet. There is also another Challenger with a similar capacity but no "gravel kit" as well as a Dash-8, with a capacity of four stretchers that take over when the hospital aircraft is not available. The Dash-8 plane is also used when the airstrip's length or condition does not allow access to the Challenger, and for transport between medical centers, three days a week. The airplanes are based at Jean-Lesage airport.

Propair also carries out emergency evacuations using King Air airplanes that can transport two passengers on stretchers. An aircraft is equipped for severe cases while the others are used for lighter cases. The available equipment makes it possible to carry out three evacuations at the same time. They can use unpaved airstrips less than 4,500 feet long. Medical personnel aboard the airplanes go to the hospital or nursing station to take charge of the evacuated patient[26]. Propair also conducts transport between medical centers for the Abitibi-Témiscamingue and Nord-du-Québec regions, but in the latest, only Chibougamau is served.

In Nunavik, medical evacuations from nursing stations located in the villages usually head for the Puvirnituq or Kuujjuaq regional hospital centres on Air Inuit, with planes waiting on the ground or requisitionned from regular services. The planes are not adapted to medical transport. After being stabilized at the regional hospital, the patient will be transferred, generally by EVAQ, to an hospital in Québec or Montréal. More to the south, the Kuujjuarapik and Whapmagoostui villages directly call EVAQ or Propair, they do not transfer patients to the regional hospitals. Even if the landing strip is 5,000 feet, the EVAQ Challenger is sometimes not able to land in Puvirnituq (bad weather or landing strip conditions). If the case, the patient is transferred by Air Inuit to Kuujjuaq, Kuujjuarapik or La Grande Rivière airport and taken in change by EVAQ.

Certain James Bay towns and localities are located relatively close to hospital centres and emergency transport is done by ambulance. This is the case for the localities of Villebois and Valcanton from which the evacuations are directed to the La Sarre hospital and Lebel-sur-Quévillon, to Val-d'Or or Amos. For the localities located farther, emergency evacuations can be made by EVAQ and Propair from Chibougamau, Matagami and Radisson (La Grande Rivière airport)[27]. Finally, Hydro-Québec workers can also be evacuated by EVAQ and Propair from La Grande Rivière, LG-3, LG-4,

25 Treasury Board (2002), Direction générale des services spécialisés, Service aérien gouvernemental, Évacuations aéromédicales du Québec (EVAQ). Internet address: http://www.formulaire.gouv.qc.ca.
26 Tuggey Ron, (2002), Personal communication, Propair Inc. Internet address: http://www.propair.com.
27 Mingant Cécile, (2002), Personal communication, Cree Regional Board of Health and Social Services.

Nemaska and Fontanges airports. The non urgent transfer of patients by EVAQ Dash-8 is done only from Chibougamau[28].

Emergency medical evacuations from the Cree communities of Waswanipi, Mistissini and Ouje-Bougoumou are done by ambulance or minibus (Ouje-Bougoumou) to the Chibougamau hospital. For the other Cree communities, emergency air transport is mainly done by Propair based in Rouyn-Noranda or by Air Creebec for non-urgent cases. Even if EVAQ can serve the Cree communities from the airports of La Grande Rivière, Nemaska and Chibougamau, the service offered by Propair is preferred since response time is shorter and the patient is transferred by Propair medical personnel from the nursing station to the hospital of destination[29].

Air traffic services are normally provided on a "first come, first served" basis. Priority is given however, to an aircraft making a medical evacuation flight responding to a medical emergency. Upon initial contact with ATC, the pilot will give the usual identification information followed by the word "MEDEVAC". Subsequent communications can be abbreviated according to normal procedure retaining the word "MEDEVAC".

Société de protection des forêts contre le feu (SOPFEU)

SOPFEU is a non-profit organization created in 1994, which mandate is to protect forests against fires. It has a yearly budget of $34 M and is financed at a rate of 61% by the Gouvernement du Québec, 38% by forest industries, and the rest is from major timber owners. SOPFEU's exclusive mandate is to prevent, monitor and suppress forest fires on the Québec territory to ensure the sustainability of the forested environment for the benefit of the entire community. Forests north of the 52nd parallel are not protected since they are not economically profitable; the northern limits of the protected territory are Evans Lake and Rupert River.

As mentioned earlier, the SAG operates by subcontract a fleet of water bombers for SOPFEU. The latter uses also, under contract, a fleet of 32 planes for monitoring, nine planes for bird-dogging and transport, and eleven helicopters. At its main base in Val-d'Or airport, SOPFEU deploys three surveillance helicopters, two C-310 birddogs, four C-182 surveillance and monitoring planes and two CL-415. The secondary base of Matagami has water bombers, surveillance and monitoring planes, birddogs and an helicopter. The satellite base of Lebel-sur-Quévillon doesn't have any aircraft except when in use in the sector. A surveillance plane is based in La Grande Rivière airport, even if located above the commercial forest[30].

28 Starting April first, Propair will offer that service, as a two year pilot project.
29 Tousigant André, (2002), Personal communication, Cree Regional Board of Health and Social Services.
30 Alari René, (2004), Personal communication, Société de protection des forêts contre le feu (SOPFEU).

From one year to the next, the number of forest fires varies significantly north of the 49th parallel as well as all over Québec. These fires are the cause of considerable revenue losses for workers and companies, which means territory surveillance will continue.

Helicopter Services

As mentioned in the first part of this study, several years ago helicopters started taking over the traditional role played before and after World War II by Norseman, Beaver, Otter or C-206 single engine airplanes on floats and on skis. Now, the helicopter is strongly preferred to these airplanes for mining exploration work, monitoring of electric power lines, scientific and wildlife surveys. The helicopter is even used now for fighting forest fires, especially for the transportation of material and fire fighters to fire sites.

Above all, this preference is explained by the helicopter's operational flexibility, its capacity to take off and land on small rudimentary prepared surfaces and in poorly accessible locations. Moreover, operating costs remain acceptable. The helicopter is used seasonally, mostly during the summertime while it is not used very often in winter. Because of its operational features, helicopters can very well use existing airports and permanent heliports built by their owners.

Bush Aviation

Commercial as well as private bush aviation is mainly used for transporting hunters and fishermen from base camps to activity sites, and secondarily for transporting trappers to traplines. Kuujjuaq and Schefferville are the main gateways to the outfitting operations in Nunavik, while Chibougamau and Schefferville are stops on the way to the outfitting businesses in the James Bay territory[31]. Estimated yearly income from these outfitting companies would be in the order of $30 M, making up almost a third of this industry's total income[32]. Most of the time, hunting and fishing travelling is done by seaplane from base camps or from the airport closest to the outfitters who have built gravel landing strips in proximity to hunting and fishing sites.

Several outfitters operate their own fleet of airplanes while some air carriers operate outfitting facilities. This complementarity in economic activities stems from the necessity to ensure a better control of income generating clientele. It is known that bush aviation is only minimally profitable.

Some time ago in James Bay, several bush air carriers operated airplanes on skis during winter for connections to remote villages. There is no need for them now that the national road network is accessible. There are only a few air carriers that still provide air services on skis.

31 Gestion Aérotech, *Étude technique portant sur les réseaux, les infrastructures, l'exploitation et la gestion des transports aériens dans le Nord-du-Québec*, March 2002, p. 16.

32 Ibid.

A similar situation exists in Nunavik where all scheduled air services and almost all chartered flights are done with wheel-fitted planes. Flights by airplanes equipped with skis or wheels and skis are exceptional and respond to particular needs.

As for helicopters, bush aviation uses existing airport facilities when required and when possible, and it is developing its own infrastructures according to its needs. These needs are limited, since most of the time required facilities amount to a dock, fuelling equipment and a shed for the material at the various operation bases. All in all, bush aviation has only a few requirements in terms of facilities and equipment.

2.1.6 Corporate Air Services and Aerotourism

Hydro-Québec

It was mentioned earlier that Hydro-Québec owns and operates four private airports in the James Bay hydroelectric resource zone and owns its own airplanes. Since Hydro-Québec favours the periodic transport of its workers from their places of residence and work, over permanent worker housing at the work site, it must have efficient and rapid means of transportation for its personnel. That explains the presence of a fleet of corporate planes operated by Air Inuit for Hydro-Québec and dedicated exclusively to transporting this corporation's personnel and sub-contractors. From Rouyn-Noranda, Propair uses its own airplanes to transport some of Hydro-Québec personnel.

All Hydro-Québec airports are serviced five days a week by its own airplanes departing from Montréal. A first plane makes the connection with the LG-3 terminal, by way of Abitibi-Témiscamingue while a second plane stops in Québec City and Saguenay–Lac-Saint-Jean before heading to LG-4 and LG-3.

In the past, the Hydro-Québec fleet always consisted of CV-580 airplanes, first generation turboprop twin-engine airplanes that were becoming with time more and more expensive to operate and maintain. On December 18, 2001, Hydro-Québec announced it bought from Bombardier two Dash-8-Q400 planes (72 seats) to replace its four ageing planes. These new planes can rapidly be modified to a cargo configuration and they are also equipped with a head guiding system (HGS) in the cockpit to ease landings in bad weather. Hydro-Québec's fleet also includes a Dash-8-300 (50 seats)[33].

Société Minière Raglan du Québec Limitée (Raglan Mine)

Since the end of the 80's, Raglan Mine operate a nickel mine in Nunavik. Raglan Mine use the Rouyn-Noranda airport as an operating base for flights headed to their private Kattiniq/Donaldson airport in Nord-du-Québec. Air services use a B-737-200C aircraft owned by Noranda Inc.

33 Circulaire (newsletter) Vol. 3, no. 4, March 2002, p. 9, Wings Issue 1, Vol. 43, March-April 2002, p. 10, Grenier Marc, Hydro-Québec Air Service, Personal communication, May 2005.

Flight frequency is two weekly connections. The air transport system meets transportation needs of workers, subcontractors, visitors and their baggage, mail, food and the necessary mining equipment. Also, Air Inuit provides transport services to Raglan Mine by chartered flights for the Inuit workers living in the 14 northern villages.

Aerotourism

Aerotourism can be defined as all activities related to travels or leisure carried out by owners or lessors of private planes. In December of 1997, an aerotourism association was set up in Québec. Unfortunately, this association of outfitters, flying clubs, airports and private members never really "took-off" in the field of aerotourism marketing and development in Québec and it was dissolved in 2001.

A new association named "Aérotourisme International ECO-Fly" was eater setted up for the same purposes. It has received financial assistance from Tourisme Québec and Canada Economic Development to develop and promote aerotourism excursions. In the medium term, an aeroguide and Internet site will be created to develop this type of tourist activities with various stakeholders. Concerning Nord-du-Québec, promoters are very aware of this region's potential for tourism, especially for private pilots, and they intend to develop excursions in this region. On the other hand, they know the problems and challenges related to the development of such excursions in a northern environment and particularly all that pertains to the reception of planes and pilots as well as fuel availability for 100LL type planes, as this type of fuel is only available in certain airports and often only in drums. All in all, only a few adventurous pilots are currently involved in aerotourism in Nord-du-Québec; but a few years from now, the situation should change and reception facilities should be set up. While limited, the economic impact of such activities remains interesting for the future[34].

2.2 Air Traffic

This part of the study will deal with the description and analysis of various air traffic aspects, and more specifically of aircraft movements at airports (which data is compiled by Transport Canada), and the traffic of passengers, goods and mail (which data is compiled by Statistics Canada). It will also deal with rate structure and various subsidy programs available to reduce transportation costs paid by the resident population and transport costs for goods and food. Airport logistics and support activities will also be reviewed. It should be noted that traffic analysis for passengers and goods in Nord-du-Québec is in many ways limited by the non-availability of significant statistical data for reasons of confidentiality, in cases where only one air carrier services an airport.

34 Club de produits de l'aérotourisme, Aérotourisme International ECO-Fly, no date, 8 pages and appendices and verbal communication by Sylvie Gervais, President, July 25, 2002.

2.2.1 Aircraft Movements

Aircraft movement count is one way of measuring an airport's client traffic. An *aircraft movement* occurs every time there is a landing or a take-off; thence a landing followed by a take-off are two movements. A movement is considered to be local when take-off and landing are done at the same airport, while an itinerant movement corresponds to taking-off towards another airport or landing following a flight originating from another airport.

Commercial flights generate the vast majority of itinerant movements while flying schools and private pilots are responsible for most local movements due to the great number of touchdowns and take-offs by student pilots during their training, and the flying activities of private pilots. Obviously, aircraft movements in Nord-du-Québec are mostly of the itinerant type because there are no flying schools and very few private pilots based at these airports. In Canada, an airport with 200,000 and more movements per year is considered very busy; only a few airports in the country reach this level. For instance, the Lester B. Pearson airport in Toronto, the busiest in the country, has a total of some 420,000 movements yearly while the Montréal–Trudeau airport has some 220,000. Strictly speaking, an airport with 10,000 movements per year has low traffic, and this situation is true in several parts of the country because of the country's low total population and its distribution. Finally, an airport with less than 5,000 movements per year has very low traffic since such a traffic level corresponds to seven landings and take-offs per day.

Air movement data is published by Transport Canada when airports have a control tower, a flight service station (FSS) or when *airport operators* transmit flight records to Transport Canada. Data from control towers and FSS is very reliable, while data provided by *airport operators* is usually less reliable. It should also be noted that this data is only valid for the length of time controllers, FSS specialists and other persons in charge of keeping records are present at the airports. In this sense, air movement records more often than not reveal a minimum amount of traffic.

Table 9 shows the evolution of flight movements at certain airports in the region between 1996 and 2004. The Kuujjuaq and La Grande Rivière airports had the highest number of itinerant movements in 2004 with respectively 10,334 and 9,111 movements, followed by the Kuujjuarapik, Chibougamau, Waskaganish and Puvirnituq airports[35]. Finally, the other airports, including Eastmain River and Wemindji, each report less than 2,000 movements, which amount to four landings and take-offs per day from Monday to Friday on a yearly basis.

As a whole, it remains difficult to determine trends since some airports show a movement increase, others experience a reduction while others demonstrate a certain stability. Thus in Kuujjuaq, there has been an increase in the number of movements between 1996 and 2003 and more particularly since 1999. It is the same for Kuujjuarapik. The Chibougamau airport sustained a significant decline from

35 This data is not shown in table 9, but was provided to MTQ by the airport operator.

5,666 movements in 1996 to 4,162 movements in 2004. La Grande Rivière airport suffered a decrease between 1996 and 2001, but the tendancy is for an increase after. Other airports such as Eastmain River and Wemindji show a more stable movement profile between 1996 and 2003. Reasons for these variations are not easy to pinpoint and they can be related to purely local events.

TABLE 9
FLIGHT MOVEMENTS FROM 1996 TO 2004

AIRPORTS	1996	1997	1998	1999	2000	2001	2002	2003	2004
Chibougamau /Chapais	5,666	4,018	5,067	4,296	4,106	3,856	4,435	4,224	4,162
Eastmain River	1,205	1,431	2,591	905	1,072	1,210	961	1,219	967
Kuujjuaq	7,149	7,593	7,794	4,955	9,941	10,441	9,914	10,201	10,334
Kuujjuarapik	4,608	4,264	4,110	4,312	4,961	4,961	5,990	6,059	5,935
La Grande Rivière	9,196	10,432	9,845	8,737	8,504	7,623	7,973	8,477	9,111
Waskaganish	2,926	3,106	2,318	1,585	5,157	3,876	4,452	3,952	4,161
Wemindji	1,380	1,437	1,776	1,074	1,187	1,727	1,606	1,374	1,328

Source: Transport Canada TP-577 Statistics on Aircraft Movements, Annual Reports 2000 and 2004.

Annual movements at other Nord-du-Québec airports and especially in Nunavik, are not published by Transport Canada. However, it is still possible to measure these movements inferentially using the airlines' flight schedules for these communities. While not very accurate because it doesn't take charter flights into account, this measuring method can give an indication of the number of movements each year, because of the near-absence of local movements that would modify the total movements at these airports. Moreover, this way of calculating also helps in assessing the importance of regular flights for these localities. It remains possible to add a certain percentage of additional movements to the movement total obtained by this method, to take into account all-cargo flights, chartered flights and private flights. The result is an estimate of the number of annual movements at these airports.

Table 10 shows the distribution of flight movements completed in 2002 by Air Inuit, Air Creebec and First Air at Nord-du-Québec airports, which are not included in Table 9. Data for the Kuujjuaq and Kuujjuarapik airports is also included in Table 10, giving an estimation of the importance of scheduled flights compared to other flights.

Table 9 and 10 data confirms the importance of the Kuujjuaq and Kuujjuarapik airports and leads us to conclude that each year for each airport, movements by regular air carriers make up approximately 32% and 36% of total flight movements. No doubt this ratio is weaker than in the region's other airports, because of the administrative status of those two relatively populated villages. With a few exceptions, the number of airport

movements is proportional to the villages' population, the larger having a higher number of movements. From thiese tables, we can see that the movement number remains low at these airports every year, being under 2,000 movements per year, except for six of the most densely populated villages (considering the twin populations of Kuujjuarapik and Whapmagoostui).

For these villages, the importance of the airport is reflected by the number of scheduled flights at these locations in relation with their population. All the Nunavik villages have scheduled flights distributed over five or six days a week, the most significant having each week 31 flights (Kuujjuaq) and 27 flights (Puvirnituq), while there are seven flights to the least populated (Aupaluk). In short, scheduled passenger flights remain vital for Nunavik populations.

The table also shows the number of movements at the Chisasibi airport on the James Bay coast. The number of 1,144 movements is relatively low compared to the village's population, which is 3,432 persons. This can possibly be explained by the fact that this village is linked by road to the village of Radisson and La Grande Rivière airport where air connections to Montréal for example, are more interesting and more numerous than those departing from Chisasibi.

To obtain a good estimate of total movements at the airports listed in Table 10, it is only necessary to add 10 to 12% to the numbers, except for the Kuujjuaq and Kuujjuarapik airports for which we know the exact number of movements (Table 9), and except for the Chisasibi airport because of its proximity to the La Grande Rivière airport and for Puvirnituq airport because of the regional hospital. In the case of Chisasibi, adding 5% to the calculated number would give a good estimate of total movements as for Puvirnituq an adjustment of 45% would be necessary.

