

# 2004 Report on Aboriginal Community Connectivity Infrastructure



<http://www.aboriginalcanada.gc.ca/connectivity>

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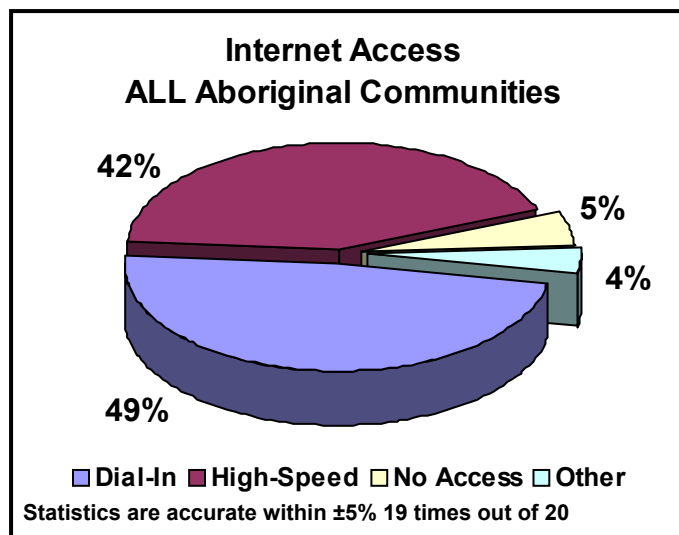
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## EXECUTIVE SUMMARY

Today the Internet, the World Wide Web, has become a public, cooperative, and self-sustaining facility that is accessible to hundreds of millions of people worldwide. For Canadians, the Internet provides the means to access up-to-date information and receive fast service in all aspects of economic and social life. Increasingly Canadians are relying on the Internet as a tool for improving their access to education, healthcare, economic development, as well as other government and personal services. Connecting Canadian communities to the Internet with reliable high-speed Internet access will have a profound effect on virtually all aspects of resident lives. However; the communities that serve to benefit the most from the Internet are also the most difficult and costly to connect.

It is not a surprise, then, that individual Canadians and businesses are looking for governments to move services on-line and assist with the deployment of information communications technology Infrastructure. Over the past few years great strides have been made to increase the level of connectivity in remote communities. Current service improvement plans, proposed government projects, and the trend analysis from our connectivity surveys lead us to believe that this will continue for the foreseeable future.

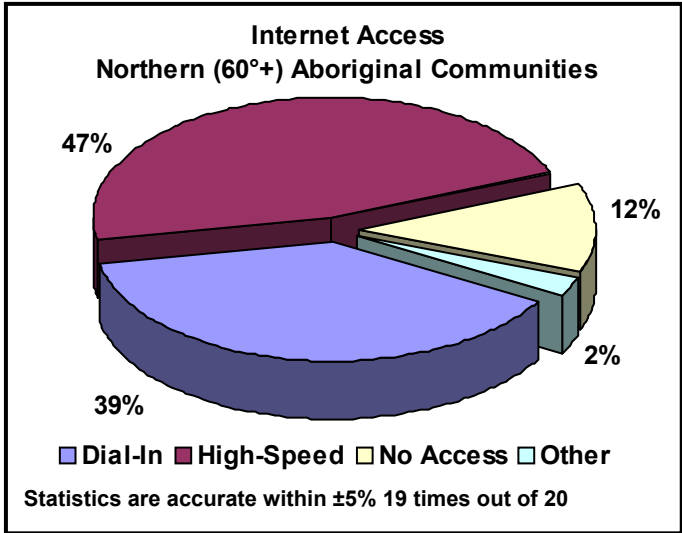
The purpose of this report is to track the trends in Internet connectivity in the Aboriginal communities of Canada. It is intended to address the need for information from Aboriginal communities as well as public sector policy and decision-makers. As fast as new technologies and applications are availing themselves to the Internet so are the upgrades to communication systems across Canada. Thus, it is very difficult to capture and present timely information on telecommunications infrastructure. We have assembled a composite picture of the telecommunications infrastructure in Aboriginal communities by joining our own community connectivity survey with data provided to us by major government connectivity programs. This is an analysis of telecommunications infrastructure and not Internet subscription rates.



