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Client Procedures Circular

Licensing Procedure for Remote Rural Broadband Systems (RRBS) Operating in the Band 512-698 MHz (TV channels 21 to 51)

Preface

Client Procedures Circulars describe the various procedures or processes to be followed by the public when dealing with Industry Canada. The information contained in these circulars is subject to change without notice. It is therefore suggested that interested persons consult the nearest district office of Industry Canada for additional details. While every reasonable effort has been made to ensure accuracy, no warranty is expressed or implied. As well, these circulars have no status in law.

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All Spectrum Management and Telecommunications publications are available on the following website: <http://strategis.ic.gc.ca/spectrum>.

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Note: This document should be read in conjunction with Guideline 05, *Interim Technical Guidelines for Remote Rural Broadband Systems Operating in the Band 512-698 MHz (TV channels 21 to 51)* (GL-05).

1. Principle

The Minister of Industry, through the *Department of Industry Act*, the *Radiocommunication Act* and the *Radiocommunication Regulations*, with due regard to the objectives of the *Telecommunications Act*, is responsible for spectrum management in Canada. As such, the Minister oversees the development of national policies and goals for spectrum resource use and ensuring effective management of the radio frequency spectrum.

2. Act and Regulations

Section 5 of the *Radiocommunication Act* states that the Minister may issue radio licences with respect to radio apparatus.

Sections 13 and 14 of the *Radiocommunication Regulations* outline the terms with respect to a radio licence issued to a radiocommunication service provider.

Section 65 of the *Radiocommunication Regulations* outlines the radio licence fee payable by a radiocommunication service provider in respect of radio apparatus installed in a fixed station.

3. Definitions

Broadband Internet: an Internet connection using a high data transmission rate, which enables capacity-intensive applications.

Remote Rural Communities: **for the purpose of this licensing procedure**, these communities are defined as areas at sufficient distance from major population centres, broadcasting facilities and their service contours so as not to cause them interference.

Radiocommunication carrier: means a person who operates an interconnected radio-based transmission facility used by that person or another person to provide radiocommunication services for compensation.

Radiocommunication service provider: means a person, including a radiocommunication carrier, who operates radio apparatus used by that person or another person to provide radiocommunication services for compensation.

4. Related documents

Industry Canada documents are available on the Spectrum Management and Telecommunications website at: <http://strategis.gc.ca/spectrum> in *Official Publications*.

CPC-2-0-03	<i>Client Procedures Circular 2-0-03 - Environmental Process, Radiofrequency Fields and Land-Use Consultation</i>
CPC-2-0-15	<i>Client Procedures Circular 2-05-15 - Canadian Ownership and Control</i>
GL-05	<i>Guideline - Interim Technical Guidelines for Remote Rural Broadband Systems Operating in the Band 512-698 MHz (TV channels 21 to 51)</i> <i>Radiocommunication Act</i>
RIC-66	<i>Radiocommunication Information Circular 66 - Addresses and Telephone Numbers of Regional and District Offices</i> <i>Radiocommunication Regulations</i>
RP-06	<i>Radio Systems Policy 06 - Policy for the Use of 700 MHz Systems for Public Safety Applications and Other Limited Use of Broadcasting Spectrum</i>
RSP-101	<i>Radio Standards Procedure 101 - Application Procedure for Planned Radio Stations Operating on Frequencies below 960 MHz</i>
SP-746 MHz	<i>Spectrum Utilization Policy 746 - Mobile Service Allocation Decision and Designation of Spectrum for Public Safety in the Frequency Band 746-806 MHz</i> <i>Telecommunications Act</i>
TBAA	<i>Terrestrial Broadcasting Agreements and Arrangements</i> <i>Agreement Between the Government of Canada and the Government of the United States of America Relating to the TV Broadcasting Service and the Associated Working Arrangement</i> <i>Letter of Understanding Between the Federal Communications Commission of the United States of America and Industry Canada Related to the Use of the 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-806 MHz Bands for Digital Television Broadcasting Service Along the Common Border</i>
TRAA	<i>Terrestrial Radiocommunication Agreements and Arrangements - Treaty Series 1962 No. 15 - Coordination and Use of Radio Frequencies, Exchange of Notes Between Canada and the United States of America</i>