TABLE 10
ESTIMATION OF ITINERANT MOVEMENTS FOR CERTAIN AIRPORTS IN NORD-DU-QUÉBEC ON THE BASIS OF SCHEDULED FLIGHTS (2002)[36]

Airports	M	T	W	T	F	S (S)	Week/ Movements	Year/ Movements	Population 2001
Akulivik	4	8	8	8	4	4	**36**	**1,872**	**457**
Aupaluk	2	4	2	4	2	0	**14**	**728**	**206**
Chisasibi	4	4	4	4	4	(2)	**22**	**1,144**	**3,432**
Inukjuak	4	4	4	6	4	4	**26**	**1,352**	**1,387**
Ivujivik	2	6	8	6	2	2	**26**	**1,352**	**284**
Kangiqsualujjuaq	4	2	4	2	4	0	**16**	**832**	**726**
Kangiqsujuaq	4	4	4	4	4	4	**24**	**1,248**	**469**
Kangirsuk	4	4	4	6	4	4	**26**	**1,352**	**390**
Kuujjuarapik	10	6	6	6	10	4	**42**	**2,184**	**1,217**
Kuujjuaq	14	6	12	10	10	8(2)	**62**	**3,224**	**2,099**
Puvirnituq	14	6	8	8	10	8	**54**	**2,808**	**1,327**
Quaqtaq	4	4	4	4	4	4	**24**	**1,248**	**274**
Salluit	4	6	6	6	4	4	**30**	**1,560**	**1,057**
Tasiujaq	4	4	4	4	4	0	**20**	**1,040**	**233**
Umiujaq	4	4	0	4	4	4	**20**	**1,040**	**327**
Total:	**58**	**58**	**62**	**62**	**56**	**42**	**442**	**22,984**	**13,885**

Source: Air Inuit flight schedules published on April 3, 2002, Air Creebec and First Air flight schedules consulted in July 2002 on the Internet.

2.2.2 Passenger Traffic

Passenger traffic data shows the airport activity, the demand for transport and the community of interests at each airport in the system. Statistics Canada collects, compiles, and publishes data related to air transport. The two main publications are "*Air Passenger Origin and Destination, Domestic Report*" (Doc. 51-204) and "*Air Carrier Traffic at Canadian Airports*" (Doc. 51-203). The first report measures the demand and the community of interests between two points, while the second is rather a measure of airport activity, taking into account embarking and disembarking passengers.

While this data is available and reliable for the country's main airports and most important air carriers, it is a different matter for small airports and smaller air carriers. In Nord-du-Québec, the larger air carriers such as Air Creebec, First Air and Air Inuit do not participate in the Statistics Canada survey. The policy of Statistics Canada is not to reveal any traffic numbers when there is only one regular air carrier operating at an airport.

Origin/Destination Data

The data available for 1999 about the origin and destination only concerns passengers travelling on Air Canada and its subsidiaries taking part in the survey. Consequently, there is a strong underestimation of actual passenger volumes and the margin of error is

36 These data were not updated because these is no census data for the 2004 population.

significant, considering the survey method used by Statistics Canada. Since the origin/destination data for Nord-du-Québec airports is not very reliable, it is not part of this study.

Embarking and Disembarking Passenger Data

In Québec, there were in 2003, 9.9 million embarking and disembarking passengers (E/D) compared to 9.7 millions in 2002. Domestic traffic made up about half of the amount[37]. On a regional basis, E/D passenger traffic for Nord-du-Québec was 205,733 passengers in 1999, that is 1.9% of total E/D traffic in Québec and 3.9% of its domestic traffic, compared to a traffic of 117,209 passengers for Abitibi-Témiscamingue and 142,896 passengers for Côte-Nord. This data shows the importance of air transport in a region where several areas do not have road links with the outside.

2.2.3 Air Fare System

Competitive Environment: Observations and Findings

The structure of air transport in Canada, in Québec and in Nord-du-Québec has markedly changed since the announcement in 1966 of a regional air transport policy and the introduction of economic deregulation in the country in 1984. In 1966, regional air transport was exclusively assigned to certain air carriers, and that totally annihilated competition. The first consequence of economic deregulation was the creation of a duopoly centred around Air Canada (AC) and its regional subsidiaries on one side, and Canadian Airlines International (CAI) and its subsidiaries on the other side. This situation favoured a certain commercial competition between these two groups. However, after CAI and its subsidiaries experienced severe financial difficulties, they were acquired by Air Canada in 2000, thus eliminating whatever competition existed in Canada on domestic markets.

In Nord-du-Québec in the 1980s and 1990s, there was a certain level of competition at the major airports of La Grande Rivière, Kuujjuarapik and Kuujjuaq between the Canadian group, First Air, Air Inuit and Air Creebec. The disappearance of Canadian and its subsidiaries in 2000 put an end to that competition.

Scheduled air transport in Nord-du-Québec is actually characterized by the presence of two air carriers, Air Inuit and Air Creebec, each exerting a monopoly in its own geographical area, that is Nunavik for the first group and James Bay for the second[38]. As for Schefferville, it is serviced by a single air carrier all year long, which is Air Inuit departing from Sept-Îles. A second air carrier, Nolinor, provides services to Schefferville from Montréal during the hunting season.

37 Statistics Canada, 51-203 Air Carrier Traffic at Canadian Airports, 2003.
38 First Air only desserve Kuujjuaq, and is owned by Makivik Corporation, just as Air Inuit.

The effects of the absence of competition on scheduled air service rates is difficult to assess, since the air carriers' current situation is relatively recent and there are no economic studies focusing specifically on rate setting practices and on the effects of monopolies on air transport in Nord-du-Québec. We can generally take advantage of observations and findings included in two studies published in June 1995 and in January 2000, which are still current[39].

For the authors of these reviews, on the basis of a rigorous analysis of numerous studies published in the United States and in Canada, and following their own evaluations, it appears that "...with these types of airplanes, such frequencies and populations, air fares applied in Québec are similar to those offered in the rest of Canada."[40]. Moreover, the assessments allow to see the fairness of rate policies and the prevalence of distance and number of passengers as primary independent variables for airfares[41]. Appendix 4 of the study on the regional air profile shows multiple rate comparisons that illustrate effective fares for various distances and demonstrate that Nord-du-Québec fares for intra and extraregional connections are not discriminatory compared to other Québec regions[42]. Still, in Canada as well as in Québec, air transport is a costly mode of transportation for its users, in Québec and elsewhere in Canada.

In one of these studies, analyses show that air carrier concentration can cause a rate increase while fares are reduced when the number of competitors is higher. It would seem that "... the disappearance of a competitor brings about a 2 to 32% rate increase, the highest percentage corresponding to a situation where there is only one air carrier."[43].

Since the region is totally serviced by air carriers operating in a monopoly situation, it would be interesting to conduct economic analyses to precisely assess the impact of this situation on air services and fares. However, it is important to note that First Air, Air Inuit and Air Creebec are owned by Aboriginal entities and these air carriers are serving their population. In a certain way, they respond to social objectives in addition to economic profitability objectives. This particular ownership feature could explain why these air carriers would not have a predatory corporate behaviour in their monopoly situation.

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39 Ministère des Transports du Québec/SNC-LAVALLIN, *Étude descriptive etanalytique sur l'industrie du transport aérien domestique au Québec et ses perspectives d'avenir*, June 1995, 99 pages and appendices.
Ministère des Transports du Québec, Profil du transport aérien régional au Québec et éléments d'intervention dans le cadre de la restructuration de l'industrie du transport aérien, January 2000, 64 pages and appendices.

40 Ministère des Transports du Québec/SNC-LAVALLIN, *Étude descriptive et analytique sur l'industrie du transport aérien domestique au Québec et ses perspectives d'avenir*, June 1995, p. XI.

41 Ibid, p. X.

42 Ministère des Transports du Québec, Profil du transport aérien régional au Québec et éléments d'intervention dans le cadre de la restructuration de l'industrie du transport aérien, January 2000 Appendix 4, Comparaisons tarifaires au Québec.

43 Ministère des Transports du Québec/SNC-LAVALLIN, *Étude descriptive et analytique sur l'industrie du transport aérien domestique au Québec et ses perspectives d'avenir*, June 1995, p. 42.

A Few Rate Examples

The fairness of the rate setting system in the various Québec regions in no way contradicts the fact that air transport remains expensive between Nord-du-Québec communities and Montréal, as well as inside the region. Tables 12 and 13 illustrate this reality. For example, a return trip from Montréal to Salluit or Ivujivik costs almost $3,000 and a flight to Chibougamau some $1,500. The average cost for flights from Montréal is some 75¢ per kilometre. This rate can still be compared to what is applied in southern Québec. It should be mentioned that numerous connections require changing airplanes and/or several stopovers. For intraregional trips, fares are higher to the kilometre because of the need for smaller airplanes, shorter distances and identical costs for passenger handling.

TABLE 11
FARES FROM MONTRÉAL TO NORD-DU-QUÉBEC DESTINATIONS (2005)

Airports	Return Fare	Distance in Kilometres	Price in Dollars per Kilometre
Akulivik	$2,846	3 530	0.79
Aupaluk	$2,260	3 490	0.70
Chibougamau	$904	1 620	1.09
Chisasibi	$1,690	2 480	0.67
Eastmain	$1,524	2 160	0.68
Inukjuak	$2,296	2 950	0.76
Ivujivik	$3,070	3 880	0.77
Kangiqsualujjuaq	$2,226	3 400	0.74
Kangiqsujuaq	$2,644	4 080	0.69
Kangirsuk	$2,340	3 540	0.71
Kuujjuaq	$1,844	3 060	0.70
Kuujjuarapik	$1,656	2 150	0.77
La Grande Rivière	$1,652	1 800	0.89
Lebel-sur-Quévillon	No scheduled air service		
Matagami	No scheduled air service		
Nemaska	$1,448	1 840	0.76
Puvirnituq	$2,636	3 310	0.77
Quaqtaq	$2,486	3 760	0.71
Salluit via Puvirnituq	$3,070		
Salluit via Kuujjuaq	$2,878	4 300	0.70
Tasiujaq	$2,166	3 280	0.72
Umiujaq	$1,942	2 470	0.77
Waskaganish	$1,448	1 980	0.70
Wemindji	$1,639	2 320	0.68

Source: Airlines – 2005

TABLE 12
INTRAREGIONAL FARES IN NORD-DU-QUÉBEC (2005)

Origin/Destination	Return Fare	Distance in Kilometres	Price in Dollars per Kilometre
NUNAVIK			
Kuujjuarapik/Sanikiluaq	$294	320	0.90
Ivujivik/Salluit	$244	240	0.98
Aupaluk/Tasiujaq	$282	210	1.28
Tasiujaq/Kuujjuaq	$322	220	1.41
Puvirnituq/Inukjuak	$394	360	1.09
JAMES BAY			
Chisasibi/Wemindji	$324	340	0.94
Waskaganish/Eastmain	$315	180	1.72
Eastmain/Val-d'Or	$968	1,120	0.82

Source: Airlines - 2005

Government Program for Air Fare Reduction[44] for Nunavik Residents (AFR)

As mentioned above, air transport is still very expensive in Nord-du-Québec. In order to reduce the part of these expenses in the budget of residents in remote areas, the Gouvernement du Québec has set up an air rate reduction program delivered by the Ministère des Transports.

The first air rate reduction program was implemented in Côte-Nord in 1988 for residents living east of Havre-Saint-Pierre. A similar program was introduced in April 1989 for the residents of Îles-de-la-Madeleine for their travels to Gaspé and Mont-Joli. In October of 1989, flights bound for Île d'Anticosti became eligible through this program.

A new program was launched on September 1, 2000 for residents of the Îles-de-la-Madelaine, Basse-Côte-Nord, Îles d'Anticosti, Schefferville and the Aboriginal reserves of Matimekosh and Kawawachikamach. The program's modalities and conditions are now the same for all residents of these regions. As for the population of Nunavik, it could not take advantage of an air rate reduction program. In the interest of fairness to Nunavik people compared to other regions of Québec, the Ministère des Transports du Québec established in August of 2001, an air fare reduction program specific to Nunavik, initialy for three years.

Residents, meaning persons who reside in a permanent dwelling or occupy as a tenant for a period of at least three consecutive months a dwelling located in one of the 14 northern villages of Nunavik, are eligible for this program paid by Transport Québec and administered by Kativik Regional Government (KRG). Federal and provincial officials as well as employees of public and parapublic corporations and the employees of private companies who travel for their work, are excluded from this program. Also excluded are beneficiaries, escorts and personnel of health care centres, and also the residents

44 Information taken from Appendix B of the agreement on the air fare reduction program titled, *Terms of the Air Fare Reduction Program for Nunavik Residents*, an MTQ internal document.

whose ticket is paid in all or in part by a department, an organization, a board, a corporation, a business or any level of government, including municipal councils.

In Nunavik, the amount refunded corresponds to 30% of a ticket price excluding taxes, up to a maximum of $75 per trip for a one-way ticket and $150 for a return trip. The maximum annual amount reimbursed is $450. Chartered flights organised for school or extra circular activities are also eligible. The refund application must be presented at the latest 90 days after the end of the trip (this period was of 45 days prior to 2004), except if a delay can be justified with valid motives. Finally, there is no refund for travelling to destinations outside Québec for vacations. Table 13 lists the number of demands and amounts reimbursed.

The program has been extended in 2003-2004, 2004-2005 and 2005-2006. In the course of that last financial year, MTQ will help determine if the program should be renewed for subsequent years.

TABLE 13
NUMBER OF DEMANDS AND AMOUNTS REIMBURSED FROM THE AFR

Year	Number of demands	Total amount reimbursed
2005-2004	527	$34,100
2004-2003	337	$21,988
2003-2002	241	$19,107
2002-2001*	58	$5,040

*** Starting September 2001**

2.2.4 Transport of Goods and Mail

Goods transported by air in Nord-du-Québec mostly consist of perishables and mail. To help resident populations in paying for the cost of supplies, the governments of Canada and Québec have implemented assistance programs, which are the Federal Government's Food Mail Program and a provincial government financial assistance program for the reduction of cargo costs to Nunavik.

The Food Mail Program

Also named Omnibus Air Service, this program is financed by the Department of Indian Affairs and Northern Development and administered by Canada Post Corporation. It has been in existence since the 60's and was the subject of several modifications since then. Incidentally, it was the subject of a thorough evaluation in 1990[45]. Its purpose is to send nourishing perishable foods and other essentials to remote northern communities at reduced postal rates.

45 Food for the North. Study report on the Food Mail Program. INAC, 1990, 65 pages, appendices.

In Québec, the Basse-Côte-Nord and Nunavik areas are eligible for this program. Before, the Cree villages of James Bay were also eligible for this program, but were excluded since the construction of road links. In Nunavik, the 14 eligible villages are serviced from Val-d'Or, and from Montréal for non-food products. Nourishing perishable foods are eligible (dairy products, meat, fruit and vegetables, fresh juice, bread, eggs, etc.), while the program does not cover foods of low nutritional value such as beer, wine and spirits, soft drinks and candies[46]. Also, all non-food products except for tobacco, are eligible to fees applied to non-food items. However, items such as recreational equipment, leisure-related goods, entertainment material, newspapers, magazines and books are not covered by the program.

The postal rate applied in Nunavik is 80¢ a kilogram, plus 75¢ for each package of nourishing perishable foods. The rate for mailing other types of packages is $1 per kilogram, plus 75¢ per package. In Canada, this program's cost reached $32 M in 2003-2004 compared to $29.5M in 2002-2003. In 2003-2004, Québec covered 38.3% of this amount for a total of $12.3M compared with 33.5% and $8.4M in 2001-2002[47]. It should be noted that the program's cost accounts for the difference between mail revenues received and direct costs incurred by Canada Post Corporation for delivering the service.

Financial Assistance Concerning the Reduction of Freight Charges

On June 24, 2002, through the Ministère des Transports, the Gouvernement du Québec implemented a financial assistance program in order to reduce the financial burden of Nunavik residents related to material supplying. Over an initial three-year period, this program will provide a yearly financial assistance of $700,000, on the 1st of September of each year to the Kativik Regional Government (KRG) in charge of program management and administration. This amount is then distributed among all eligible persons, that is to say persons 16 years and older, residing in the 14 Nunavik villages for at least 12 months. The list of eligible persons is established by each village. This programm has been extended for 2004-2005 and 2005-2006.

46 The detailed list of eligible and ineligible products is available on INAC's Internet site: http://www.ainc-inac.gc.ca/ps/nap/air/elg/lit_e.html.

47 Internet address: http://www.ainc-inac.gc.ca.

Cargo and Mail Transport

Same as for passenger traffic, it remains very difficult to obtain information on freight transport in Nord-du-Québec, because it is not made public since only one air carrier provides or provided air connections in each area: Air Creebec (James Bay), Air Inuit (Nunavik and Schefferville), First Air (Montréal-Kuujjuaq).

However, the previously mentioned descriptive study on domestic transport in Québec reveals that from 1987 to 1993, while Canadian North provided the Montréal–Kuujjuaq connection six times a week with a B-737 aircraft, that is at a frequency and with an aircraft comparable to the current service delivery by First Air, freight yearly traffic was some 1.66 million kilos in 1989, 1.58 million kilos in 1990, to decrease at the level of a little more than 1 million kilos in 1992, the last complete year of this service by Canadian North before the air carrier abandoned this service in 1993[48]. At the same time, First Air decided to operate this connection with a B-727. If we take it that the cargo carrying context is the same in Nunavik since that date, we could consider the importance of this traffic to have increased due to total population growth. Thus the traffic could be of approximately 2 million kilos per year.

Nunavik remains a Québec region where air freight has a significant importance because of the absence of road or railway links with the south of the province. The Cree villages of the James Bay coast are now linked to the Matagami–Radisson road, which allows supplying at lower costs. As for Schefferville, it takes advantage of a railway connection with Sept-Îles, which allows supplying in the region at lesser costs than by air services.