The above graph illustrates the level of connectivity in all communities. Based on the latest 2004 connectivity survey results in addition to statistics provided from the Community Access Program (CAP) and SchoolNet (SN) programs, of the 737 Aboriginal communities:

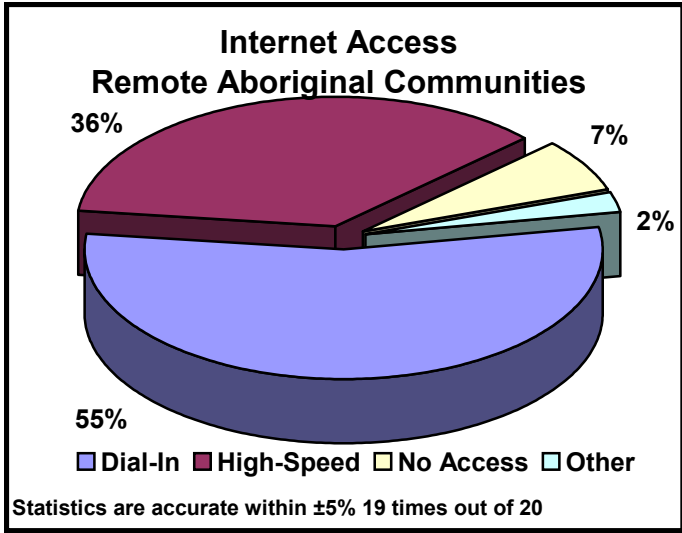
- Over 90% of Aboriginal communities have at least basic Internet connectivity;
- of which, almost 50% use high-speed methods to connect;
- 4% use alternate methods; thus leaving
- 5% being disconnected.

**NOTE:** For the purpose of this report we consider those communities that incur long distance charges for their dial-in services as being disconnected. Most practical Internet applications like education, research, and healthcare are not feasible when on-line time is limited by long distance telephone charges.



Moving north of 60°, we can see the effect that the Connect Yukon initiative has had on northern high-speed access rates. The availability of high-speed Internet services in the north is 5% greater than Canada as a whole. However, communities with no acceptable access have increased substantially to 12%.

We have identified 83 Aboriginal communities north of 60°; 43 First Nations and 40 Inuit communities.



Looking closely at remote<sup>1</sup> communities (those having no year-round road access, and generally north of 50° and/or over 50km from nearest service centre), comparing access percentages with those of All Aboriginal communities, we see that high-speed Internet access rates have dropped to 36% from 42%, dial-in access has increased to 55% from 49%, and no internet access has increased dramatically to 7% from 5%.

445 Aboriginal communities fit our definition of remote. This is comprised of 349 First Nations, 53 Inuit, and 43 Métis communities.

All major urban centres in Canada have access to high-speed Internet services. We also know that 51% of the Aboriginal population now resides in urban centres. Thus, one could conclude that the majority of Aboriginal citizens have access to high-speed Internet services. Unfortunately, the socio-economic situation facing most urban Aboriginals severely limits their ability to subscribe to Internet services and purchase the required computer equipment. For many, the only means of accessing the Internet is through the network of 116 Native friendships centres. Although we did not directly contact the friendship centres, we do know that 87% of friendship centres are located within cities that have high-speed Internet available to them. We also know that 11% of friendship centres are co-located with Industry Canada Community Access Points.

As stated previously, this is an analysis of the ICT Infrastructure in the Aboriginal communities of Canada. Although lack of appropriate infrastructure is the greatest impediment to Internet usage, mere exposure to a technology does not guarantee successful adoption. Additional considerations including access to computers, training, technical support, application development, and funding for ongoing monthly expenditures must also be made. Without it, the anticipated benefits for community members will be constrained due to unequal implementation and under utilization of the technologies.