5. Policy

In June 2006, the Department established in RP-06, *Policy for the Use of 700 MHz Systems for Public Safety Applications and Other Limited Use of Broadcasting Spectrum*, a further refinement to the policy established in accordance with SP-746 MHz, *Mobile Service Allocation Decision and Designation of Spectrum for Public Safety in the Frequency Band 746-806 MHz*, whereby, licence applications will be considered **on a case-by-case basis** for advanced communications services in remote rural communities in television channels that are unallotted and unassigned to the broadcasting service:

- at sufficient distance from major population centres, broadcasting facilities and their service contours so as not to cause them interference; and
- on the condition that they do not constrain the provision of existing and new broadcasting services.

At this time, the Department will only consider licence applications for remote rural communities in unallotted and unassigned broadcasting spectrum in television channels 21 to 51 (512-698 MHz), except for channel 37.¹

In an effort to minimize the potential for negative impact on broadcasting services, the Department will first consider applications for the following channels: 25, 34, 35, 43 (see Section 10, Spectrum Structure).

6. Type of Service(s)

In accordance with RP-06, only limited, non-broadcasting use of this spectrum will be considered. Consequently, **only subscriber-based broadband Internet applications** will be considered for licensing at this time.

7. Eligibility

Licences will only be issued to radiocommunication carriers. These licensees must comply on an ongoing basis with the Canadian ownership and control requirements outlined in subsection 10(2) of the *Radiocommunication Regulations*.

Licensees must notify and obtain approval from the Minister prior to making any changes that would have a material effect on the ownership or control of an entity holding a radio licence. Such notification must be made in advance of any proposed transactions of which licensees have knowledge. For more information, refer to CPC-2-0-15, as may be amended from time to time.

¹ Channel 37 is allocated to the radio astronomy service, and is not available for broadcasting or Remote Rural Broadcasting Systems.

It should be noted that persons or entities, which own or operate wireless transmission facilities and provide telecommunications to the public for compensation, may also be subject to regulation by the Canadian Radio-television and Telecommunications Commission (CRTC) under the *Telecommunications Act*.

8. Applications for Television Stations on Channels 2-69

The Department notes that the CRTC is still accepting applications for TV stations in channels 2-69. However, in an effort to further encourage the implementation of digital television (DTV) in Canada and move toward freeing-up valuable spectrum resources for new advanced wireless services such as RRBS, effective January 2007, the Department is applying channel-specific criteria when receiving applications for broadcasting certificates for the use of television channels 2 to 69. Additional information can be found on Spectrum Management and Telecommunications website.²

9. Technical Considerations

The following guidelines will be used in the technical evaluation of applications of new facilities or modifications to existing RRBS while an SRSP is in development.

9.1 Technical Guideline and Protection to Television on Channels 21-51

Technical requirements including maximum transmit power and other parameters, as well as coordination requirements with broadcasting services in Canada are contained in Guideline 05, *Interim Technical Guidelines for Remote Rural Broadband Systems (RRBS) Operating in the Band 512-698 MHz (TV channels 21 to 51)* (GL-05). This guideline document also provides the methodology and the minimum standard separation distances to avoid interference to television.

9.2 Environmental Process, RF Fields and Land-use Consultation

Applicants must comply with the procedures, as outlined in CPC-2-0-03, *Environmental Process, Radiofrequency Fields and Land-Use Consultation*, as may be amended from time to time. These procedures, amongst other issues, require that:

- (a) radio stations are installed and operated in a manner that complies with the limits of exposure to radio frequency fields established by Health Canada;
- (b) prior to installation or modification of significant antenna structures, necessary consultation has taken place;

² SAB-002-03, Broadcasting and Public Safety Spectrum, Industry Canada Advisory Letter, September 26, 2006 can be found at: <http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/en/sf08702e.html>.