Incidentally, it is also possible to indirectly measure the importance of air freight transportation services by considering the volume of goods forwarded by the Fédération des coopératives du Nouveau-Québec (FCNQ). Established in 1967, the latter consists of thirteen Nord-du-Québec co-operatives and owns three hotels and several lodging facilities in many northern villages. The FCNQ coordinates the transport of more than three million kilograms of cargo in the communities yearly.

Table 14 distributes mail and freight according to weight forwarded by air and handled by the FCNQ, for same Nunavik villages from 1996 to 1999. We can conclude to a significant increase in the number of kilograms of goods handled by the FCNQ between 1996 and 1999 and more precisely during the two last years. From 33,514 kg handled in 1996, the FCNQ would have forwarded almost 200,000 kg in 1999.

48 Ministère des Transports du Québec, SNC-LAVALLIN, *Étude descriptive et analytique sur l'industrie du transport aérien domestique au Québec et ses perspectives d'avenir*, 1995 p. 12, Data on quantities was provided by the Kuujjuaq airport.

TABLE 14
WEIGHT OF MAIL AND FREIGHT HANDLED BY THE FCNQ FROM 1996 TO 1999 (IN KILOGRAMS)

	1996	1997	1998	1999
Akulivik	3,230	7,095	16,928	18,494
Aupaluk	2,074	2,926	6,463	7,463
Inukjuak	4,771	9,742	29,338	36,434
Ivujivik	2,743	2,551	12,266	16,343
Kuujjuaq	1,171	2,196	6,522	6,764
Kuujjuarapik	2,144	2,431	5,027	11,122
Puvirnituq	6,896	15,564	35,446	35,819
Quaqtaq	2,415	5,323	13,468	12,622
Salluit	5,127	10,516	23,176	36,827
Tasiujaq	2,943	4,546	9,158	9,953
Umiujaq	-	-	-	7,389
Total	33,514	62,890	157,792	199,230

Source: Mr. Lapierre, FCNQ

It should be mentioned that these statistics only include part of the volume of freight transported to Nunavik. Private businesses, outfitters, various government departments and agencies and individuals are actually important users of air freight in this region. As such, Raglan Mine forwards to the Kattiniq airport approximately 1 million kilos of freight yearly from the Rouyn-Noranda airport. With its plane fleet, Hydro-Québec ships a significant volume of goods to James Bay airports from the Montréal and Rouyn-Noranda airports.

2.2.5 Airport Logistics and Support Activities

Embarking and Disembarking Passengers

All Nord-du-Québec airports are equipped with air terminals for safe passenger reception and transfer when embarking and disembarking. When airplanes park and stop on the *apron* in front of the terminal, an airline employee comes to greet the disembarking passengers to escort them into the terminal. When boarding, passengers are escorted to the aircraft by an airline employee. Only authorized passengers can access the runway. Embarking and disembarking procedures are applied to enforce safety measures and a strict control over persons having access to the aircraft restricted parking area. It is widely known that it has always been difficult to enforce safety measures in the small airports of James Bay and Nunavik and there is still much to be done in this area.

Concerning safety measures involving passenger screening stations, the airports of Kuujjuaq, Kuujjuarapik, La Grande Rivière, LG-3, LG-4 and Chibougamau are the only ones to have such equipment in Nord-du-Québec. Thus, passengers departing from the other airports on a regular network scheduled flight bound for Montréal International Airport, must go through mandatory screening when stopping at one of these airports or at the Sept-Îles and Val-d'Or airports.

Loading and Unloading of Baggage, Freight and Mail

Loading and unloading of baggage, freight and mail require more complex logistics. The airlines receive passenger baggage until less than an hour before beginning aircraft loading. Freight and mail are stored at the airport or in the villages and brought to the *apron* in front of the terminal less than one hour before aircraft departure. Considering the airplanes' tight weight limits in relation with their capacity and the limits set by the airstrip length and climate conditions, the handling staff must proceed with a systematic control of the weight of the shipment to be loaded. They must also separate packages in the cargo hold bound for the serviced villages according to flight itinerary in order to make unloading easier. Finally, airlines must abide by the requirements of the *Transportation of Dangerous Goods Regulations.*

Handling of passenger baggage is done between the aircraft and the terminal, from the airlines' bag room upon departure and to the baggage delivery area upon arrival. Loading and unloading of freight and baggage are done by the airlines' crew and ground handling staff.

Baggage and freight transfer is done manually in most airports between the aircraft and a service pick-up truck. Freight is usually set aside in a warehouse located in the village. Only the airports in Kuujjuaq, Kuujjuarapik, Kattiniq, La Grande Rivière and Schefferville have a warehouse and a lift vehicle at the airport site. Air Inuit has filed applications for financial assistance with different departments and organizations for the construction of warehouses in the villages of Puvirnituq, Inukjuak and Salluit.

The relative complexity of freight handling associated with short loading and unloading time, require specific logistics and efficient work coordination. In spite of all the efforts to this end, particular situations can disrupt freight handling; i.e. delayed flights or severe weather conditions or lack of available personnel.

3. OVERVIEW OF THE STRENGTHS AND WEAKNESSES OF AIR TRANSPORT

3.1 Air Transport and Territorial Constraints

Air transport evolves in a geographical environment and markets that have their own characteristics. Most of the time, airport *operators* and air carriers cannot in any way modify the majority of these parameters that are, for the most part, constraints to airport operation. They have to do with them and make the most out of them.

Physical Constraints

The Nord-du-Québec region presents numerous physical constraints that impact on airport operation and air transport companies. The vastness of the region obliges air carriers to make long flights to reach the economic heart of Québec. Non-stop flights with turbojets are offered to Kuujjuaq only, wich has a sufficiently long and paved runway. The villages of the James Bay coast and the Schefferville area are located at shorter distances from Abitibi-Témiscamingue, Côte-Nord and Montréal and Québec cities.

The rugged topography in several places and extreme weather require air carriers to set in place operational flight and monitoring procedures that provide a maximum of safety. While the James Bay region presents a flat landform favourable to airport development, the northern part of the region is more mountainous with permafrost zones, which makes it more difficult and expensive to build airports. The severe weather, particularly in winter, obliges *airport operators* to be equipped with efficient snow removal and maintenance equipment everywhere in the region. The staff must be trained in work techniques that can secure the continuous operation of the airports.

Demographic Constraints

The region's small population - 30,000 persons in James Bay and 10,000 in Nunavik - is distributed in approximately thirty towns, villages and localities. Almost half of the agglomerations have less than 1,000 inhabitants. This population distribution partly explains the nature and structure of the air services provided by air carriers. Because there are no road or sea links to the south in Nunavik, except in summer, air transport is essential for both passenger and cargo transport. As well, because the village populations are small, the operating aircrafts are small, the stopovers numerous and the operating costs high.

Economic Constraints

The region's economic conditions are difficult and unemployment is high, a situation that does not encourage airplane trips for vacation or leisure purposes. However, the Aboriginal populations of the two territories have strong social and family ties, which do foster travels. The presence in the region of large companies such as Hydro-Québec

and Raglan Mine, has little impact on the air transport industry, as they own and operate their own airports and provide transportation for their employees.

The strengths and weaknesses of the region's airports and air services will be assessed in this context and framework.

3.2 Strengths and Weaknesses of Air Transport

Although it is relatively easy to clearly identify some of the strengths and weaknesses, several of them will be submitted as problem areas, with a view to having them more thoroughly studied in the future. It should be noted that it is usually easier to correct the weaknesses of airports than of air carriers since the former are usually government-owned while the latter belong to private corporations which primary objective is profitability.

As far as methodology is concerned, the strengths and weaknesses will be addressed concurrently and at the same time as the comments on each parameter. A summary table will be presented at the end of the airports and air services section.

3.2.1 Airports

A Complete Public and Private Airport Network

The allocation and distribution of the airports, both public and private, are undoubtedly among the best qualities of the Nord-du-Québec airport network. Most of the region's agglomerations have an airport with technical parameters that can accommodate turboprop multi-engine airplanes up to 40 passengers. This coverage is due to the lack of roads on a large part of the region, the plane being the necessary link with the outside. Conversely, the towns of southern James Bay linked by road to the rest of the province, such as Chibougamau and Matagami, use their airport a lot less. A significant decrease in airport traffic was noted in the Cree communities of James Bay, following their access to the road network.

A Locally-Operated Airport Network

In the past, the Cree villages, Schefferville and Nunavik airports were operated by Transport Canada and Transports Québec. Today, although ownership has not changed, their operation is under the respective responsibility of the concerned Cree councils, the Naskapi Council and the Kativik Regional Government (KRG). This situation can only be positive as local stakeholders are directly involved in the administration and management of their airport. They are now in a position to see that managing such an infrastructure requires caution and diligence. They can make suggestions to the owners that would improve airport management and the quality of the services provided to the public.

A Majority of Airports Accessible to the Public

Most airports are accessible to all aircrafts, except those owned and operated by the Société minière Raglan and Hydro-Québec. With regard to Hydro-Québec, although the situation was appropriate at the time of the intensive construction of the dams and power plants, its continuance in 2003 can be questioned as this particular area is now specifically dedicated to hydroelectric production, and these airports do not receive much traffic. Therefore, it would be justified to assess this problem with regard to Hydro-Québec. Opening these airports could only foster a larger number of movements, increase turnovers for bush carriers and outfitting businesses that operate in the region, and as well promote aerotourism activities. As for the Kattiniq airport, its isolation and remoteness as well as the nearby mining activities, justify that the infrastructure be closed to the public while remaining accessible on authorization.

An Airport Classification Based on Vocation and Importance

In 1994 and 1995, the two levels of government made public their respective policies concerning the region's airports. Both recognized the importance of the airports for the local communities, particularly those not linked to the road network and that remain isolated. For these airports, the federal government committed to continue financing their operation and keep them in good condition while trying to increase their profitability. Now that the airports of the Cree coastal villages are linked to the Québec road network, Canada could modify the classification of these three airports (Wemindji, Eastmain River, Waskaganish) as it was done in the past for the Natashquan airport, and seek to transfer them to local authorities.

On its part, Québec recognized the importance of most airports in the region by including them in its larger airport network. Are excluded from this list the airports of Chisasibi, Matagami and Lebel-sur-Quévillon because of their road link to the south and the small volume of air traffic. However, now that the Cree villages of Wemindji, Eastmain River and Waskaganish are linked to the Matagami–Radisson highway, there would be grounds for Québec to reassess these airports in its functional classification of airport infrastructures.

A Relatively New and Well Maintained Airport Network

As indicated in the record of the airports' construction dates, most of them were built 25 to 30 years ago. The inspections carried out by Transport Canada and Transports Québec reveal that they were generally well maintained. Major works were performed at several of them in the last ten years (Matagami, Kuujjuarapik, Umiujaq, Kuujjuaq) and the others will be renovated in the future, to ensure that the facilities are kept in good condition. Besides, buildings often deteriorate more quickly than manoeuvring areas and every measure should be taken to keep them in good condition.

Runways Meeting Most of the Needs

The runways in southern James Bay and Schefferville are paved and sufficiently long. In Lebel-sur-Quévillon the runway is only 3,712 feet long by 100 feet wide, but considering that traffic is very low at this airport and there are no scheduled air services, extending the airstrip would not seem pertinent.

The private Hydro-Québec airports all have gravel airstrips 5,000 feet long that meet the company's needs. Although Hydro-Québec has recently renewed its airplane fleet, it has decided to keep its gravel strips. As for the Société minière Raglan, it operates a B-727 on a gravel airstrip 6,100 feet long at the Kattiniq airport and the facilities seem suitable.

Except for the La Grande Rivière, Kuujjuarapik, Puvirnituq and Kuujjuaq airports, all the other airports in the Cree villages and Nunavik have gravel airstrips approximatly 3,500 feet long by 100 feet wide. Although these airstrips fully met the needs at the time they were planned and built, improvements should now be considered in response to the operational, economic and demographic changes that have occurred since then.

Indeed, these airstrips were first planned to meet the operational parameters of the DHC-6 Twin Otter and DC-3 in operation at the time. The DHC-6 stopped being built many years ago and was replaced mainly because of its small carrying capacity, low speed, non pressurized crew stations and high operating costs. The DC-3 is used in the region only to transport cargo from Val-d'Or with Aviation Boréal inc. These airplanes have been replaced by HS-748, DASH-8 and Beech 1900D type turboprop aircrafts, which are bigger, faster and more cost effective but have more demanding operational features, in particular, longer take-off and landing distances. Finally, Transport Canada has raised its regulatory requirements relative to runway length for turboprop airplanes or turbojets, as well as for the operation of these aircrafts on gravel airstrips.

In fact, most James Bay and Nunavik airstrips are in gravel. The operation of modern turboprop airplanes or turbojets on gravel airstrips causes operational problems and imposes greater operating costs on air carriers. The airplanes must be equipped with "gravel kits" on gravel strips. As these kits are not always available, it limits the choice of airplanes for air carriers. Moreover, the ingestion of gravel and rocks through the turbines, as well as damages to the propellers, incur important additional costs for the operators. All in all, the Northern market has significantly changed over the last 25 years, and the aeronautics technology as well. Airplanes worth $20 M and over not uncommon in aviation in 2003, and Nord-du-Québec is not exempt from these escalating prices.

For these reasons, the large number of 3,500 feet gravel airstrips can no longer be considered a plus for several airports but rather an obstacle to the development of air services. Therefore, it would be recommended that the MTQ evaluates the relevance of extending certain Nunavik runways to 5,000 and 6,000 feet and possibly resurfacing them in asphalt concrete, so heavier and more performing airplanes can access them.

Generally Adequate Lighting Systems

Nord-du-Québec airports are equipped with adequate lighting systems, generally of medium intensity. A desirable improvement would be the use at all the airports of a simplified approach lighting system (ODALS) and of glide slope indicators (PAPI) at the airports served by regular carriers that have *non-precision approach* instruments, and runways 5 000 feet or more.

Generally Adequate Enroute and Approach Navigational Aids

The region is equipped with VHF omnidirectional range (VOR) in proximity of the La Grande Rivière, Schefferville and Kuujjuaq airports and non-directional beacons (NDB) at most airports, as well as a *precision approach* system (ILS) at the Kuujjuaq airport and a *localizer* (LOC) at the La Grande Rivière airport. Although these airports do not meet NAV Canada standards with regard to traffic for the installation of ILS, one or two other airports in Nord-du-Québec, possibly Kuujjuarapik and Puvirnituq, should have approach minima similar to those of category 1 ILS, that is 200 feet/ground. GPS technology is in full development and recent airplanes are equipped with a flight management system that includes a GPS. Moreover, it can be expected that air carriers will equip their less recent aircrafts with a GPS in the coming years. Presently the GPS is only used in non-precision approaches. However, technological progress will allow precision approaches in a few years with the addition of ground stations.

Air Control Services to Be Improved and CARS Services to Be Renegotiated

The low level air space (below 18,000 feet) is not controlled in Nord-du-Québec, except in the terminal area of the La Grande Rivière airport, which leaves it up to the instrument-flying pilots to announce their presence and thus avoid collision via radio communications and the TCAS-Traffic Alert & Collision Avoidance System, if installed. The non controlled low level air space in the rest of Canada often begins at more northerly latitudes and vary according to the regions (between 58° and 62° latitude), which NAV Canada justifies by traffic volume. Furthermore, the terminal space of several airports elsewhere in Canada (Wabush, Iqaluit, Churchill, Inuvik and Norman Wells, for example) comparable to the region's airports, is controlled. Also, it should be noted that the low level air space in the state of Alaska is controlled.

It would therefore be justified that NAV Canada review the air control structure of the low level air space in Nord-du-Québec and assess the introduction of such a control for IFR flights safety purposes on the most busy routes and/or in the terminal area of the more active airports like Kuujjuarapik, Puvirnituq and Kuujjuaq. These measures could be easily implemented and managed as NAV Canada has significantly improved radar coverage in Nord-du-Québec in the last years.

CARS or FSS services are also available in all the airports of the Cree villages and Nunavik, except for the Chisasibi (and Schefferville) airports. Negotiations should be undertaken with Transport Canada and NAV Canada to have these services provided in the same way as the other airports operated in Aboriginal environments. As well,

discussions should take place with the concerned carrier and possibly with NAV Canada to establish operational procedures and identify alternatives to the occasional absence of observers and communication (CARS), particularly outside service hours, to increase air safety.

Besides, Nunavik CARS are the only facilities in the country which operating expenses and capital costs are paid by a province (Québec), and not by NAV Canada. This situation should be regularized as quickly as possible.

Adequate and Sufficient Equipment

The Nord-du-Québec airports are adequately maintained in both summer and winter and have the required equipment. Considering that most airports have gravel airstrips, it is necessary to have a grader on site or nearby for the periodical reshaping of the manoeuvring areas. The fact that two graders must be transported by ship between the airports doesn't seem to cause any problem. There was only one mechanic in charge of maintaining and repairing the equipment, but KRG has recently hired additional staff.

Often Improper Safety Control of Manoeuvring Areas

For safety purposes, it is the airport *operators*' responsibility to take the necessary measures to prevent incursions on the strips, taxiways and *aprons* by animals and unauthorized people. All airports likely to be crossed or invaded by animal herds such as caribous, should be enclosed with sufficiently high fences. The MTQ is evaluating the possibility to install gates and fences at his three airports that don't have any, namely Quaqtaq, Kangirsuk and Kangiqsujuaq.

Also, it has often been observed that unauthorized people have easy access to the *movement area*, particularly the *apron*, the control gate remaining open or unlocked. Moreover, the authorized personnel, including air carrier staff, do not always comply with safety procedures and come close to the airplanes while the propellers are still moving.

Supplying Facilities that Could Be Improved

Jet fuel is available all over the region, except at the airports of the Cree villages. This situation can be explained by fuel availability nearby, that is, at the La Grande Rivière airport. However, there are few supply points for type 100LL aviation fuel in Nunavik, and it is available at the pump at the Kuujjuaq airport only. Fuel drums are available at seven other Nunavik airports, but the entire drum must be bought regardless of the need. This causes prejudice to private and commercial airplanes propelled by internal-combustion engines. Although sales volume would probably be modest, efforts should be made to equip some airports in Nunavik with supplying facilities to deliver bulk fuel to the airplanes. Such a measure could contribute to the development of ecotourism in Nunavik.