As demand for Internet services increase and costs for supplying these services decrease, we will

continue to see smaller communities being connected. However, for some of the more remote and northern communities a viable business case may never be made for the extension of Internet services. For these communities the only hope for Internet connectivity lies in the aggregation of demand or cost subsidization. It is our hope that this report will help shape the development of a solution.

In addition to preparing next year's report the Aboriginal Canada Portal will continue to track trends in Aboriginal community connectivity via our Web site: <http://www.aboriginalcanada.gc.ca/connectivity> in an attempt to provide the most current picture of these trends to those concerned.

<sup>1</sup> See page 6 for a more detailed remote community definition.

<sup>2</sup> Status of Competition in Canadian Telecommunications Markets- CRTC 2003.

## I. Introduction

This report on the state of Internet connectivity in the Aboriginal communities of Canada must be viewed as a work in progress. Detailed community scans become outdated before they can be tabulated and analyzed. Also, the rapid expansion of Internet and telecommunication technologies makes any data collection effort challenging. Thus, it is important to continuously track trends in the development of Internet services. To overcome this challenge, we have decided to take advantage of the Internet's power and develop a living report. This printed report will be made available on an annual basis but real time Aboriginal community connectivity statistics and analysis will be available on our website: <http://www.aboriginalcanada.gc.ca/connectivity> throughout the year.

The technology revolution is upon us. Not unlike the Industrial Revolution of the late 1800's and early 1900's, the technology revolution will transform the way business is conducted. The technology revolution provides new opportunities for Aboriginal entrepreneurs, educators and healthcare providers. Connecting to the world via the Internet can provide many opportunities, especially for more remote communities. This report is intended to address the need for information of two primary groups:

- **Aboriginal Communities:** Providing a source of reference for Aboriginal communities that are struggling to connect to the Internet. The sharing of best practices, and keeping communities abreast of connectivity programs and initiatives will help them in developing their own connectivity plans; and
- **Public Sector Policy and Decision-Makers:** This report offers valuable insight into the state of Internet connectivity within Aboriginal communities. It is our hope that continuous tracking of connectivity will help all levels of government distribute resources more effectively.

### a. Methodology

The preparation of the report on Aboriginal community connectivity began several months ago. The Aboriginal Canada Portal (ACP) Survey team in cooperation with Indian and Northern Affairs Canada (INAC) has played a lead role through conducting connectivity research studies, assembling and analyzing data and statistics and developing the framework upon which the annual report was produced. However, much of the data was drawn from previous data collection exercises. The methodology supporting the annual report and data analysis has been collected from a variety sources including:

**INAC** – List of Indian Reserves and Indian Settlements from the Indian Land Registry System (ILRS); 2002 and 2003 Connectivity Surveys of Aboriginal communities conducted by the Information Management Branch.

**Statistics Canada** - 1996 and 2001 Census data provided us with the ethnic composition of the communities in Canada, population statistics, and census subdivision breakdowns.

**Canadian Radio-television and Telecommunications Commission** - The CRTC has provided us with insight into the High-Cost Serving Areas ruling and documentation on telephone company Service Improvement Plans (SIPs).

**Industry Canada** – Community Access Program (CAP), SchoolNet (SN), and Broadband for Rural and Northern Development (BRAND) have shared program recipient and community connectivity knowledge with the authors of this report.

**Private Sector Telecom** - Indirectly through the submission of Service Improvement Plans (SIPs) and through direct contact, the telecom providers of Canada have provided us with information on community infrastructure and Internet Service Provider (ISP) locations.

**(i) Creation of an Inclusive Connectivity Database**

Starting with the list of First Nation and Inuit communities from INAC, plus Métis communities identified through Census 2001, we approached all of the 737 identified Aboriginal communities with 3 successive annual Connectivity Surveys. Survey response rates were encouraging but not inclusive. Added to this database of 737 communities was information on Industry Canada CAP Sites and SchoolNet sites, along with data from telephone carriers on local dial-in access points. The result was a master database of 737 records that include various data sources relating to connectivity. The statistics provided within this report represent a synthesis of these data sources.