- (c) the installation and modification of radio stations are done in a manner that complies with the *Canadian Environmental Assessment Act*; and
- (d) antenna structures are marked in accordance with the recommendations of Transport Canada.

10. Spectrum Structure

Frequencies shall be assigned on a 6 MHz block basis concurrent with upper and lower boundary frequencies identical to the 6 MHz broadcast channel plan. A maximum of 2 channels will be assigned to each system using frequency division duplex (FDD) technology, and a maximum of 1 channel will be assigned to each system using time division duplex (TDD) technology. Additional channels will only be assigned if actual channel loading justifies it.

The Department will first consider applications in the frequency channels shown in Table 1. However, in cases where these channels are not available, other channels within channel range 21 to 51 (512-698 MHz) may be assigned on a case-by-case basis, excluding channel 37 (608-614 MHz).

Based on availability and electromagnetic compatibility, the highest available channel shall be assigned first.

The following table shows the channels and frequency range that will first be considered:

Table 1

TV Channels	Frequency Range (MHz)
(1) 43	644-650
(2) 35	596-602
(3) 34	590-596
(4) 25	536-542

11. Service Areas

As outlined in Section 5, licensing of these systems will only be permitted in remote rural communities where the spectrum under consideration is not allotted or assigned to broadcasting services, and does not cause interference to those broadcasting services. The area must be at sufficient distance from major population centres, broadcasting facilities and their service contours so as not to cause them interference. The proposed radio station must also be at sufficient distance from the Canada/U.S. border (i.e. at least 121 km of the Canada/U.S. border).

Based on this criteria, a set of maps has been developed which shows areas where applications for RRBS licences will be considered. It should be noted that these maps are generated with the specific conditions mentioned above and do not represent a definition of remote rural communities for other purposes (see sample service area maps in Appendix A). For the purpose of this licensing procedure, remote rural areas are those that have less than 100,000 people living within a 50 km radius.

More detailed maps can be found on Industry Canada's Spectrum Geo website at: <http://spectrumgeo.ic.gc.ca/txt/download.html>. These maps will be used by Industry Canada district offices to evaluate each application **on a case-by-case basis**. The maps will be updated as required with new census information.

12. Licensing Procedure

After a careful review of the regulatory and operational environment, the Department has decided that the licensing of these systems operating in the above mentioned frequency bands should be conducted by issuing radio licences using a system licensing approach. This approach is similar to the licensing procedure applicable to certain systems for radiocommunication service providers in the land mobile service. The application of this licensing method means that system subscribers will not be required to hold individual radio licences. In most cases, only the service provider's hub stations will require a radio licence.

12.1 Licensing Process and Licence term

The first-come, first-served (FCFS) licensing process will be used for these systems. The Department will permit as many applicants as the spectrum availability permits within a particular geographical area. Radio licences will be issued for a one-year term with licence fees payable by March 31st of each year.

In addition to any determinations the Department may make with respect to the renewal of the licence, the Department may, after appropriate consultation, not renew a licence for other reasons, such as changes or planned changes to the allocation or usage of the spectrum in question; national security, treaty or other international obligations or requirements; or any other pressing spectrum management issues.

It should be noted that the licence is subject to relevant provisions in the *Radiocommunication Act* and the *Radiocommunication Regulations*. As a result, the Minister has the power to amend the terms and conditions of the spectrum licence and to suspend or revoke a radio authorization (paragraphs 5(1)(b) and 5(2) of the *Radiocommunication Act*).

Section 40 of the *Radiocommunication Regulations*³ regarding the assignment of frequencies continues to apply. It is important to note that the Minister, pursuant to this regulation, would reallocate spectrum only under certain circumstances, taking into consideration that licensees have complied with the

³ **Section 40.** The assignment of a frequency or frequencies to a holder of a radio authorization does not confer a monopoly on the use of the frequency or frequencies, nor shall a radio authorization be construed as conferring any right of continuing tenure in respect of the frequency or frequencies.

conditions of licence, made large investments in infrastructure, and are serving an established client base. If a reallocation were contemplated, it would take place only after a public consultation.