Emergency and Aircraft Fire Fighting Services to Be Improved

All certified airports must have an emergency response plan adapted to their airport. But it is far from certain that the personnel in place has received the required training and that the required theoretical and practical exercises are carried out in conformity with the set standards. Incidentally, none of the Nord-du-Québec airports complies with the requirement of 2,800 annual movements of scheduled flights made by airplanes of 20 or more passengers necessary to provide fire protection services to the airplanes listed in the CARs 308. Despite this fact, several villages provide municipal fire protection services to the airports through specific agreements. If eventually the annual movements at the Kuujjuaq and Kuujjuarapik airports exceeded 2,800 and it became necessary to provide the services set out in the CARs 308, then solutions will have to be devised to compensate for the fact that the intervention time would actually exceed the CARs' requirements.

Appropriate but Ageing Airport Buildings

Operating an airport normally requires various buildings (terminal, garage, service sheds, etc.) in good condition. Generally, the Nord-du-Québec airport buildings are in sufficient number. The Cree and Nunavik airports were built since the 1980's. Recent inspections by the MTQ have shown that several buildings in Nunavik are beginning to deteriorate and should be renovated. In this respect, the MTQ will rebuild in 2005-2006 the terminal of the Kuujjuarapik airport as it is no longer operational and adequate. With regard to freight warehouses, Air Inuit believes that warehouses are needed at three airports. But there seems to be a financing problem.

Continuous Training Needed for Operating Personnel

Nord-du-Québec airport operating personnel assigned to winter and summer maintenance received good initial training with regard to the required tasks. But they apparently did not received any further training to maintain and upgrade the skills and knowledge relative to their particular field of work. It is important, for safety and efficiency purposes and to maintain a sense of belonging, that a continuous training program be offered to airport workers.

3.2.2 Summary Table of the Airports Strengths and Weaknesses

TABLE 15
SUMMARY TABLE OF THE AIRPORTS STRENGTHS AND WEAKNESSES

Strengths	Weaknesses	Comments and Remarks
A complete public and private airport network		Most villages, even the smaller, have an airport.
Locally operated airports		Allows local involvement and increases airport users' responsibility.
Free accessibility at most airports	Autorised accessibility only at Hydro-Québec airports	Steps to be taken to make Hydro-Québec airports accessible at all times.
Airports which essential role is recognized by both levels of government		Acknowledgement ensures the survival and development of these airports.
	3,500 feet long airstrips mostly	Assess the need to extend certain runways to 5,000-6,000 feet.
	Gravel airstrips mostly	Assess the possibility to cover some airstrips with asphalt.
Adequate lighting systems		Assess the need to add ODALS systems at certain airports to increase reliability and safety, and PAPI for runways 5,000 feet long and over.
Sufficient enroute and approach navigational aids		Follow up on GPS technology.
	Non controlled low level air space (below 18,000 feet)	Assess this problem with air carriers and NAV Canada.
Relatively efficient CARS facilities	No CARS in Chisasibi and Schefferville	Solve the problems related to carrier operations outside the CARS service hours. Negotiate the financing of the Nunavik CARS with Transport Canada and NAV Canada.
Adequate and efficient maintenance equipment		
	Inadequate safety control of the manoeuvring areas	Put up perimeter fences where needed and improve control over apron access.
Good supplying facilities for jet fuel	100LL aviation fuel available in drums at a few sites only	Assess the need to install pumps to distribute 100LL fuel at certain airports.
	Emergency plans to be improved	Train staff for emergencies and update on new aircraft fire regulations (CARs 308).
Appropriate and recent airport buildings	Could be in better condition	Oversee the buildings' condition and implement a renovation program, if needed.
	No continuous staff training program	A continuous training program must be provided to airport maintenance personnel for safety and efficiency purposes.

3.2.3 Air services

Scheduled Air Services Offered Almost Everywhere in Nord-du-Québec

The availability of air transport services in the region is certainly the greatest strength of these services. Indeed, almost all the agglomerations located in Nord-du-Québec and operating an airport are served by air carriers, except for Lebel-sur-Quévillon and Matagami. Incidentally, the latter lost this service just a few years ago following a decline in the region's economic activities. If these conditions were to change, flights could resume at this airport. As for the Cree villages of Mistissini, Oujé-Bougoumou and Waswanipi and the town of Chapais, they are served by the Chibougamau airport. The Valcanton–Villebois area uses the Rouyn-Noranda airport.

Ownership of Regular Air Carriers by Local Interests

While the Nord-du-Québec region was served in the past by air carriers owned by investors from southern Québec, the signing of the James Bay and Northern Quebec Agreement radically modified the situation and permitted the acquisition of these carriers and the creation of others by Aboriginal financial groups. This is how First Air, Air Inuit, Air Creebec and Air Wemindji have become the property of Aboriginal people living in Nunavik and James Bay. Aviation Québec Labrador serving the Schefferville area until its bankruptcy in April 2003, was also owned by Aboriginal investors. Although it is necessary for these companies to reach economic viability, no doubt that one of their main objectives, in fact the reason for acquiring them, is to serve the population.

Monopolies and Captive Clienteles

The economic deregulation of air transport in 1984 and the acquisition of air carriers by Nord-du-Québec Aboriginal people led, over the years, to the elimination of competition and the creation of regional air transport monopolies in James Bay, Nunavik and the Schefferville area. These monopolies are stronger because there are no roads to the south from Nunavik and Schefferville, where air carriers offer their services to captive clienteles.

This commercial context fosters high fares. However, the fact that the air carriers are owned by Aboriginal groups certainly limits this upward pressure on fares. It should be noted however, that the lack of competition is not particular to Nord-du-Québec but applies to the whole country ever since the disappearance of Canadian International. In fact, in the southern part of the country, the competition now comes from Westjet type carriers, operating only in large markets however. So the Nord-du-Québec monopolies can be expected to last for many years yet.

High Flight Volume, Reliable and Regular Services

An analysis of the flights has shown that air carriers offer flight schedules that include very interesting frequencies with regard to the populations served. Thus, a village with as few inhabitants such as Aupaluk (206 people) in Nunavik is served once a day on

week days while Puvirnituq with a population of 1,327 persons is served four times. It is recognized that the frequency of air services is one of the major features of quality air service. This high flight frequency can be easily explained by the complete isolation of the Nunavik villages. High flight frequency is also observed in the James Bay Cree territory despite the fact it has been recently linked to the provincial road network. Although we do not have access to the air carriers' records concerning the reliability and regularity of the flights in Nord-du-Québec, it is admitted that the number of cancelled flights is small considering the severe weather conditions, and the flights are very regular.

Numerous Flights with Several Stops

In Nunavik and James Bay, a study of the schedules shows that non-stop flights are rare, which causes longer flight time. The small population of Nord-du-Québec living in several small villages explains the large number of stopovers. Despite the small-capacity airplanes and passenger/cargo combination flights, it is still difficult for air carriers to plan direct non-stop flights. This situation will remain and is considered an operational constraint.

Long Flight Duration for Montréal toward the Hudson Coast

Nord-du-Québec is a vast region and the distances are considerable, especially between Montréal and Nunavik. Considering that there is a paved and sufficiently long runway in Kuujjuaq, it is possible for First Air to provide a Montréal–Kuujjuaq connection with a flight duration of 2 h 30 for a distance of 1,530 km. This possibility does not exist for Kuujjuarapik and Puvirnituq where the airstrips are in gravel and 5,000 feet long. Therefore, these flights must be made with a Dash-8 and flight duration to Kuujjuarapik is 2 h 50 for 1,075 km and 5 h 35 to Puvirnituq including stopovers for a total distance of 1,670 km from Montréal. These flights, operating six days a week[49], are very long; it would be appropriate to evaluate the opportunity to correct this problem affecting the Hudson coast population.

The distance between the Cree villages of James Bay and Montréal is also relatively important and flight duration with Dash-8 and Beech 1900 aircrafts remains long because of the large number of stopovers and the relative low speed of these aircrafts compared to turbojets. There are 830 kilometres between Montréal and Waskaganish via Val-d'Or, and flying time is 2 h 30, while a flight between Montréal and Chisasibi (only 260 kilometres farther) takes 4 h 30 because of the time needed for three additional stopovers. The introduction of turbojets would reduce flight duration, but because of the villages' small populations, it would still be difficult to plan non-stop flights.

49 Air Inuit has recently started a La Grande Rivière–Puvirnituq direct flight two days a week, wich lowers the number of stopvers and the flight time (4 h 40) for the Montréal–Puvirnituq link.

Fares Comparable to Other Québec Regions

Analyses carried out by air fare experts have shown that, in the different Nord-du-Québec areas, the fares are not discriminatory and compare with other Québec regions. Air fares would be first and foremost determined in terms of distances and number of passengers. Due to the long distances in the region and the small size of the aircrafts used, costs are high.

Air Transport Assistance Programs Adapted to Needs

Nord-du-Québec is vast and the distances to southern Québec are considerable. In Nunavik, the supplying of perishable and other consumer goods is almost exclusively done by plane. To counter the negative effects of this situation for the Nunavik populations, the Canadian and Québec governments have implemented three assistance programs, that is, the Food Mail Program, the Air Fare Reduction Program and the Financial Assistance Concerning the Reduction of Freight Charges. It should be noted that people from these regions who have employment earnings are also eligible to the tax deductions applicable to residents of remote regions. All these programs are aimed at reducing supply costs for the populations of isolated and remote regions.

An Ageing Airplane Fleet in Need of Modernization

The fleet composition of the air carriers has been historically dictated by the features of the airport infrastructures, by airplane availability and suitability, and by the companies' financial resources. Thus, Air Inuit bought DHC-6 Twin Otters because of their STOL capacity (short take-off and landing) as the first airstrips built by this company were short and bumpy. In the same way, the HS-748 can be found at Air Inuit and Air Creebec because of its good carrying capacity, its cargo door, its availability at the time and its reasonable acquisition costs. Similar reasons explain the presence of B-727s at First Air.

These three airplane models have high operating costs, are no longer manufactured, have aged and might no longer meet the carriers' needs. They will have to be replaced in the short and medium term by modern airplanes that are expensive to buy but less costly to operate, and that are less noisy. Incidentally, air carriers have started renewing their fleet, acquiring Dash-8s (Air Creebec, Air Inuit, Hydro-Québec). Air Inuit would shortly replace its HS-748s with ATR-42s, and First Air is presently considering a few models to replace its technology outdated B-727s. The limits related to 3,500 feet gravel airstrips might add additional constraints to air carriers when choosing new airplanes.

Efficient Supplying of Perishable Goods and Cargo for the Populations

Nunavik is totally dependent on the plane for its supply of perishable and non-durable consumer goods as the ship can only bring supplies to the villages in summer and conveys mainly ponderable material such as construction materials and heavy equipment. Other goods, especially perishables, are transported by plane. The supply system set up in Nunavik by Air Inuit and First Air, and in the past by Air Creebec in James Bay, is efficient although criticized in the past for its high rates. Air carriers are

equipped with all-cargo and passenger/cargo combination B-727s and HS-748s that can adequately meet the needs. Moreover, Puvirnituq residents would like to have their airstrip extended so they could be served by a turbo jet.

Efficient Aeromedical Evacuations

In the region, certain hospitals and nursing stations can provide care for relatively severe cases. For the more severe cases and for emergencies, an aeromedical evacuation system has been established, that calls upon either the regular air carriers, the chartered commercial flights or the government air service, as the case may require. Deficiencies regarding medical equipment for some types of airplane used. As for limited accessibility to the Puvirnituq regional hospital by the Service aérien gouvernemental, measures have been taken in winter 2005 and the situation should improve in the futur.

Presence of Important Corporate Air Services

Nord-du-Québec is characterized by the presence of important corporate air services. To fulfil its vocation of public and industrial provider of electricity, Hydro-Québec operates its own airports and airplane fleet in the hydroelectric development corridor of James Bay. The same way, the Société minière Raglan operates the Kattiniq airport and its own plane for its mining supplies and staff transport. Although these two companies make a significant contribution to the economic development of the North, they remain isolated and rather non integrated to the socio-economic environment.

3.2.4 Summary Table of Air Services Strengths and Weaknesses

TABLE 16
SUMMARY TABLE OF AIR SERVICES STRENGTHS AND WEAKNESSES

Strengths	Weaknesses	Comments and Remarks
Regular air services offered almost everywhere in Nord-du-Québec		Only the Matagami and Lebel-sur-Quévillon airports have no regular air services.
Locally owned air carriers		First Air, Air Inuit, Air Creebec and Air Wemindji are owned by Aboriginal interests.
	Air carriers hold monopolies serving, at least in Nunavik, a captive clientele.	Monopolies don't seen to foster fare increase.
High flight frequency	Numerous flights with several stopovers.	Flight frequency is an indicator of quality air service. The small village populations and profitability objective explain the numerous stops.
	Long flight duration between Montréal and the Hudson coast.	The absence of longer and paved airstrips precludes the use of turbojets on the Hudson coast.

Strengths	Weaknesses	Comments and Remarks
Fares comparable with other regions in Québec and Canada		Fares are not discriminatory, but based on distance and number of passengers
	An airplane fleet that needs to be modernized.	DHC-6, HS-748 and B-727 airplanes will have to be replaced shortly.
Adapted air transport assistance programs		Three programs reduce supply costs for the residents.
Efficient supplying methods		Over the years, air carriers have developed efficient cargo transport methods.
Efficient aeromedical evacuation services		Regular air carriers, charters and the government air service have developed efficient evacuation services.
Important corporate air services		Hydro-Québec and Raglan Mine operate corporate air services at their airports. These companies are not really integrated to the socio-economic environment.

3.2.5 Specialized Aviation (helicopters, bush aviation)

It is much more difficult to identify the strengths and weaknesses of this air transport activity sector because of its particular characteristics, different from the traditional aviation sectors. In both cases (helicopters and bush aviation), the companies are generally small, operated on a seasonal basis and sensitive to economic conditions. Moreover, the air carriers that operate helicopters and seaplanes have an independent entrepreneur mentality and have always developed their own infrastructures in response to their needs.

It would seem unfortunate that the helicopter and bush aviation industry does not operate year round but the very nature of its activities, that is, mining exploration, geotechnical and scientific surveying for the helicopter, and hunting and fishing related activities for the seaplane, explains why. Economic setbacks, for instance, have a strong impact on mining exploration, budgets for scientific research projects and the amount of money people spend on recreation. Furthermore, the operating base for helicopter work often changes from year to year, which explains the small number of permanent infrastructures. As for bush aviation, pilots often operate their own outfitting business, excluding competing air carriers. All in all, specialized aviation has reached a certain level of economic maturity, and the services and facilities meet the needs.

The weaknesses of this activity sector lie in the relative availability of docks, ramps and 100LL aviation fuel for private owners of seaplanes who wish to do aerotourism. These shortfalls are present all over Québec and not only in Nord-du-Québec, although they are more acute in this region. Significant improvements could be made in this respect.

4. TRENDS AND INTERVENTION LEADS

4.1 Importance of Air Transport in Nord-du-Québec from an Economic Development Perspective

The previous chapters have clearly shown how important air transport in Nord-du-Québec. However, the degree of importance varies according to the activity sector and increases from south to north. For example, air transport has a much more important role to play in Nunavik than in James Bay. The differences result more particularly from the isolation degree of the communities, the presence or not of a road link to the provincial network and the integration level of the local stakeholders to southern economic activities.

4.1.1 Southern James Bay Area

We can say that southern James Bay, including the municipalities of Matagami, Chibougamau, Chapais, Lebel-sur-Quévillon, the localities of Valcanton and Villebois and increasingly the Cree villages of Mistissini, Waswanipi and Oujé-Bougoumou, fully participate in the market economy of Québec. Traditionally, this geographical area has carried out economic activities related to mining and forestry, and its employment level has fluctuated with the economic conditions. This development model will likely continue to prevail.

The ties the various agglomerations maintain with their airport are quite similar to those existing in Abitibi-Témiscamingue and more to the South of Québec. This situation can be explained by the region's integration to the southern economy and by the existence of a well-developed road network that is part of the Québec network. In several aspects, this area of Nord-du-Québec is quite comparable to other regions in the south of the province and the airport's role is identical. Basically, airports follow economic development and do not play this essential role specific to the airports in isolated and enclaved areas. All in all, the airports of southern James Bay are mainly used for business trips.

In other respects, the new James Bay hydroelectric development projects should only marginally affect airport traffic in James Bay. For the Eastmain-1 project for example, air traffic will increase at the Némiscau airport to four flights per week, that is, two to Val-d'Or and two to Bagotville. An Air Creebec aircraft is chartered for this purpose and the project should end in 2006[50].

50 Marin, G., (2003), Personal communication, Société de développement de la Baie James.

4.1.2 Cree Villages

The vocation of the airports located in Cree villages has drastically changed since the construction of access roads linking each village to the Matagami–Radisson highway, the latter being linked to the provincial road network. Formerly enclaved and isolated, the Cree villages now have a road link with each other by road and with the rest of Québec.

This has a considerable impact on the airports which no longer play the vital role of supplying perishable and consumer goods and permitting people to leave their village. Now, these airports play a more classical role in that they are mainly used for business and leisure trips, and for aeromedical evacuations. People can now choose their means of transportation and no longer depend on air transport. This change in vocation will possibly cause the federal government to modify the classification of these airports and withdraw its financial assistance for their operation and capital assets, to consider their new vocation as was done in the past in similar situations.

As a result of these changes, the region's air carriers, namely Air Creebec and Air Wemindji, had to modify their operations to adapt to the new situation.

4.1.3 Hydroelectric Development Area of La Grande River

The geographical corridor extending from Radisson to Caniapiscau is an area developed by Hydro-Québec for the production of electricity in the 70's. The construction phases of the dams and power plants have long been completed although Hydro-Québec occasionally makes repairs and improvements to its facilities. Today this area is essentially dedicated to electric production.