**(ii) ACP Connectivity Surveys**

The Aboriginal Canada Portal group has conducted Annual Connectivity Surveys for the years 2004, 2003 and 2002 which consisted of a telephone/fax back/on-line approach. The initial point of contact was the Band or Community Administration Office (CAO). Usually engaging in dialog with the economic development officer, we were able to gather information on connectivity at both the community administration office and residences of the community. To date we have successfully collected information from over 670 Aboriginal communities.

For a complete list of the survey questions for each of the survey years please see Appendix F.

**Connectivity Survey Participation Rates**

| Aboriginal Communities | Group                    | First Nations | Inuit | Métis | TOTAL | Participation Rate |
|------------------------|--------------------------|---------------|-------|-------|-------|--------------------|
|                        | Total Communities        | 634           | 53    | 50    | 737   |                    |
| 2004 Survey Results    | Full Survey Respondents  | 587           | 51    | 37    | 675   | 91.59%             |
|                        | Limited/No Participation | 47            | 2     | 13    | 62    |                    |
| 2003 Survey Results    | Full Survey Respondents  | 333           | 34    | 29    | 396   | 53.73%             |
|                        | Limited/No Participation | 301           | 19    | 21    | 341   |                    |
| 2002 Survey Results    | Full Survey Respondents  | 600           | 45    | 34    | 679   | 92.13%             |
|                        | Limited/No Participation | 34            | 8     | 16    | 58    |                    |

### (iii) Industry Canada Connectivity Programs

The two primary Federal connectivity programs in Canada are the CAP and SchoolNet programs. A number of Aboriginal communities have benefited from these programs and their participation is summarized below. A third IC connectivity program, Broadband for Rural and Northern Development <http://broadband.gc.ca>, will help to connect a number of Aboriginal and non-Aboriginal communities.

For a more detailed description of Federal Government connectivity initiatives please see Appendix C

#### Aboriginal Community Participation in Federal Connectivity Initiatives

| Province and Territory   | Community Access Program |            | SchoolNet   |            |
|--------------------------|--------------------------|------------|-------------|------------|
|                          | Communities              | Projects   | Communities | Projects   |
| Alberta                  | 9                        | 18         | 31          | 58         |
| British Columbia         | 49                       | 73         | 74          | 90         |
| Manitoba                 | 15                       | 27         | 42          | 49         |
| New Brunswick            | 2                        | 2          | 7           | 7          |
| Newfoundland             | 3                        | 4          | 3           | 3          |
| Nova Scotia              | 5                        | 6          | 10          | 15         |
| Northwest Territories    | 8                        | 11         |             |            |
| Nunavut                  | 8                        | 10         |             |            |
| Ontario                  | 83                       | 117        | 67          | 92         |
| Prince Edward Island     | 1                        | 1          | 1           | 2          |
| Quebec                   | 35                       | 40         | 21          | 30         |
| Saskatchewan             | 2                        | 2          | 55          | 73         |
| Yukon                    | 3                        | 3          |             |            |
| <b>Total Communities</b> | <b>223</b>               |            | <b>311</b>  |            |
| <b>Total Projects</b>    |                          | <b>314</b> |             | <b>419</b> |

Note: Urban, closed and terminated sites were not included

**b. Assumptions**

**(i) What is a Community?**

This Report on Aboriginal Connectivity is a community-centric exercise and the authors recognize that the identification of the community is critical when defining service levels and infrastructure gaps. Due to the various sources of data contained within this report, and our desire to expand the report beyond status Indians, it is necessary to develop a definition of a community that is broad enough to capture all data sets but not too broad as to render the statistics insignificant. We have chosen to use the following definition to guide our collection efforts and statistical analysis:

"A locality which is considered to be an Indian, Inuit or Métis community (The most populated Indian reserve of each First Nation, Métis settlement, Inuit hamlet or census sub-division with 25 percent or more Aboriginal population) having the following attributes: a name, distinct physical location and territory, and Aboriginal governance structure, mandate and constituency."