12.2 Radio Licence Fee Calculation

As prescribed by the *Radiocommunication Regulations*, section 65:

“The radio licence fee payable by a radiocommunication service provider in respect of radio apparatus installed in a fixed station, other than a fixed station referred to in sections 66 to 71, is for each transmitter and each receiver installed at the station the sum of the applicable fees set out in Part II of Schedule III that corresponds to the number of telephone channels per radio frequency assigned to that transmitter or receiver.”

In order to determine the number of telephone channel equivalency to calculate the radio licence fee, the following formula will be used:

Section 58 (c) of the *Radiocommunication Regulations* states that:

“one digitally modulated channel is equivalent to the number of telephone channels calculated by dividing the modulation bit rate by 64 kilobits per second.”

$$\text{Number of Telephone channel equivalency} = \frac{\text{modulation bit rate of the system}}{64 \text{ kbps}}$$

The modulation bit rate is the total number of bits carried from the transmitter to the receiver including, but not limited to, traffic carried for supervisory, error coding, internal communication, etc.

For example, for a network operating at an average speed of 3.0 Mbps, the number of equivalent telephone channels would be 3.0 Mbps divide by 64 kbps = 50 channels.

Therefore the radio licence fee would be \$42 (i.e. renewal fee) per radio frequency for each transmitter or receiver (assuming one transmit frequency (TX) and one receive frequency (RX) using the whole bandwidth).

Radiocommunication Regulations Excerpt

**Schedule III
 PART II**
(Sections 55, 56, 58, 61 and 65)

**Fee Schedule Applicable to Radiocommunication Users⁴ for Fixed Stations that Communicate
 with Other Fixed Stations or Space Stations**

Item	Column I Number of Telephone Channels per Radio Frequency Assigned to each Transmitter or Receiver	Column II Issuance Fee	Column III Monthly Fee	Column IV Renewal Fee	Column V Reinstatement Fee (April)	Column VI Reinstatement Fee (May)
1	
2	From 25 to 60	\$13.00	\$3.50	\$ 42.00	\$44.00	\$ 48.00

Therefore, the total licence fee for this system would be: 2 (TX and RX) X \$42.00 = \$84.00

A radiocommunication service provider licence will be issued in accordance with sections 13 and 14 of the *Radiocommunication Regulations*, which provides the authority for subscriber apparatus with the provider licence. Therefore, subscribers will not normally require individual licensing.

12.3 Licence Transferability

Section 11 of the *Radiocommunication Regulations* states that:

“It is a term of a radio licence that the licence not be transferred or assigned without the authorization of the Minister.”

12.4 Filing Requirements

The Department will entertain **bona fide letters of intent and complete radio station licence applications** from potential service providers for individual service areas.

Applicants may submit their applications to any departmental district office. Information required includes, but is not limited to, the following:

- the name and address of the applicant;
- a narrative explaining the proposed system;
- an *Application for Licence to Install and Operate a Radio Station in Canada (IC 2365)*

⁴ This schedule also applies to radiocommunication service providers under section 65 of the *Radiocommunication Regulations*.

- a *Preliminary Environmental Information and Municipal/Land-use Consultation Attestation (IC 2430)*;
- the company's ownership and control structure (see CPC 2-0-15, *Canadian Ownership and Control*);
- the applicable radio licence fees as set out in the *Radiocommunication Regulations*;
- a list of preferred channels/frequencies and the technical parameters applied for; and
- a map(s) clearly showing the proposed coverage or service area.

Licensees must justify to the Department the amount of spectrum required to deploy their system.

For additional support on how to submit a radio station application/technical information, applicants may contact the Department's local district office. A list of Industry Canada's district offices is available in RIC-66.