All the important Hydro-Québec sites, from Radisson to Caniapiscau and Némiscau, are linked by road. The Hydro-Québec airports no longer play the vital role they used to play at the time when all the cargo was delivered by plane. However, they have maintained an essential role in the activity chain of Hydro-Québec as the company has decided to transport its employees by plane approximately twice a month between their place of residence and their work site rather than encouraging them to reside in the territory or to assign them for longer periods of time at their work site, as was the case during the construction of the dams and power plants.

This operating mode has forced Hydro-Québec to have airports that can be used year round and that are equipped with approach aids designed to guarantee very high flight reliability. Hydro-Québec operates its own airplanes between Montréal, Abitibi-Témiscamingue and James Bay as well as Montréal, Québec, Lac Sain-Jean and James Bay to transport its employees and sub-contractors. To increase flight reliability and decrease operating costs, Hydro-Québec has replaced its ageing CV-580s with more performing DHC-8-Q400s. In summary, Hydro-Québec airports are essential to the

company's operation but would have been much less important if a different assignment of the personnel had been selected.

The situation of the Kattiniq airport can be compared to that of Hydro-Québec, with the difference that Raglan Mine has to use its airport for transporting personnel and supplies; no other means of transportation is available. The ship is used only to transport ore and heavy production equipment. The principal function of the Hydro-Québec and Raglan Mine airports is inherently related to their respective activities, and their survival totally depends on them.

4.1.4 Nunavik

The geographical, demographic and economic characteristics of Nunavik explain why airports and air services are so important in the territory. Nunavik is a vast territory where the population is scattered in 14 coastal villages, from Kuujjuarapik and Whapmagoostui to the south-west to Kangiqsualujjuaq to the north-east. There is no road between the villages or to the south of the province where they get their food and cargo supplies. Specialized health care is also in the south and the inhabitants of Nunavik must take the plane to obtain these services.

The economic development problem in Nunavik is similar to that of the Cree villages of James Bay. In both cases, employment is low and private businesses rare. Public services (municipality, health, education, etc.) provide many jobs to village residents who often access the lower-paid jobs only because of their education level. In the air transport sector, several jobs have to be filled in airport maintenance, radiocommunication and weather observation services (CARS) as well as counter service for air carriers and pilot jobs.

However, the number of jobs in air transport is limited and the creation of jobs in James Bay and Nunavik depends on business start-ups. In this respect, it is difficult to assess the probabilities as they are related to natural resources development. But the launching of new hydroelectric projects in James Bay should create many jobs for the James Bay Crees.

4.1.5 Schefferville Area

The Schefferville airport is a hub for the region despite the railway link between Schefferville and Sept-Îles because passenger transport by rail is only available once a week. The airport is the gateway to the region for many hunters and fishermen who come to the Côte-Nord and Nunavik outfitters located in this area. The Nolinor air carrier has a regular connection between Montréal and Schefferville during the caribou hunting season. Off season, the airport is much less busy and accommodates the populations of Schefferville, Kawawachikamach and Matimekosh. The only carrier providing this service is Air Inuit, since Aviation Québec Labrador went bankrupt in April 2003.

4.2 Improvement of Infrastructures and Operations Safety

As previously mentioned, particularly in Chapter 3, the Nord-du-Québec airport infrastructures are generally sufficient, in good condition and fitted with the appropriate equipment. Nonetheless, a few improvements could be made to increase the airports' efficiency and safety and allow air carriers to enhance their services.

First of all, it would be justified to assess the need to extend the runways of certain airports to 5,000 or 6,000 feet so they could be fully used by heavier and more performing airplanes, in particular by turbojets. An increase of the village populations, in the medium and long term, could lead to a greater demand and require the use of aircrafts needing longer runways. As well, the resurfacing of certain airstrips with an asphalt concrete, in addition to making summer and winter maintenance easier, could encourage the introduction of turbojets on certain routes from Montréal and reduce flight duration. The airports more likely to require longer and paved airstrips would be those of Kuujjuarapik, Puvirnituq and Inukjuak in Nunavik, and Chisasibi in James Bay because of the regional hospital.

The addition of ODALS and PAPI lighting systems could improve reliability and safety at landing. Also, perimeter fences at all the airports likely to be crossed by caribou herds would increase safety. In this respect, the MTQ is evaluating the relevance to equip his airports that have no gates or perimeter fences. As well, there needs to be more control over the access to the airports' *aprons* in order to decrease accident hazards.

CARS services are available on almost all the James Bay and Nunavik territory and should be made available in Chisasibi and Schefferville. Also, the capital and operational costs of the CARS in Nunavik should be paid by Transport Canada or NAV Canada as is the case in James Bay and the rest of Canada. Negotiations should be initiated in this respect as early as possible. Finally, an agreement should be made between Air Inuit and KRG relative to the carrier's operating mode outside the CARS service hours, to ensure maximum safety of the airports' operations.

The competence of airport personnel is of prime importance for efficiency and safety reasons. Although the staff was initially well trained, there was no follow-up thereafter. Therefore, it is important to develop and implement a continuous training program for all the personnel assigned to the maintenance and operation of the airports. A few other improvements that could be made to the airports are also mentioned in Table 15, such as low level airspace control, 100LL fuel pumps at certain airports, maintenance of airport buildings, emergency services and follow-up on GPS technology. The reader may refer to Table 2 for information on the condition of the facilities and equipment with a view to assessing the need to repair or replace them at certain specific sites.

4.3 Improvement of Air Services

As is the case for the infrastructures, the air services provided by carriers are excellent and generally only require adjustments to make them more efficient. Basically, the

services have shortfalls concerning flight duration for the Montréal and Hudson Bay west coast connection and the numerous stops on several flights. As such these shortfalls do not reduce the efficiency of air services but cause inconveniences for passengers.

Air carriers do not have much control over the flight duration problem since the solution, that is the use of turbojets, is directly related to the pavement and extension of runways. The fact is, the Nunavik airport infrastructures belong to Transports Québec, and the decision to extend or pave certain airstrips must be assessed by the latter in consultation with the local stakeholders, from a regional development perspective. As mentioned earlier, the present and future transportation needs, and the necessity to renew the fleets must be assessed to determine whether the existing airstrips are still adequate. The development of an airstrip reworking and improvement program over a number of years would give the opportunity to correct the current infrastructure weaknesses, distribute the costs over several years and allow air carriers to plan in advance the renewal of their fleet for faster airplanes, thus reducing flight duration.

The fact that there are several stopovers on many flights is also a disadvantage for passengers and substantially extends flight duration as each stopover requires at least 20 minutes on the ground, plus the time needed for approaching the airport and setting the heading from the airport. Moreover, the small total population of the region, its distribution in many low-populated villages, the ties between each village and the linear nature of the network all foster the inclusion of stopovers for profitability purposes.

In both James Bay and Nunavik, passenger transport is partly carried out by aged airplanes like B-727s, HS-748s and DHC-6s that no longer meet the current standards of comfort, operating costs and noise level, and that should be replaced shortly. Air carriers agree with this and are gradually introducing Beech-1900s, ATR42-300s and DASH-8s while assessing the potential of others. Once all these improvements are made, the scheduled air services will have reached optimum quality.

The fact that the James Bay and Nunavik air carriers are in a monopoly position could be a weakness per se as many economic studies conducted by fare setting specialists have shown in the past. But the region's air companies being owned by Aboriginal interests serving their people puts a soft-pedal on this observation. However it would be surprising that this monopoly situation change in Nord-du-Québec since it also exists in the rest of Canada, where markets should create competition between air carriers. Furthermore, several specialists are of the opinion that regions like Nord-du-Québec and Basse-Côte-Nord can only be profitable to one air carrier, and potential competitors are aware of this.

4.4 Environmental Protection

Air transport related activities cause little damage to the environment. However, fuel supplying is a potential pollution hazard if procedures are not correctly followed. In the same way, airport operation and maintenance represent a certain risk for the

environment, with regard to the use of de-icers like urea, the disposal of used oils and the storage of various types of fuel. Abusive and irresponsible use of de-icing fluid can also contribute to degrading the environment.

The operations manual has a section on the environment in which possible hazards and remedial measures are listed.

It is vital that *airport operators* make environmental protection one of their operational objectives and comply with government guidelines in this respect.

CONCLUSION

The objective of this study was to draw up a profile of the airport infrastructures' network and air services in Nord-du-Québec, to identify the strengths, weaknesses and trends, and to suggest intervention leads. The first finding is that Nord-du-Québec comprises several areas with each its own particular geographical, social and economic characteristics that impact on and orient air transport activities. Any analysis of air transport in Nord-du-Québec must take these aspects into consideration.

The profile of the Nord-du-Québec airport network has also shown that the region enjoys an airport coverage that links almost every community. This feature can be explained by the fact that most villages in the region were captive at the time the airports were built. Moreover, the infrastructures are in good condition and have the technical parameters air carriers need to offer quality air services. However, several airports have airstrips that are in gravel and not long enough to permit an improvement of the services, especially to and from Montréal.

Nord-du-Québec airports provide quality air services and high flight frequency even to the smaller villages. A weakness is noted, however, with regard to the Montréal-Hudson coast connection where Air Inuit can only offer flights with turboprop airplanes because of the lack of paved and sufficiently long airstrips at these airports. The study also reveals that the flights often include many stops, which increases flight duration. Moreover, the two levels of government have implemented assistance programs to reduce transportation and supply costs for the residents of these remote and isolated regions.

Finally, the analysis of the specialized aviation activities, that is, helicopter and bush aviation operations, has shown that they are important although seasonal and sensitive to economic conditions. As for aerotourism, it still is a marginal activity that should expand in the medium term with the creation of a new association for the development of this leisure activity.

Nord-du-Québec is a unique region where air transport will continue to play a major role. The governments will need to maintain their efforts and work in partnership with air carriers and local stakeholders to acquire a better knowledge of the needs, maintain a quality airport network, contribute to efficient air service supply and, this way, foster the region's economic development.

GLOSSARY

Aerodrome
Any land or water surface designed to receive aircrafts. It includes all the buildings, facilities and related equipment.

Aerodrome traffic frequency (ATF)
An aerodrome traffic frequency is generally designated to non-controlled aerodromes; it allows pilots to listen on a common frequency and follow a position and intention reporting procedure.

Aircraft
Any machine capable of remaining in the atmosphere on account of air reactions. Airplanes and helicopters are aircrafts.

Aircraft Itinerant Movement
Take-off or landing of an aircraft from and to another airport.

Aircraft Local Movement
Take-off or landing of an aircraft at the same airport.

Aircraft Movement
Aircraft take-off or landing.

Airport
Aerodrome to which an airport certificate has been issued by Transport Canada. The certification applies to :

a) An aerodrome that is located within the built-up area of a city or town;
b) A land aerodrome that is used by an air operator for the purpose of a scheduled service for the transport of passengers;
c) Any other aerodrome [...], in respect of which the Minister is of the opinion that [...] would be in the public interest and would further the safe operation of the aerodrome.

Airport Operator
Incumbent of the airport certificate or the person in charge of the airport, whether an employee, agent or representative of the certificate incumbent.

Approach Minima
The altitude at which a missed approach procedure must be executed if the visual reference required to continue the descent to landing has not been obtained.

Apron
The part of an aerodrome, except for the manoeuvring area, intended for passenger embarkation and disembarkation, freight loading and unloading, fuelling and usual and technical servicing, parking aircrafts, as well as for the moving of aircrafts, vehicles or pedestrians needed for those activities.

Canadian Aviation Regulations (CARs)
All the regulations governing aeronautics in Canada.

Certified Aircraft
Aircraft having received a type approval from Transport Canada.

Control Tower
Terminal unit and structure of NAV Canada that ensures the control of the aircrafts in the control zone of the aerodrome by means of visual or radio signals, and also the control of the aircrafts on the ground in the movement areas.

Controlled Airspace
Airspace of defined dimensions, within which air traffic control service is provided. Controlled high level airspace refers to all the airspace within the Canadian Domestic Airspace, from 18,000 feet ASL and above, while controlled low level airspace refers to the airspace below 18,000 feet ASL which is under control.

Flight Service Station (FSS)
Aeronautical installation providing stationary and mobile communication services, the alerting service for search and rescue, and meteorological services to pilots.

GPS Overlay Approach
Instrument approach solely constituted of waypoints superimposed to an already existing approach path based on localizers on the ground.

Instrument Approach
A series of manoeuvres, done solely with flight instruments, for landing or initiating the missed approach manoeuvres.

Instrument Flight Rules (IFR)
Rules regulating aircraft flights when weather conditions are below those required for visual flights. Airplanes must be equipped with the instruments required for this type of flight and pilots must hold an IFR certificate.

Instrument landing system (ILS)
Electronic equipment on the ground providing vertical and lateral guidance to approaching aircrafts down to 200 feet AGL for Category I ILS.

Localizer (LOC)
Provides the lateral guidance of approaching aircrafts and allows a non-precision approach. It is the first component of an ILS.

Manoeuvring Area
Part of an aerodrome used for the take-off, landing and surface movements of aircrafts, excluding aprons.

Movement Area
Part of an aerodrome comprising manoeuvring areas and aprons.

NAV Canada
Non-profit business company mandated to provide air control and flight information services. NAV Canada owns the control towers, flight information stations and navigational aids.

Non-Directional Beacon (NDB)
Non-directional beacons of low and medium frequency used for enroute navigation and for non-precision approaches.

Non Precision Approach
Instrument approach in which only the azimuth information is provided. No glide path information is given. The NDB, VOR, LOC and the GPS (presently) allow non-precision approaches.

Observer/Communicator
Person assigned to a community aerodrome radio station. (CARS)

Precision Approach
Instrument approach in which the azimuth and glide path information is provided. The ILS allows the precision approach.

Registered Aerodrome
Aerodrome published in the Canada Flight Supplement.

Remote Airport
Transport Canada Airport serving a community for which air transport is the only means of transportation available all year round.

Stand Alone GPS Approach
Instrument approach solely constituted of waypoints, that can be executed only with a GPS receiver approved for this purpose.

Visual Flight Rules (VFR)
Visual flight rules in force day and night, where the pilot must always have the ground in sight.

VHF Omnidirectional Range (VOR)

Omnidirectional range of a very high frequency used for enroute navigation and for non-precision approaches.

UNICOM

Air-ground communication system, operated by a private agency to give air services at non controlled aerodroms.

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APPENDICES

APPENDIX 1
INDEX OF AIR TRANSPORT INFRASTRUCTURES IN NORD-DU-QUÉBEC

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport d'Akulivik CYKO
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 60° 49' 07'' Longitude W 78° 08' 55'' – située sur la côte est de la baie d'Hudson entre les villages d'Ivujivik et de Puvirnituq (Povungnituk).
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste :09-27**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,510pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voies de circulation A

Type de surface	Gravier
Largeur de la voie de circulation	(18 mètres)

Aires de trafic 1

Dimensions	75 X 45 m.

Akulivik

Type de surface Gravier

Force portante du revêtement
N/D

- **Aérogare;** **oui**
- **Aide à la navigation;**
  - Manches à vent 2
  - Électronique
    - NDB Fréquence 265 et coordonnées N60 49 10 W78 09 17 à l'A/D

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité d'Akulivik de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité d'Akulivik.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de d'Akulivik affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport d'Akulivik n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport d'Akulivik. Les observateurs/communicateurs sont en poste

de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité d'Akulivik.

- **ACCESSIBILITÉ :**
  L'aéroport d'Akulivik peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 mille. Une approche de non-précision est disponible sur la piste 09.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 7 297 927 $

- **ROUTE D'ACCÈS**
  - Longueur de la route d'accès : 1 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport d'Aupaluk CYLA
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 59° 17' 49'' Longitude W 69° 35' 59'' – située sur la rive ouest de la baie d'Ungava à environ 200 kilomètres au nord-ouest de Kuujjuaq.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste: 05-23**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,510pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voies de circulation A

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aires de trafic 1

Dimensions	75 X 45 m.

Aupaluk

Type de surface Gravier

Force portante du revêtement
N/D

- **Aérogare;** **oui**
- **Aide à la navigation;**
  - Manches à vent 2
  - Électronique
    - NDB Fréquence 248 et coordonnées N59 18 11 W69 36 06 à l'A/D

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité d'Aupaluk de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité d'Aupaluk.
    - L'enlèvement des corps étrangers. Les employés de la municipalité d'Aupaluk affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport d'Aupaluk n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport d'Aupaluk. Les observateurs/communicateurs sont en poste
    -

- de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité d'Aupaluk.

- **ACCESSIBILITÉ :**
  L'aéroport d'Aupaluk peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 milles. Une approche de non-précision est disponible sur la piste 23.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 7 792 595 $

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 0.1 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Chibougamau-Chapais CYMT
- **PROPRIÉTAIRE :** Ministère des Transports du Québec
- **RESPONSABLE FINANCIER ET EXPLOITANT :** Ministère des Transports du Québec
- **LOCALISATION :** N 49 46`18`` W 74 31`39``
- **VOCATION :** aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 18-36**

Code de référence		
Dimension		
Largeur	150`	(45m)
Longueur	6500`	(1,952m)
Type de surface	Pavée	
Balisage lumineux		
Feux de bord de piste	oui	
Feux d'approche	oui	
Indicateurs visuels de pente d'approche	oui-PAPI	
Dispositif lumineux de guidage	oui (2)	
Feux d'identification de la piste (RILS)	oui	
Voies de circulation		
Type de surface	Pavée	
Largeur de la voie de circulation	75`	(23m)
Aires de trafic		
Dimensions		
Type de surface	Pavée	
Force portante du revêtement		
Piste	: PLR	

  - **Garage;** **oui**
  - **Aérogare;** **oui 100` X 100` (30mx30m)**
  - **Clôture;** **oui**
  - **Aide à la navigation;**

Manches à vent	2
Électronique	NDB

Chibougamau-Chapais

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    Petro T, Jet B/100LL.
  - **Services de lutte contre les incendies de l'aéroport**
    Non.
  - **Évaluation de l'état de la piste**
    Les rapports de condition de piste sont transmis à la FSS de Roberval de 06 : 30 à 17 : 30 heures, 7 jours par semaine (3 fois par jours).
  - **Service de la navigation aérienne**

    La station FSS de Québec

- **ÉTAT DES INFRASTRUCTURES :**
  Très bon état

- **ÉTAT DES ÉQUIPEMENTS :**
  Très bon état

- **COÛTS :**
  Les coûts d'entretien et d'exploitation s'élèvent à 400 000 $ annuellement.

- **ROUTE D'ACCÈS:**
  M.T.Q.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Chisasibi CSUZ
- **PROPRIÉTAIRE :** Nation Cri de Chisasibi
- **RESPONSABLE FINANCIER ET EXPLOITANT :** Nation Cri de Chisasibi (NCC)
- **LOCALISATION :** N 53 48`20`` W 78 55`01``
- **VOCATION :**Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 14-32**

Code de référence	2CNP
Dimension	
Largeur	100` (30m)
Longueur	3800` (1,141m)
Type de surface	Gravier
Balisage lumineux	**15**
Feux de bord de piste	oui
Feux d'approche	non
Indicateurs visuels de pente d'approche	oui-PAPI
Dispositif lumineux de guidage	non
Feux d'identification de la piste (RILS)	oui
Voie de circulation	
Type de surface	Gravier
Largeur de la voie de circulation	50 mètres
Aires de trafic	
Dimensions	(45 X 75m) 3 375 m²
Type de surface	Gravier
Force portante du revêtement	
Piste : PLR	N/D

  - **Garage;** **non**
  - **Aérogare;** **oui** (12m X 4.9m)
  - **Aide à la navigation;**

Manches à vent	(1)
Électronique	ARCAL

Chisasibi

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    L'entretien et le déneigement sont assurés de 07 : 30 à 16 : 30 du lundi au vendredi. Le service est disponible sur demande à l'extérieur des heures d'exploitation.

  - **Services de lutte contre les incendies de l'aéroport**
    Par le service d'incendie municipal.

  - **Évaluation de l'état de la piste**
    Le personnel d'entretien assure un rapport des conditions de la piste à tous les jours et sur demande.

  - **Service de la navigation aérienne**
    Un service UNICOM assure les communications
    La station FSS de Rouyn-Noranda

- **ÉTAT DES INFRASTRUCTURES :**
  Aires de manœuvres et aides visuels sont en excellent état (Réfection 1997)

- **ÉTAT DES ÉQUIPEMENTS :**

Camion charrue	- en très bon état
Chargeur/souffleuse	- Excellent
Rouleau compacteur/réservoir	- Excellent
Niveleuse	- Excellent

- **COÛTS :**
  Les coûts d'entretien et d'exploitation s'élèvent à 150.0K $ annuellement.

- **ROUTE D'ACCÈS :**
  La route d'accès au village de Chisasibi est de 3 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Eastmain CZEM
- **PROPRIÉTAIRE :** Transports Canada
- **RESPONSABLE FINANCIER :** Transports Canada
- **EXPLOITANT :** Transports Canada à contrat avec le Conseil de bande d'Eastmain
- **LOCALISATION :** N 52 13`32`` W 78 31`21``
- **VOCATION :** Aéroport public, certifié.
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 02-20**

Code de référence	2CNP
Dimension	
Largeur	100` (30m)
Longueur	3 510` (1,054m)
Type de surface	Gravier
Balisage lumineux	
Feux de bord de piste	oui-ME
Feux d'approche	non
Indicateurs visuels de pente d'approche	non
Dispositif lumineux de guidage	non
Feux d'identification de la piste (RILS)	oui-AS
Voie de circulation	
Type de surface	Gravier
Largeur de la voie de circulation	18m
Aires de trafic 1	
Dimensions	(43 X 74m)
Type de surface	Gravier
Force portante du revêtement	
Piste : PLR	5

  - **Garage;** oui
  - **Aérogare;** oui
  - **Aide à la navigation;**

Manches à vent	(2)
Électronique	ARCAL
	NDB ZEM 338 (L)

Eastmain

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    Le déneigement de l'aire de mouvement est limité à la priorité 1, soit la piste ainsi que la voie de circulation A desservant l'aire de trafic. Selon les recommandations dans la publication AK 72-40 de Transports Canada.

  - **Services de lutte contre les incendies de l'aéroport**
    Il n'y a pas de service d'incendie à l'aéroport. (Pompier volontaire de la communauté)

  - **Évaluation de l'état de la piste**
    Un rapport de condition de piste est fourni 2 fois par jour.

  - **Service de la navigation aérienne**
    - Station radio d'aérodrome (CARS) de 7 : 30 à 16 : 30
    - FSS-Rouyn-Noranda 24 heures par jours
- ÉTAT DES INFRASTRUCTURES :
  Les aires de mouvements sont en très mauvaise condition. Transports Canada a entrepris des travaux majeurs de réfection.

- ÉTAT DES ÉQUIPEMENTS :
  En bon état

- COÛTS :
  Les coûts d'exploitation et d'entretien s'élèvent à 190 000$ annuellement.

- ROUTE D'ACCÈS:
  L'aéroport est situé à moins de 1km du village d'Eastmain et la route est entretenue par le Conseil de bande.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Fontanges CTUZ
- **PROPRIÉTAIRE :** Hydro-Québec
- **RESPONSABLE FINANCIER ET EXPLOITANT :** Hydro-Québec
- **LOCALISATION :** N 54 33`14`` W 71 10`24``
- **VOCATION :**Aéroport privé, enregistré
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 10-28**

Code de référence	3-CNP	
Dimension		
Largeur	150`	(45m)
Longueur	4 900`	(1,471m)
Type de surface	Gravier	
Balisage lumineux		
Feux de bord de piste	oui-HI	
Feux d'approche	non	
Indicateurs visuels de pente d'approche	oui	
Dispositif lumineux de guidage	non	
Feux d'identification de la piste (RILS)	oui	
Voie de circulation		
Type de surface	Gravier	
Largeur de la voie de circulation	85` X 980`	(26m x 294m)
Aire de trafic 1		
Dimensions	325 000 p.c.	(29,844m.c.)
Type de surface	Gravier	
Force portante du revêtement		
Piste	: PLR	

  - **Aérogare;** l'aérogare est d'une superficie de 4 800 p.c. (441m.c.)
  - **Avitaillement;** Jet B
  - **Aide à la navigation;**

Manches à vent	(2)		
Électronique	NDB	239 KH2	« 5Q »
	LOC/DME	15Q	109.5 ch.32

Fontanges

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    L'aéroport est exploité 10 heures par jour 7 jours par semaine de 7 : 00 à 17 : 00 heures. Le déneigement est effectué par une charrue et souffleuse d'Hydro-Québec.

  - **Services de lutte contre les incendies de l'aéroport**
    Pompiers à temps partiel d'Hydro-Québec. Véhicule d'intervention rapide mousse/poudre.

  - **Évaluation de l'état de la piste**
    Le chef d'escale d'Hydro-Québec assure l'inspection quotidienne de la piste.

  - **Service de la navigation aérienne**
    Le chef d'escale exploite une station radio aéronautique. NAVCanada exploite 24 heures par jour une FSS située à l'aéroport de La Grande Rivière.

- **ÉTAT DES INFRASTRUCTURES :**
  Bon état

- **ÉTAT DES ÉQUIPEMENTS :**
  Bon état

- **COÛTS :**
  Non disponible

- **ROUTE D'ACCÈS::**
  L'aéroport est situé à 50 Km du poste de Brisay et l'entretien est assuré par Hydro-Québec.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport d'Inukjuaq CYPH
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 58° 28' 18'' Longitude W 78° 04' 38'' – Le d'Inukjuaq est situé sur la côte est de la baie d'Hudson.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste: 07-25**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,500pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aires de trafic 1

Dimensions	75 X 45 m.
Type de surface	Gravier

Inukjuaq

Force portante du revêtement
N/D

- **Aérogare;** **oui**
- **Aide à la navigation;**
  Manches à vent 2
  Électronique
  NDB Fréquence 396 et coordonnées N58 27 05 W78 06 46 071° à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité d'Inukjuaq de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité d'Inukjuaq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de d'Inukjuaq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport d'Inukjuaq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport d'Ivujivik. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité d'Inukjuaq.

Inukjuaq

- **ACCESSIBILITÉ :**
  L'aéroport d'Inukjuaq peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 1 mille et. Une approche de non-précision est disponible sur la piste 25.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 7 265 752 $
  - Coût d'exploitation: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 1,5 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Ivujivik CYIK
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :** Administration Régionale Kativik
- **LOCALISATION :** N 62 25`02` W 77 55`31`
- **VOCATION :**Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 08-26**

Code de référence	2C NP
Dimension	
Largeur	100` (30m)
Longueur	3 500` (1,052m)
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	oui
Feux d'approche	non
Indicateurs visuels de pente d'approche	non
Dispositif lumineux de guidage	non
Feux d'identification de la piste (RILS)	oui-AS

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 m.

Aires de trafic 1

Dimensions	76 X 31 m.
Type de surface	Gravier

Force portante du revêtement

Piste : PLR N/D

Ivujivik

- **Aérogare;** **oui**

- **Aide à la navigation;**
  Manches à vent 2
  Électronique NDB

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    Ce service est dispensé par la Municipalité d'Ivujivik de 08h00 à 18h00, du lundi au vendredi.
  - **Services de lutte contre les incendies de l'aéroport**
    Un extincteur sur roues est disponible à l'aéroport (pompier volontaire de la ville d'Ivujivik)
  - **Évaluation de l'état de la piste**
    Aucun rapport JBI n'est fourni. Toutefois, le personnel d'entretien fournit des informations relatives à l'état de la surface.
  - **Service de la navigation aérienne**

  Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport d'Ivujivik

- ÉTAT DES INFRASTRUCTURES : **Bon**

- ÉTAT DES ÉQUIPEMENTS : **Bon**

- COÛTS : N/D

- ROUTE D'ACCÈS: **entretenue par le village**

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Kangiqsuallujjuaq CYLU
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 58° 42' 41'' Longitude W 65° 59' 37'' – située sur la côte est de la baie d'Ungava, au nord-est de Kuujjuaq, à l'embouchure de la rivière George.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**

- **Piste; 1- Piste : 17-35**

Code de référence	2 C NP	2 C NP
Dimension		
Largeur	100 pieds	
Longueur	3,510pieds	
Type de surface	Gravier	
Balisage lumineux		
Feux de bord de piste	ME	
Feux d'approche	Non	
Indicateurs visuels de pente d'approche	Non	
Dispositif lumineux de guidage	Non	
Feux d'identification de la piste (RILS)	AS	
Voie de circulation		
Type de surface	Gravier	
Largeur de la voie de circulation	18 mètres	
Aires de trafic 1		
Dimensions	75 X 45 m.	

Kangiqsuallujjuaq

Type de surface Gravier

Force portante du revêtement
N/D

- **Aérogare; oui**
- **Aide à la navigation;**
  Manches à vent 2
  Électronique
  NDB Fréquence 295 et coordonnées N58 42 26 W65 59 23 008° 0.3 NM à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Kangiqsuallujjuaq de 8h00 à 18h00, du lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Kangiqsuallujjuaq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Kangiqsuallujjuaq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport de Kangiqsuallujjuaq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

Kangiqsuallujjuaq

- **Service de la navigation aérienne**
  - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Kangiqsuallujjuaq. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité de Kangiqsujuaq.

- **ACCESSIBILITÉ :**
  L'aéroport de Kangiqsuallujjuaq peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 milles et. Une approche de non-précisionn est disponible sur la piste 17.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 8 793 321 $
  - Coût d'exploitation: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 3.0 km
  - La route d'accès est difficile à entretenir car elle est sinueuse et en forte pente.
  - L'accès au village est souvent difficile à cause des montagnes et de fréquents brouillards.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Kangiqsujuaq CYKG
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 61° 35' 19'' Longitude W 71° 55' 46'' – située sur la rive sud du détroit d'Hudson.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 16-34**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,500pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aires de trafic 1

Dimensions	81 X 47 m.
Type de surface	Gravier

Kangiqsujuaq

Force portante du revêtement
N/D

- **Aérogare; oui**
- **Aide à la navigation;**
  Manches à vent 2
  Électronique
  NDB Fréquence 358 et coordonnées N61 35 27 W71 55 43 à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Kangiqsujuaq de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Kangiqsujuaq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Kangiqsujuaq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport de Kangiqsujuaq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Kangiqsujuaq. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la Municipalité de Kangiqsujuaq.

Kangiqsujuaq

- **ACCESSIBILITÉ :**
  L'aéroport de Kangiqsujuaq peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 milles et. Une approche de non-précisionn est disponible sur la piste 34.

- **ÉTAT DES INFRASTRUCTURES :**

- **ÉTAT DES ÉQUIPEMENTS :**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 8 997 062 $

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 2.7 km
  - La route d'accès est difficile à entretenir car elle est sinueuse et en forte pente.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Kangirsuk CYAS
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 60° 01' 38'' Longitude W 69° 59' 57'' – située au nord-ouest de Kuujjuaq près de l'embouchure de la rivière Arnaud.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS, (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 04-22**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,500pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aires de trafic 1

Dimensions	75 X 45 m.
Type de surface	Gravier

Kangirsuk

Force portante du revêtement
N/D

- **Aérogare; oui**
- **Aide à la navigation;**
  Manches à vent 2
  Électronique
  NDB Fréquence 221 et coordonnées N60 01 33 W70 00 17 à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Kangirsuk de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Kangirsuk.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Kangirsuk affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport de Kangirsuk n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Kangirsuk. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité de Kangirsuk.

Kangirsuk

- **ACCESSIBILITÉ :**
  L'aéroport de Kangirsuk peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 1 mille et. Une approche de non-précision est disponible sur la piste 22.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 9 325 769 $
  - Coût d'exploitation: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 0.9 km
  - La piste est située à 383 pieds d'altitude et la route d'accès a des pentes allant jusqu'à 14%

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Kattinik CTP9
- **PROPRIÉTAIRE :** Société minière Raglan du Québec limitée (SMRQ)
- **RESPONSABLE FINANCIER :** SMRQ
- **EXPLOITANT :**SMRQ
- **LOCALISATION :** Latitude N 61° 39' 46'' Longitude W 73° 19' 26'' – située sur la côte du détroit de la baie d'Hudson entre les villages de Kangiqsujuaq et Salluit
- **VOCATION :** Aéroport privé, enregistré.
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 12-30**

Code de référence	2 C NP
Largeur	140 pieds
Longueur	6,100pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	Oui
Feux d'approche	Oui
Indicateurs visuels de pente d'approche	Oui
Dispositif lumineux de guidage	Oui
Feux d'identification de la piste (RILS)	Oui

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aire de trafic 1

Dimensions	75 X 45 m.
Type de surface	Gravier

Kattinik

Force portante du revêtement
N/D

➢ **Aérogare;**	**oui**	**260**
➢ **Hangar**		**350m.c.**
➢ **Aide à la navigation;**	**oui**	
Manches à vent	2	
Électronique		
	NDB	
	VOR/DME	

➢ **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**

➢ **Services côté piste**

- ➢ Le déneigement dispensé par la SMRQ de 7h00 à 19h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la SMRQ.
- ➢ L'enlèvement des corps étrangers. Les employés de la SMRQ affectés à l'entretien se chargent quotidiennement de cette tâche.
- ➢ Nivellement et compactage. Ces tâches sont accomplies par le personnel de la SMRQ.

➢ **Services de lutte contre les incendies de l'aéroport**

- ➢ Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport. 4 500 lbs. de poudre et 35 gls de mousse.

➢ **Évaluation de l'état de la piste**

- ➢ Comme la piste de l'aéroport de Kattinik n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

➢ **Service de la navigation aérienne**

- ➢ Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Kattinik. Les observateurs/communicateurs sont en poste de 7 : 00 à 19 : 00 heures, sept jours par semaine et sont employés par la SMRQ.

Kattinik

- **ACCESSIBILITÉ :**
  L'aéroport de Kattinik peut accueillir les aéronefs 24 heures par jour en régime VFR et IFR, 7 jours par semaine. La visibilité minimale est de 2 mille.

- **ÉTAT DES INFRASTRUCTURES : Excellent**

- **ÉTAT DES ÉQUIPEMENTS : Excellent**
  - Un (1) chasse-neige
  - Deux (2) souffleuses
  - Un (1) chargeur à benne
  - Une (1) Niveleuse
  - Un (1) épandeur à sable

- **COÛTS :**
  N/D
- **ROUTE D'ACCÈS:**
  N/D

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- NOM : Aéroport de Kuujjuaq CYUP
- PROPRIÉTAIRE: Transports Canada
- RESPONSABLE FINANCIER : Administration Régionale Kativik
- EXPLOITANT : Administration Régionale Kativik
- LOCALISATION : Latitude N 58° 05' 46'' Longitude W 68° 25' 37'' – située sur la rive nord de la rivière Koksoak, au sud de la baie d'Ungava, à 1,200 kilomètres au nord de Montréal.
- VOCATION : Aéroport public, certifié
- DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :
  - Piste; 1- Piste : 07-25

Code de référence	4 DP
Dimension	
Largeur	150 pieds
Longueur	6,000pieds
Type de surface	Asphalte

Balisage lumineux

Feux de bord de piste	HI
Feux d'approche	AE
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voie de circulation B

Type de surface	Asphalte
Largeur de la voie de circulation	23 mètres

Aires de trafic 1

Dimensions	154 X 98 m.