12.5 Licence Conditions

- (1) **Implementation usage:** Licensees must submit to the Department a written progress report, within one year of receipt of the licence(s), to demonstrate that their spectrum is being put to use at a level acceptable to the Department.
- (2) Any authorization issued for non-broadcasting use in Canada within 400 km of the border area will be on a **no-interference, no-protection basis** with respect to broadcasting services in the United States. The licensees will be subject to any future agreements or arrangements between Canada and the U.S. regarding use of these systems in the border area and may be required to modify their stations or operations in order to conform with such agreements or arrangements.

RRBS must not constrain the provision of existing and new broadcasting service.⁵ The licensee must understand that should interference to or from a broadcasting station occur, or should a change in the broadcast allotment plan arise, licensees may have to be relocated at their own expense.

13. International Coordination

In the border area, the sharing and use of the bands 470-608 MHz and 614-746 MHz are currently covered by a Broadcasting Agreement and Broadcasting Letter of Understanding (LOU).⁶ The LOU,

⁵ Modifications to the broadcast allotment plan may be required to accommodate new unplanned primary broadcasting services. This may impact RRBS installations after their implementation. The probability of this increases with the proximity to urban centres. In addition, as licence-exempt applications are emerging in the U.S. in certain broadcasting bands, the Department will first permit RRBS installations on limited channels as described in this document. The Department will proceed on this basis until such time as it has determined the impact of licence-exempt applications.

⁶ *Agreement Between the Government of Canada and the Government of the United States of America Relating to the TV Broadcasting Service and the Associated Working Arrangement.*

Letter of Understanding Between the Federal Communications Commission of the United States of America and Industry Canada Related to the Use of the 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-806 MHz Bands for Digital Television Broadcasting Service Along the Common Border.

which covers areas within 400 km of the border, deals with the sharing and use of the bands by broadcasting services operating in U.S. and in Canada. In addition, the LOU specifies that new services (i.e. non-broadcasting operations) shall not claim protection from DTV stations or analogue the TV stations. The LOU, does not deal with non-broadcasting versus non-broadcasting operations in the border area.

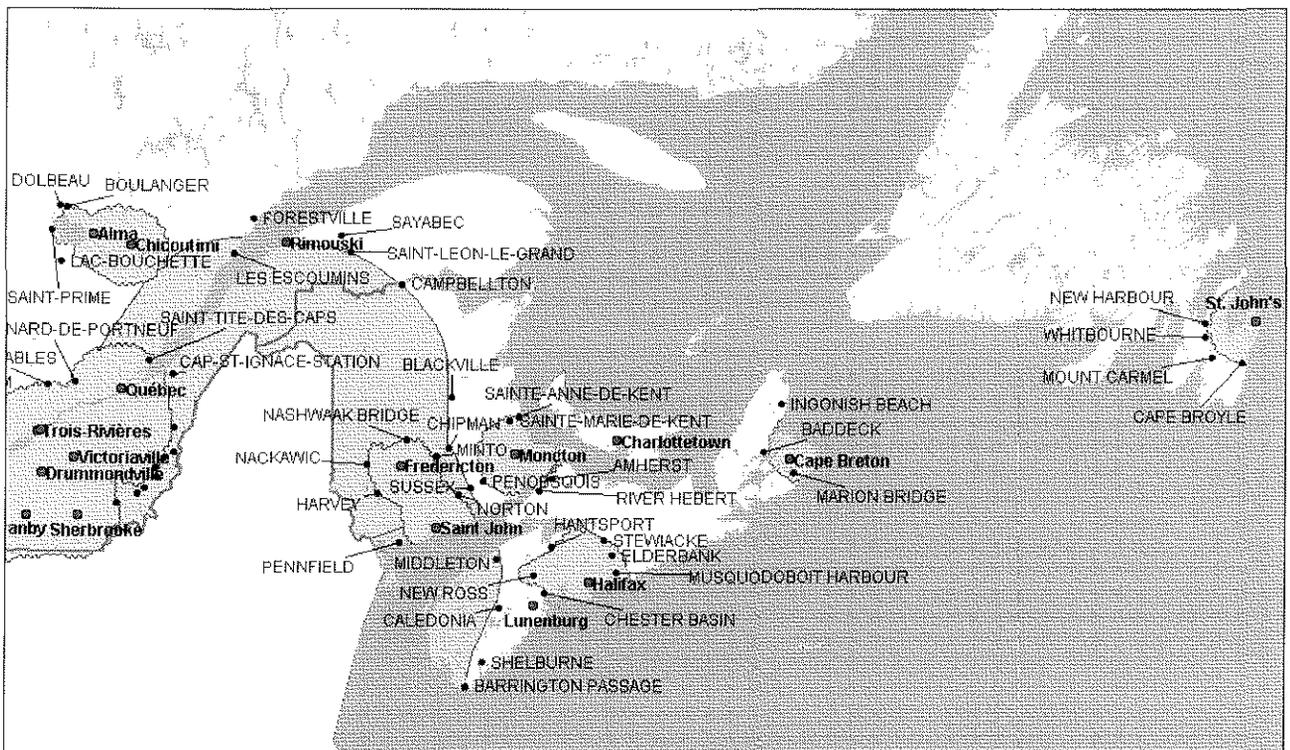
Therefore, until such time as a new agreement can be reached between Canada and the U.S., any authorization issued for non-broadcasting use in Canada within 400 km of the border area must be on a no-interference, no-protection basis with respect to broadcasting services in the United States. Further, licensees will be subject to any future agreements or arrangements between Canada and the U.S. regarding use of these systems in the border area and may be required to modify their stations or operations in order to conform with such agreements or arrangements. A condition of licence to this effect will be included on any licence issued. In addition, at this time, these stations are not permitted to operate within 121 km of the Canada/U.S. border.