Kuujjuaq

Type de surface	Asphalte

Force portante du revêtement
Piste 07-25 : PLR 10

- **Piste; 2- Piste : 13-31**

Code de référence	3 C NP
Dimension	
Largeur	150 pieds
Longueur	5,400pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	Non

Voie de circulation A

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Force portante du revêtement
Piste 13-31 : PLR 7

- **Hangar; oui**
- **Aérogare; oui**
- **Clôture; oui**
- **Aide à la navigation;**

Manches à vent	4	
Électronique	VOT	111.8
	NDB	KUJACK VP 390(MZ) N58 03 22 W68 29 11 072 ° 2.3NM À L'A/D
	VOR/DME	KUJACK YVP 112.5 Ch 72 N58 05 46 W68 25 38 (150°) à l'A/D
	ILS	IVP 110.3 (PISTE 07-25) RVR

Kuujjuaq

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par l'Administration régionale Kativik par l'entremise d'une entente avec la municipalité de Kuujjuaq. La piste asphaltée est dégagée à l'aide de balais mécanique. Ces services sont disponibles de 07h30 à 16h30 du lundi au dimanche ; en dehors de ces heures, il faut communiquer avec l'exploitant de l'aéroport.
    - L'enlèvement des corps étrangers. Les préposés de l'aéroport affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Le marquage des chaussées, l'obturation des fissures, le contrôle du péril aviaire etc. sont effectués, au besoin, par le personnel de la Municipalité de Kuujjuaq.
    - Évaluation de la force portante. Cette évaluation est faite par Transports Canada chaque fois que des travaux modifient la force portante.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucun service de lutte contre les incendies d'aéronefs n'est disponible à l'aéroport de Kuujjuaq

  - **Évaluation de l'état de la piste**
    - Des rapports JBI et/ou des rapports de conditions de piste sont fournis par le personnel d'entretien. Au moins un rapport de condition de piste est fourni au début du quart de travail du lundi au dimanche. Ces informations sont communiquées à la FSS de Kuujjuaq.

  - **Service de la navigation aérienne**
    - L'aéroport de Kuujjuaq est desservi par la station d'information de vol de Kuujjuaq.

- ACCESSIBILITÉ :
  L'aéroport de Kuujjuaq peut accueillir les aéronefs 24 heures par jour en régime VFR et IFR, 7 jours par semaine. La visibilité minimale est de ½ mille. Une approche de précision ILS, catégorie 1, est disponible sur la piste 07. Une approche non-précision avec alignement arrière est disponible sur la piste 25. Les pistes 13 et 31 sont dotés d'approche de non-précision.

- ÉTAT DES INFRASTRUCTURES : **Excellent**

Kuujjuaq

- **ÉTAT DES ÉQUIPEMENTS :** **Bon**
  - Deux (2) camionnettes (JBI)
  - Deux (2) balais mécaniques
  - Un (1) camion épandeur

  - Deux (2) chasse-neige
  - Deux (2) souffleurs à neige
  - Un (1) chargeur sur roues
  - Une (1) niveleuse

- **COÛTS :**
  - Entretien Exploitation annuel: 1,400.0K $

- **ROUTE D'ACCÈS:**

  - Route d'accès asphaltée 1 KM du village entretenu par la municipalité.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- NOM : Aéroport de Kuujjuarapik CYGW
- PROPRIÉTAIRE : Ministère des Transports du Québec (MTQ)
- RESPONSABLE FINANCIER : MTQ
- EXPLOITANT :Administration Régionale Kativik
- LOCALISATION : Latitude N 55° 16' 53'' Longitude W 77° 45' 23'' – située sur la côte est de la baied'Hudson à l'embouchure de la rivière Grande Baleine.
- VOCATION : Aéroport public, certifié
- DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :
  - Piste; 1- Piste : 04-22

Code de référence	3 C NP
Dimension	
Largeur	150 pieds
Longueur	5,085pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	Oui
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Oui
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	Oui

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aires de trafic 1

Dimensions	115 X 48 m.
Type de surface	Gravier

Kuujjuarapik

Aires de trafic 2

Dimensions	122 X 55 m.
Type de surface	Gravier

Force portante du revêtement

N/D

- **Aérogare; oui**
- **Aide à la navigation:**

Manches à vent	1	
Électronique		
	NDB	Fréquence 371 et coordonnées N55 17 05 W77 45 05 à l'A/D

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Kuujjuarapik de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Kuujjuarapik.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Kuujjuarapik affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage se font régulièrement. L'aéroport est équipé d'une niveleuse et d'un compacteur vibrant.
  - **Services de lutte contre les incendies de l'aéroport**
    - Aucun service de lutte contre les incendies d'aéronefs n'est disponible à l'aéroport de Kuujjuarapik. La municipalité de Kuujjuarapik apporte son soutient en cas de besoin.
  - **Évaluation de l'état de la piste**
    - La piste de l'aéroport de Kuujjuarapik n'est pas asphaltée. Toutefois, des rapports JBI et/ou des rapports de conditions de piste sont fournis par le personnel d'entretien. Ces rapports sont transmis à la station d'information de vol de NAV Canada pour diffusion.
  - Service de la navigation aérienne
    - Une station d'information de vol de NAV Canada est exploitée à Kuujjuarapik. Le personnel est en poste 24 heures par jour.

Kuujjuarapik

- **ACCESSIBILITÉ :**
  L'aéroport de Kuujjuarapik peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 milles et demi. Une approche de non précision est disponible sur les pistes 04 et 22.

- **ÉTAT DES INFRASTRUCTURES : Mauvais**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Deux (2) chasse-neige
  - Deux (2) souffleuses
  - Un (1) chargeur
  - Une (1) niveleuse
  - Un (1) épandeur
  - Un (1) compacteur vibrant

- **COÛTS : N/D**

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de La Grande Rivière CYGL
- **PROPRIÉTAIRE :** SDBJ (Société de développement de la Baie-James)
- **RESPONSABLE FINANCIER ET EXPLOITANT :** SDBJ
- **LOCALISATION :** N 53 37`31`` W 77 42`15``
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 13-31**

Code de référence	3-CNP
Dimension	
Largeur	150` (45m)
Longueur	6 500` (1,952m)
Type de surface	Asphalte
Balisage lumineux	
Feux de bord de piste	oui-ME
Feux d'approche	non
Indicateurs visuels de pente d'approche	oui-PAPI
Dispositif lumineux de guidage	non
Feux d'identification de la piste (RILS)	oui
Voies de circulation A et B	
Type de surface	Asphalte
Largeur de la voie de circulation	23 mètres
Aires de trafic 1	
Dimensions	45 000 m² (450 X 122m)
Type de surface	Asphalte
Force portante du revêtement	
Piste : PLR	8

- **Bâtiment de service; oui**
- **Aérogare; oui**
- **Avitaillement; oui**
- **Aide à la navigation;**

Manches à vent	(2) Piste 13 et 31
Électronique	NDB GL201 (M)
	VOR/DME YGL 112.2 M
	DME XGL 109.9
	LOC XGL 109.9

La Grande Rivière

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    L'aéroport est exploité 10 heures par jour 7 jours par semaine de 6 : 30 à 17 : 00 et le samedi de 7 : 00 à 11 : 00 am. Le déneigement est effectué à contrat par Chee-Bee Cree Construction avec charrue, souffleuse, balais de piste et niveleuse.

  - **Services de lutte contre les incendies de l'aéroport**
    Le service est assuré par un agent de protection de 6 : 00 à 18 : 00 et de 18 : 00 à 8 : 00 par un agent de sécurité. Un camion d'intervention rapide mousse/poudre.

  - **Évaluation de l'état de la piste**
    L'agent de protection en service effectue l'inspection de la piste tous les jours.

  - **Service de la navigation aérienne**
    Une station d'information de vols (NAVCanada) est opérationnelle 24 heures par jour, 7 jours par semaine.

- ÉTAT DES INFRASTRUCTURES :
  Les aires de manœuvres et aides visuelles furent restaurés en 1998 et sont en excellent état.

- ÉTAT DES ÉQUIPEMENTS :
  Les équipements sont également en excellent état.

- COÛTS :
  Non disponible

- ROUTE D'ACCÈS:
  L'aéroport est situé à 32 kilomètres au sud de Radisson.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Lebel-sur-Quevillon CSH4
- **PROPRIÉTAIRE :** Ville de Lebel-sur-Quevillon
- **RESPONSABLE FINANCIER ET EXPLOITANT :** Ville de Lebel-sur-Quevillon
- **LOCALISATION :** N 49 01`48`` W 77 01`01``
- **VOCATION :** Aéroport public, enregistré
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 15-33**

Code de référence	
Dimension	
Largeur	100` (30m)
Longueur	3 700` (1,111 m)
Type de surface	Asphalte
Balisage lumineux	
Feux de bord de piste	oui
Feux d'approche	non
Indicateurs visuels de pente d'approche	non
Dispositif lumineux de guidage	non
Feux d'identification de la piste (RILS)	non
Voie de circulation	
Type de surface	
Largeur de la voie de circulation	
Aires de trafic 1	
Dimensions	
Type de surface	
Force portante du revêtement	
Piste	: PLR N/D

- **Aérogare;** l'aérogare est d'une superficie de **120** p.c. (11m.c.)
- **Avitaillement;** **Non**
- **Aide à la navigation;**

Manches à vent	(1)
Électronique	ARCAL

Lebel-sur-Quevillon

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    Déneigement du lundi au vendredi de 8 : 30 à 12 : 00 et de 13 : 00 à 16 : 00 (avis 24 heures avant l'arrivée)
  - **Services de lutte contre les incendies de l'aéroport**
    Non
  - **Évaluation de l'état de la piste**
    Rapport de piste sur demande
  - **Service de la navigation aérienne**
    FSS-Rouyn-Noranda
- ÉTAT DES INFRASTRUCTURES :
  Bon état
- ÉTAT DES ÉQUIPEMENTS :
  Bon état
- COÛTS :
  Budget d'exploitation est de 25.0K$ annuellement
- ROUTE D'ACCÈS:
  N/D

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de La Grande-3 CYAD
- **PROPRIÉTAIRE :** Hydro-Québec
- **RESPONSABLE FINANCIER :** Hydro-Québec
- **EXPLOITANT :** Hydro-Québec
- **LOCALISATION :** N 53 34`18`` W 76 11`47``
- **VOCATION :** Aéroport privé, enregistré
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 11-29**

Code de référence	3-CNP	
Dimension		
Largeur	150`	(45m)
Longueur	5000`	(1,502m)
Type de surface	Gravier	
Balisage lumineux	**11**	
Feux de bord de piste	oui-HI	
Feux d'approche	non	
Indicateurs visuels de pente d'approche	oui	
Dispositif lumineux de guidage	non	
Feux d'identification de la piste (RILS)	non	
Voie de circulation		
Type de surface	Gravier	
Largeur de la voie de circulation	100` X 300`	(30m x 91m)
Aires de trafic 1		
Dimensions	180 000 p.c.	(16,529m.c.)
Type de surface	Gravier	
Force portante du revêtement		
Piste : PLR N/D		

- **Bâtiment de service;** 1 600 p.c. intégré à l'aérogare (147m.c.)
- **Aérogare;** 3 500 p.c. (321m.c.)
- **Avitaillement;** jet-B
- **Aide à la navigation:**

Manches à vent	(1) Piste 29
Électronique	NDB 235 KHZ « 9H » LOC/DME IP7 110.3

La Grande-3

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    L'aéroport est exploité 10 heures par jour 7 jours par semaine de 7 : 00 à 17 : 00. Le déneigement est effectué par une charrue et souffleuse d'Hydro-Québec.

  - **Services de lutte contre les incendies de l'aéroport**
    Pompiers à temps partiel d'Hydro-Québec. Véhicule d'intervention rapide mousse/poudre.

  - **Évaluation de l'état de la piste**
    Le chef d'escale d'Hydro-Québec assure l'inspection quotidienne de la piste.

  - **Service de la navigation aérienne**
    Le chef d'escale exploite une station radio aéronautique. NAVCanada exploite 24 heures par jour une FSS située à l'aéroport de La Grande Rivière.

- **ÉTAT DES INFRASTRUCTURES :**
  Bon état

- **ÉTAT DES ÉQUIPEMENTS :**
  Bon état

- **COÛTS :**
  Non disponible

- **ROUTE D'ACCÈS:**
  La route d'accès de 30 Km relie l'aéroport au village, poste de Sakami et est entretenue par Hydro-Québec.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de La Grande-4 CYAH
- **PROPRIÉTAIRE :** Hydro-Québec
- **RESPONSABLE FINANCIER :** Hydro-Québec
- **EXPLOITANT :** Hydro-Québec
- **LOCALISATION :** N 53 45`17`` W 73 40`31``
- **VOCATION :** Aéroport privé, enregistré
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 09-27**

Code de référence	3-CNP	
Dimension		
Largeur	150`	(45m)
Longueur	5000`	(1,502m)
Type de surface	Gravier	
Balisage lumineux		
Feux de bord de piste	oui	
Feux d'approche	non	
Indicateurs visuels de pente d'approche	oui	
Dispositif lumineux de guidage	non	
Feux d'identification de la piste (RILS)	non	
Feux de seuil de piste	oui	
Voie de circulation		
Type de surface	Gravier	
Largeur de la voie de circulation	100` X 200`	(30m x 61m)
Aire de trafic		
Dimension	379.500 p.c.	(34,848m.c.)
Type de surface	Gravier	
Force portante du revêtement		
Piste : PLR	N/D	

- **Bâtiment de service;** 1 600 p.c. intégré à l'aérogare (147m.c.)
- **Aérogare;** 3 500 p.c. (321m.c.)
- **Avitaillement;** Jet B
- **Aide à la navigation;**

Manches à vent	(1) Piste 09
Électronique	NDB 332 (H)
	LOC/DME IQT 110.9

La Grande-4

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    L'aéroport est exploité 10 heures par jour 7 jours par semaine de 7 : 00 à 17 : 00. Le déneigement et le déglaçage sont effectués par une charrue et souffleuse d'Hydro-Québec.

  - **Services de lutte contre les incendies de l'aéroport**
    Pompiers à temps partiel d'Hydro-Québec. Véhicule d'intervention rapide mousse/poudre.

  - **Évaluation de l'état de la piste**
    Le responsable de l'aéroport donne un rapport de condition de la piste quotidiennement et sur demande.

  - **Service de la navigation aérienne**
    Exploitation d'une station radio aéronautique. NAVCanada exploite 24 heures par jour une FSS située à l'aéroport de La Grande Rivière.

- ÉTAT DES INFRASTRUCTURES :
  Bon état

- ÉTAT DES ÉQUIPEMENTS :
  Bon état

- COÛTS :
  Non disponible

- ROUTE D'ACCÈS:
  La route d'accès de 15 Km relie l'aéroport au village de LG-4 et est entretenue par Hydro-Québec.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Matagami CTM6
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :** MTQ
- **LOCALISATION :** N 49 45`11`` W 77 48`09``
- **VOCATION :** Aéroport public, enregistré

- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 15-33**

Code de référence	4-D	
Dimension		
Largeur	150`	(45m)
Longueur	5 002`	(1,502m)
Type de surface	Asphalte	
Balisage lumineux	**15**	**33**
Feux de bord de piste	oui	oui
Feux d'approche	non	oui
Indicateurs visuels de pente d'approche	oui-PAPI	non
Dispositif lumineux de guidage	non	non
Feux d'identification de la piste (RILS)	oui	oui
Voie de circulation		
Type de surface	Asphalte	
Largeur de la voie de circulation	23 mètres	
Aires de trafic 1		
Dimensions	(91 X 290m)	
Type de surface	Asphalte	
Force portante du revêtement		
Piste : PLR	N/D	

- **Bâtiment de service;** oui
- **Aérogare;** oui
- **Avitaillement;** 100 LL, JB
- **Aide à la navigation;**
  - Manches à vent (2)
  - Électronique NDB NM278

Matagami

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    Le déneigement est limité en hiver, les conditions optimales sont rétablies 12 heures après la fin d'une tempête de neige. Les travaux d'entretien sont assurés par MTQ de 07 : 45 à 16 : 30 heures.

  - **Services de lutte contre les incendies de l'aéroport**
    Aucun service à l'aéroport

  - **Évaluation de l'état de la piste**
    Un rapport de condition de piste est fourni au début du quart de travail du lundi au vendredi et lorsque requis.

  - **Service de la navigation aérienne**
    Station météo automatique (AWOS)
    Station d'information de vol (FSS) Rouyn-Noranda

- ÉTAT DES INFRASTRUCTURES :
  En bon état

- ÉTAT DES ÉQUIPEMENTS :
  En bon état

- COÛTS :
  Non disponible

- ROUTE D'ACCÈS:
  La route d'accès de l'aéroport à Matagami est de 18km et est entretenue par le MTQ.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Némiscau CYHH
- **PROPRIÉTAIRE :** Hydro-Québec
- **RESPONSABLE FINANCIER :** Hydro-Québec
- **EXPLOITANT :** Hydro-Québec
- **LOCALISATION :** N 51 41`28`` W 76 08`08``
- **VOCATION :**Aéroport privé, enregistré
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 09-27**

Code de référence	2-BNP	
Dimension		
Largeur	150`	(45m)
Longueur	5000`	(1,502m)
Type de surface	Gravier	
Balisage lumineux		
Feux de bord de piste	oui-HI	
Feux d'approche	non	
Indicateurs visuels de pente d'approche	oui VASIS (2)	
Dispositif lumineux de guidage	non	
Feux d'identification de la piste (RILS)	oui	
Voie de circulation		
Type de surface	Gravier	
Largeur de la voie de circulation	105` X 325`	(32m x 98m)
Aire de trafic 1		
Dimensions	227 500 p.c.	(20,891m.c.)
Type de surface	Gravier	
Force portante du revêtement		
Piste : PLR	N/D	

- **Garage;** le bâtiment de services de 1 600 p.c.(147m.c.) est intégré à l'aérogare
- **Aérogare;** l'aérogare est d'une superficie de 3 500 p.c. (321m.c.)
- **Avitaillement;** Jet B
- **Aide à la navigation;**

Manche à vent(1) est située à 150m du seuil 09

Électronique	NDB	214 KH2	« K8 »
	LOC/DME	IK8	109.5

Némiscau

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    L'aéroport est exploité 10 heures par jour 7 jours par semaine de 7 : 00 à 17 : 00 heures. Le déneigement est effectué par une charrue et souffleuse d'Hydro-Québec.

  - **Services de lutte contre les incendies de l'aéroport**
    Pompiers à temps partiel d'Hydro-Québec. Véhicule d'intervention rapide mousse/poudre.

  - **Évaluation de l'état de la piste**
    Le chef d'escale d'Hydro-Québec assure l'inspection quotidienne de la piste.