Annex A - Sample Service Areas Maps

The following are sample maps only. More detailed geographic service area maps and channel availability describing where licensing these systems may be considered, can be found on the Spectrum Geo website at <http://spectrumgeo.ic.gc.ca/txt/download.html>. These maps will be used by Industry Canada district offices to evaluate each application on a case-by-case basis.

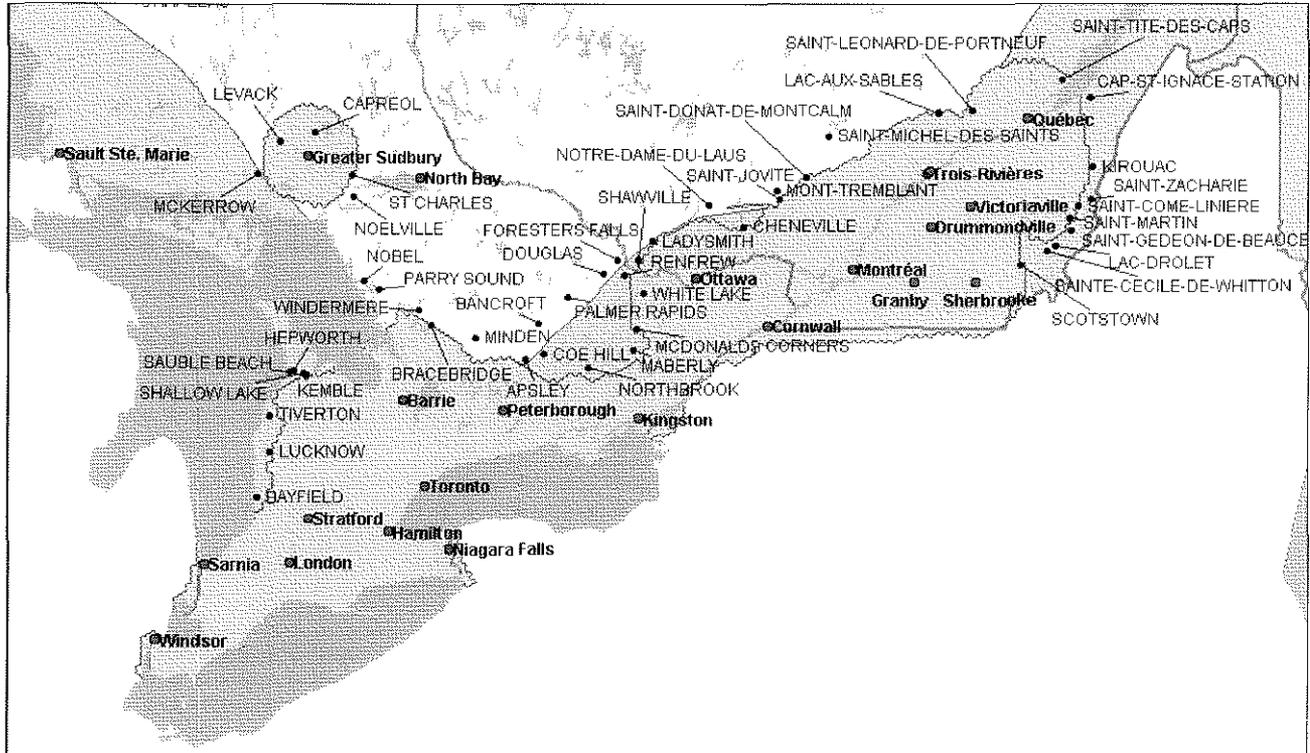
East Coast

Purple and pink areas are not available for licensing.



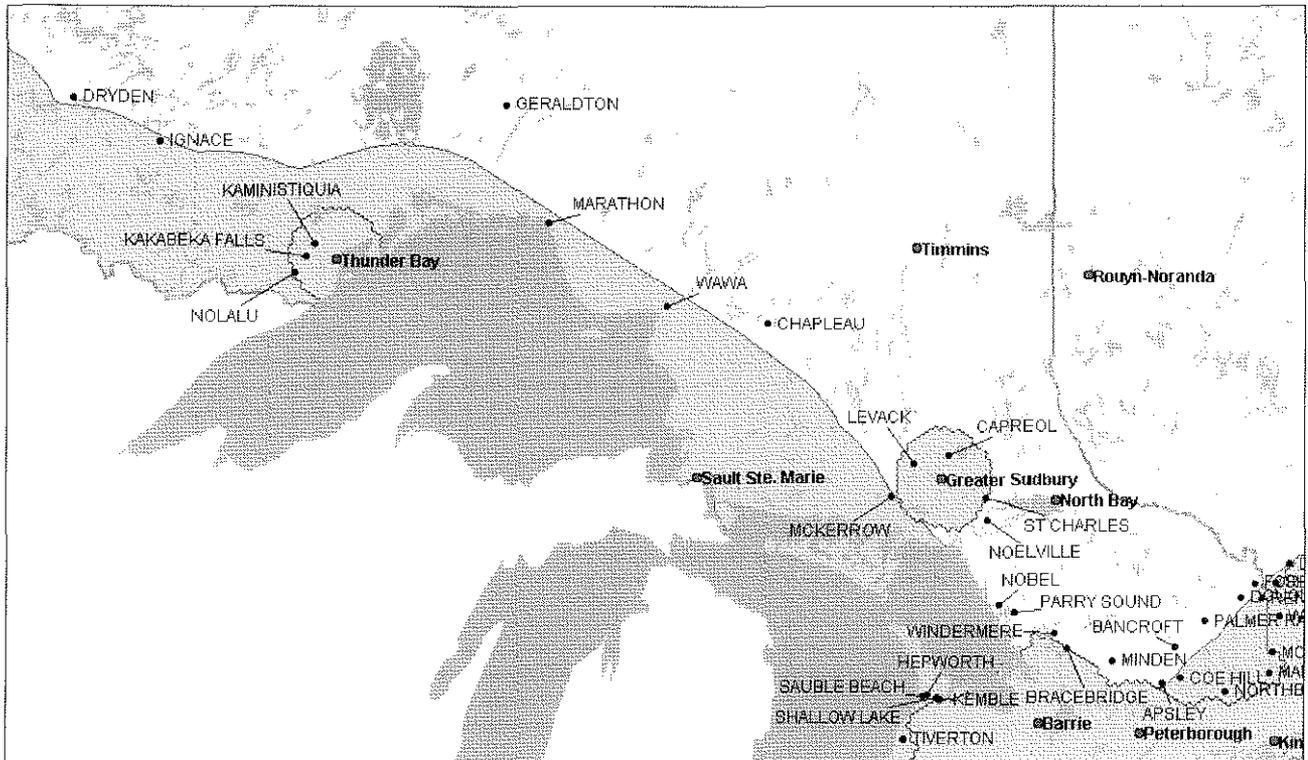
Quebec/Ontario

Purple and pink areas are not available for licensing.



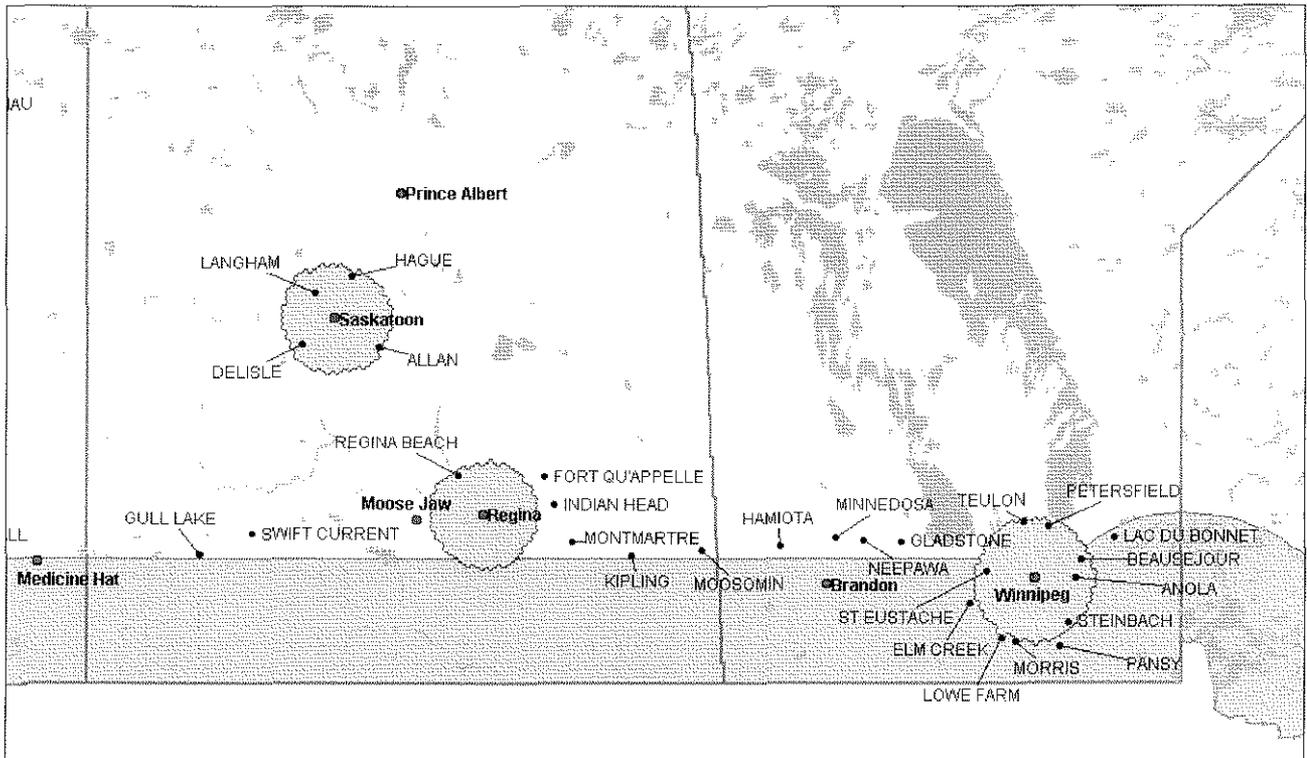
Northern Ontario

Purple and pink areas are not available for licensing.



Manitoba/Saskatchewan

Purple and pink areas are not available for licensing.



Alberta/British Columbia

Purple and pink areas are not available for licensing.