  - **Service de la navigation aérienne**
    Le chef d'escale exploite une station radio aéronautique. NAVCanada exploite 24 heures par jour une FSS située à l'aéroport de La Grande Rivière.

- **ÉTAT DES INFRASTRUCTURES :**
  Bon état

- **ÉTAT DES ÉQUIPEMENTS :**
  Bon état

- **COÛTS :**
  Non disponible

- **ROUTE D'ACCÈS:**
  La route d'accès de 7 Km du poste de Némiscau est entretenue par Hydro-Québec.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Puvirnituq CYPX
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 60° 03' 02'' Longitude W 77° 17' 13'' – située sur la côte est de la baie d'Hudson. Puvirnituq est doté d'un hôpital régional desservant toute la côte de la baie d'Hudson.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 01-19**

Code de référence	3 C NP
Dimension	
Largeur	100 pieds
Longueur	5,000pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	Oui
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	Oui

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Puvirnituq

Aire de trafic

Dimensions	5,960 m.c.
Type de surface	Gravier

Force portante du revêtement

N/D

- **Aérogare; oui**
- **Aide à la navigation;**

Manches à vent	2	
Électronique		
	NDB	Fréquence 338 (M)
	VOR/DME	Fréquence 113.5 et coordonnées N60 02 37 W77 16 46 0.2 NM à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Puvirnituq de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Puvirnituq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Puvirnituq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.
  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.
  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport de Puvirnituq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

Puvirnituq

- **Service de la navigation aérienne**
  - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Puvirnituq. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la Municipalité de Puvirnituq.

- **ACCESSIBILITÉ :**
  L'aéroport de Puvirnituq) peut accueillir les aéronefs 24 heures par jour en régime VFR et IFR, 7 jours par semaine. La visibilité minimale est de 1 mille. Une approche de non-précision est disponible sur la piste 01.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur
  - Une (1) niveleuse
  - Un (1) compacteur vibrant

- **COÛTS :**
  - Coût de construction : 13 314 892 $
  - Coût d'entretien: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 1 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Quaqtaq CYHA
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 61° 02' 48'' Longitude W 69° 37' 01'' – située au nord-ouest de Kuujjuaq aux confins de la Baie d'Ungava et du détroit d'Hudson.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 01-19**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,510pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aire de trafic

Dimensions	75 X 45 m.
Type de surface	Gravier

Quaqtaq

Force portante du revêtement
N/D

- **Aérogare; oui**
- **Aide à la navigation;**

Manches à vent	2	
Électronique		
	NDB	Fréquence 285 et coordonnées N61 02 34 W69 37 38 087° 0.4NM à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Quaqtaq de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Quaqtaq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Quaqtaq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport de Quaqtaq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple. neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Quaqtaq. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité de Quaqtaq.

Quaqtaq

- **ACCESSIBILITÉ :**
  L'aéroport de Quaqtaq peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 milles. Une approche de non-précisionn est disponible sur les pistes 01 et 19.

- **ÉTAT DES INFRASTRUCTURES :**

- **ÉTAT DES ÉQUIPEMENTS :**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 7 946 435 $
  - Coût d'entretien: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 0.4 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Schefferville CYKL
- **PROPRIÉTAIRE :** Transports Canada
- **RESPONSABLE FINANCIER :** Société Aéroportuaire de Schefferville
- **EXPLOITANT :** Société Aéroportuaire de Schefferville.
- **LOCALISATION :** N 54 48`20`` W 66 48`21``
- **VOCATION :** Aéroport public, certifié.
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 18-36**

Code de référence	3CNP
Dimension	
Largeur	150` (45m)
Longueur	5000` (1,502m)
Type de surface	Pavée
Balisage lumineux	
Feux de bord de piste	oui-ME
Feux d'approche	non
Indicateurs visuels de pente d'approche	oui-PAPI
Dispositif lumineux de guidage	non
Feux d'identification de la piste (RILS)	oui
Voie de circulation	
Type de surface	Pavée
Largeur de la voie de circulation	75 mètres (23)
Aire de trafic	
Dimensions	500 X 300 mètres (152 X 92)
Type de surface	Pavée
Force portante du revêtement	
Piste : PLR	9

- **Garage;** oui 120 X 45 (37 X 14)
- **Hangar;** oui (2)
- **Aérogare;** oui 360 X 35 (18 X 11)
- **Clôture;** oui
- **Aide à la navigation:**

Manches à vent	(2)
Électronique	NDB
	VOR/DME

Schefferville

ILS

- LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :
  - **Services côté piste**
    L'entretien et le déneigement sont assurés de 07:00 à 15:00 du lundi au vendredi. Préavis de 3 heures en dehors des disponibilités ci-haut mentionnées (Par les employés de la Société Aéroportuaire de Schefferville)
    Enlèvement des corps étrangers par les employés de la société.

  - **Services de lutte contre les incendies de l'aéroport**
    Aucune réglementation n'exige ces services, par contre un véhicule incendie est situé à l'aéroport et il est opéré par la municipalité de Schefferville.

  - **Évaluation de l'état de la piste**
    5 jours/semaine du lundi au vendredi de 7:00 à 15:00. Préavis de 3 heures/ rapport transmis au FSS de Québec.

  - **Service de la navigation aérienne**
    Services consultatifs fournis par la FSS de Québec.

- ACCESSIBILITÉ
  24 heures par jours en régime VFR et IFR

- ÉTAT DES INFRASTRUCTURES :
  Excellent

- ÉTAT DES ÉQUIPEMENTS :
  Excellent
  1 Camionnette à plateau
  1 Chargeuse à benne
  1 Niveleuse
  1 Souffleuse
  1 Chasse-neige
  1 Balai de piste

- COÛTS :
  Les coûts d'entretien et d'exploitation s'élèvent à 300.0K $ annuellement.

- ROUTE D'ACCÈS:
  La route d'accès est à .5 km entretenue par la municipalité de Schefferville.

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Tasiujaq CYTQ
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 58° 40' 04'' Longitude W 69° 57' 21'' – située à environ 90 kilomètres au nord-ouest de Kuujjuaq.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**

  - **Piste; 1- Piste : 06-24**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,510pieds
Type de surface	Gravier

Balisage lumineux

Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS

Voie de circulation

Type de surface	Gravier
Largeur de la voie de circulation	18 mètres

Aires de trafic 1

Dimensions	75 X 45 m.
Type de surface	Gravier

Tasiujaq

Force portante du revêtement
N/D

- **Aérogare; oui**
- **Aide à la navigation;**
  Manches à vent 2
  Électronique
  NDB Fréquence 212 et coordonnées N58 40 13 W69 56 51 à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité de Tasiujaq de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité de Tasiujaq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de Tasiujaq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport de Tasiujaq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport de Tasiujaq. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la municipalité de Tasiujaq.

Tasiujaq

- **ACCESSIBILITÉ :**
  L'aéroport de Tasiujaq peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2.25 milles. Une approche de non-précision est disponible sur la piste 24.

- **ÉTAT DES INFRASTRUCTURES :**
  Bon

- **ÉTAT DES ÉQUIPEMENTS :**
  - Une (1) camionnette Bon
  - Un (1) chasse-neige Bon
  - Une (1) souffleuse Bon
  - Un (1) chargeur Bon

- **COÛTS :**
  - Coût de construction : 9 301 278 $
  - Coût d'exploitation: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 3.6 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport d'Umiujuaq CYMU
- **PROPRIÉTAIRE :** Ministère des Transports du Québec (MTQ)
- **RESPONSABLE FINANCIER :** MTQ
- **EXPLOITANT :**Administration Régionale Kativik
- **LOCALISATION :** Latitude N 56° 32' 10'' Longitude W 76° 31' 06'' – située sur la côte est de la baie d'Hudson, au nord de Kuujjuarapik et au sud d'Inukjuaq.
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste : 03-21**

Code de référence	2 C NP
Dimension	
Largeur	100 pieds
Longueur	3,500pieds
Type de surface	Gravier
Balisage lumineux	
Feux de bord de piste	ME
Feux d'approche	Non
Indicateurs visuels de pente d'approche	Non
Dispositif lumineux de guidage	Non
Feux d'identification de la piste (RILS)	AS
Voie de circulation	
Type de surface	Gravier
Largeur de la voie de circulation	18 mètres
Aire de trafic	
Dimensions	75 X 45 m.
Type de surface	Gravier

Umiujuaq

Force portante du revêtement
N/D

- **Aérogare; oui**
- **Aide à la navigation;**
  Manches à vent 2
  Électronique
  NDB Fréquence 230 et coordonnées N56 32 13 W76 31 23 à l'A/D

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    - Le déneigement dispensé par la municipalité d'Umiujaq de 8h00 à 18h00, de lundi au vendredi. En dehors de ces heures, il faut communiquer avec la municipalité d'Umiujaq.
    - L'enlèvement des corps étrangers. Les employés de la municipalité de d'Umiujaq affectés à l'entretien se chargent quotidiennement de cette tâche.
    - Nivellement et compactage. Ces tâches sont accomplies par le personnel de l'Administration Régionale Kativik ou à contrat environ tous les 3 ans.

  - **Services de lutte contre les incendies de l'aéroport**
    - Aucune réglementation n'exige la présence de service de lutte contre les incendies d'aéronefs. Un extincteur sur roues est disponible à l'aéroport.

  - **Évaluation de l'état de la piste**
    - Comme la piste de l'aéroport d'Umiujaq n'est pas asphaltée, aucun rapport JBI n'est fourni. Le personnel d'entretien fournit toutefois des informations relatives à l'état de la surface, par exemple, neige compactée, gravier, neige mêlée de gravier, glace, etc.

  - **Service de la navigation aérienne**
    - Une station-radio d'aérodrome communautaire (SRAC) est exploitée à l'aéroport d'Umiujaq. Les observateurs/communicateurs sont en poste de 8 : 00 à 18 : 00 heures, sept jours par semaine et sont employés par la Municipalité d'Umiujaq.

Umiujuaq

- **ACCESSIBILITÉ :**
  L'aéroport d'Umiujaq peut accueillir les aéronefs 24 heures par jour en régime VFR, 7 jours par semaine. La visibilité minimale est de 2 ¼ milles. Une approche de non-précision est disponible sur la piste 03.

- **ÉTAT DES INFRASTRUCTURES : Bon**

- **ÉTAT DES ÉQUIPEMENTS : Bon**
  - Une (1) camionnette
  - Un (1) chasse-neige
  - Une (1) souffleuse
  - Un (1) chargeur

- **COÛTS :**
  - Coût de construction : 9 455 767 $
  - Coût d'entretien: N/D

- **ROUTE D'ACCÈS:**
  - Longueur de la route d'accès : 2 km

FICHE DES INFRASTRUCTURES DE TRANSPORT AÉRIEN DANS LE NORD-DU-QUÉBEC

- **NOM :** Aéroport de Waskaganish CYKQ
- **PROPRIÉTAIRE :** Transports Canada
- **RESPONSABLE FINANCIER :** Transports Canada
- **EXPLOITANT :** Transports Canada à contrat avec le Conseil de bande
- **LOCALISATION :** N 51 28`25`` W 78 45`29``
- **VOCATION :** Aéroport public, certifié
- **DESCRIPTION DES INSTALLATIONS (piste, hangar, aérogare, clôture, aide à la navigation, balisage lumineux, etc.) :**
  - **Piste; 1- Piste 06-24**

Code de référence	2CNP	
Dimension		
Largeur	100`	(30m)
Longueur	3 500`	(1,052m)
Type de surface	Gravier	
Balisage lumineux		
Feux de bord de piste	oui-ME	
Feux d'approche	non	
Indicateurs visuels de pente d'approche	non	
Dispositif lumineux de guidage	non	
Feux d'identification de la piste (RILS)	oui	
Voie de circulation		
Type de surface	Gravier	
Largeur de la voie de circulation	18m	
Aire de trafic		
Dimensions	(43 X 74m)	
Type de surface	Gravier	
Force portante du revêtement		
Piste : PLR	N/D	

- **Garage;** oui
- **Aérogare;** oui
- **Aide à la navigation;**

Manches à vent	(2)	éclairés
Électronique	ARCAL	
	NDB	fréquence 278

Waskaganish

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    Le déneigement de l'aire de mouvement est limité à la priorité 1, soit la piste 06-24 ainsi que la voie de circulation A desservant l'aire de trafic.

  - **Services de lutte contre les incendies de l'aéroport**
    Il n'y a pas de service d'incendie à l'aéroport. (Pompier volontaire de la communauté)

  - **Évaluation de l'état de la piste**
    Un rapport de condition de piste est fourni 2 fois par jour.

  - **Service de la navigation aérienne**
    Une station radio d'aérodrome communautaire de 07 : 30 à 16 : 30. Une station d'information de vols (FSS) située à l'aéroport de Rouyn-Noranda 24 heures par jours.
- **ÉTAT DES INFRASTRUCTURES :**
  Les aires de mouvements sont en très mauvaise condition. L'aérogare et le garage sont en bon état.

- **ÉTAT DES ÉQUIPEMENTS :**
  En bon état

- **COÛTS :**
  Les coûts d'exploitation et d'entretien s'élèvent à 185 000$ annuellement.

- **ROUTE D'ACCÈS:**
  Le village de Waskaganish est situé à 2km de l'aéroport et la route d'accès est entretenue par les services publics du Conseil de bande.

Wemindji

- **LOCALISATION ET DESCRIPTION DES TYPES DE SERVICES SUR PLACE :**
  - **Services côté piste**
    Le déneigement est effectué selon les procédures de la publication AK 72-43. L'entretien général est effectué par le conseil de bande.

  - **Services de lutte contre les incendies de l'aéroport**
    Il n'y a pas de service d'incendie. (Pompier volontaire de la communauté)

  - **Évaluation de l'état de la piste**
    Un rapport de condition de piste est fourni 2 fois par jour.

  - **Service de la navigation aérienne**
    - Station radio d'aérodrome (CARS) de 7 : 30 à 16 : 30
    - FSS-Rouyn-Noranda 24 heures par jours
- **ÉTAT DES INFRASTRUCTURES :**
  Excellent état des aires de mouvements, aides visuels et des bâtiments.

- **ÉTAT DES ÉQUIPEMENTS :**
  Très bon état

- **COÛTS :**
  Les coûts d'exploitation et d'entretien s'élèvent à 178 200$ annuellement.

- **ROUTE D'ACCÈS:**
  Le village est situé à 2km au sud-est de l'aéroport et la route d'accès est entretenue par le Conseil de bande.

APPENDIX 2
AIR OPERATORS

AIR INUIT

Siège social	Aéroport de Montréal, 547 Meloche, Dorval (Québec) (514) 636-9445	
Centres d'entretien	Aéroport international de Montréal (Trudeau)	
Type de transport	Avion Hélicoptère Hydravion	
Type d'appareils	5- Dash-8-100 7- Dash-6-300 Twin Otter 2- HS-748-2A 2- HS-748-2A (LFD) 2- King Air a-100	37 passagers 19 passagers 40 passagers (sans cargo) N/A 5 passagers 9 passagers et évacuation aéromédicales

FIRST AIR

Siège social	3257 Carp Road, Carp, Ontario (Canada) (613) 839-3340	
Centres d'entretien	Aéroports d'Ottawa et Carp, Iqaluit, Resolute Bay, Yellowknife	
Type de transport	Avion Hydravion	
Type d'appareils	5- ATR 42-300 2- B-727 100C 1- B-727 200C 1- B-727 200 F cargo 4- B-737 200 c 3- HS-748 1- L382 Hercule 2- Dash-6 Twin Otter	42 passagers 124 passagers (sans cargo) 175 passagers (sans cargo) 45 passagers (sans cargo) 19 passagers 40 passagers Cargo 19 passagers

AIR CREEBEC

Siège social	Aéroport de Val-d'Or, Val-d'Or (Québec) (819) 825-8355	
Localisation de la flotte d'avions	Hangar d'entretien à Val-d'Or, Québec et Timmins (Ontario)	
Type de transport	Avion	
Type d'appareils	1- Hawker Siddley 748 4- Dash-8-100 1- Dash-8-300 1- Beech 1900D 3- Embraer 110 1- King Air A-100	47 passagers 37 passagers 46 passagers 19 passagers 15 passagers 9 passagers et évacuations aéromédicales

LA SOCIÉTÉ DE PROTECTION DES FORÊTS CONTRE LE FEU SOPFEU

Siège social	Aéroport international Jean-Lesage de Québec
Bases principales	Aéroports Baie-Comeau, Roberval, Maniwaki, Val-d'Or
Bases secondaires	Havre St-Pierre, Bonaventure, Cap-Chat, Rimouski, Cabano, St-Georges de Beauce, Saint-Élie-d'Orford, Duchesnay, La Tuque, St-Jovite, Matagami
Bases d'appoint	Sept-Iles, Manic 5, Chibougamau, Chutes-des-Passes, Parent, Lac Joncas, Kipawa, Beattyville
Type d'appareils	14 – CL-415 et 215 15 – Hélicoptères 9 avions d'aéropointage

AUTRES

Compagnie	Adresse	Type d'appareil	Quantité
Air Wemindji Inc.	C.P. 907 Radisson (Québec)	Cessna 208	2
Québec Aviation Boréal (1988) Inc.	C.P. 1572, Hangar Q-60 Aéroport de Val-d'Or Val-d'Or (Québec)	DC-3 Piper PA-31	1 2
Les Chantiers de Chibougamau Ltée	521, chemin Merrill C.P. 216 Québec (Québec)	Cessna 208	2
Atai Air Charters Ltd./Vols nolisés Atai Ltée	C.P. 606 Kuujjuaq (Québec)	Piper Aztec Piper PA31	2 2
Johnny May's Air Charters Ltd.	Post Office Box 89 Kuujjuaq (Québec)	DHC2 DhC3	2 2
Propair Inc.	B.G. 20, R.R. n° 1 Aéroport de Rouyn Rouyn-Noranda (Québec)	Beech 100 Beech 200 Cessna 425 Fairchild SW2 Gulfstream 1	1 2 1 1 1

GRAPHISME : CONCEPTION GRAPHIQUE SIMAGRÉ