Three groups of Aboriginal Peoples comprise the Aboriginal community – North American Indian (INAC refers to this group as First Nation peoples), Métis, and Inuit. Among these groups there are 634 First Nations, 53 Inuit, and 50 Métis communities distributed through the country. These communities are made up of reserve communities and Aboriginal settlements. There are approximately 3,000 reserve parcels of land to which the 634 First Nation communities or Bands are a part.

The urban Aboriginal population in Canada is growing. In 2001, over one-half (51%) of the population who identified themselves as Aboriginal lived in urban areas, up from 47% in 1996<sup>1</sup>. This year we have devoted more time and effort to analyzing the urban Aboriginal picture. More information on urban Aboriginal connectivity can be found on page 15.

**Aboriginal Population by Area of Residence**

| <b>GROUP</b>  | <b>Total - Area of Residence</b> | <b>On Reserve</b> | <b>Total Off Reserve</b> | <b>Rural Non-Reserve</b> | <b>Urban Non-CMA</b> | <b>Urban CMA</b> |
|---|----------------------------------|-------------------|--------------------------|--------------------------|----------------------|------------------|
| Total - Aboriginal and Non-Aboriginal population            | 29,639,035                       | 321,855           | 29,317,180               | 5,782,375                | 5,575,485            | 17,959,320       |
| <b>Total Aboriginal identity Population</b>                 | <b>976,310</b>                   | 286,080           | 690,230                  | 196,130                  | 214,225              | 279,875          |
| <b>North American Indian (First Nation) single response</b> | <b>608,845</b>                   | 272,410           | 336,435                  | 73,190                   | 111,480              | 151,765          |
| <b>Métis single response</b>                                | <b>292,310</b>                   | 7,315             | 284,995                  | 85,970                   | 84,940               | 114,085          |
| <b>Inuit single response</b>                                | <b>45,075</b>                    | 1,810             | 43,265                   | 31,070                   | 9,105                | 3,090            |
| Multiple Aboriginal responses                               | 6,665                            | 520               | 6,145                    | 1,570                    | 2,155                | 2,420            |
| Aboriginal responses not Included elsewhere                 | 23,415                           | 4,025             | 19,390                   | 4,330                    | 6,545                | 8,515            |
| Total non-Aboriginal population                             | 28,662,725                       | 35,775            | 28,626,950               | 5,586,245                | 5,361,260            | 17,679,445       |

Statistics Canada - Cat. No. 97F0011XCB01001

<sup>1</sup> Statistics Canada - Aboriginal Peoples of Canada: A Demographic Profile, 2001 Census (Analysis series), Catalogue No.: 96F0030XIE2001007

## **(ii) Identifying vs. Defining an Aboriginal Community**

On one hand the Aboriginal population, or Aboriginal community as it is often referred, is distributed throughout every Indian reserve, Indian settlement, Métis settlement and Inuit hamlet in every province, territory and region in Canada. According to the 2001 Census, about 3 in every 10 Aboriginal people lived on rural reserves, and another three in 10 lived in census metropolitan areas. About one-fifth lived in urban areas other than census metropolitan areas, and the same for rural areas other than reserves, often isolated northern communities.

Indeed, Aboriginal citizens, particularly in Prairie Provinces and the north constitute significant proportions of towns, villages, hamlets and rural communities other than Indian reserves and settlements.

It is unlikely that a definition of an Aboriginal community will be defined entirely through the terms of this project, as this is a matter for the Aboriginal community itself. However, and for the purpose of the project, using existing and available data is an important first step in a process that will identify which and where such Aboriginal communities are located.

At the heart of the Aboriginal community issue are the Aboriginal people themselves - how they define themselves and where they perceive their communities to be.

## **(iii) North American Indian (First Nation) Reserve Community**

The Indian Reserve is a physical locality that is defined by legislation and supported by legal surveys and recorded and managed by the Indian Land Registration System (ILRS) at Indian and Northern Affairs Canada. According to ILRS, there are approximately 3,000 North American Indian (First Nation) Reserves.

An Indian Settlement, also recorded but not maintained by the ILRS, does not have the same definition or legislative support as Indian Reserve under the Indian Act.

“An Indian Settlement is a place where a self-contained group of at least 10 Indian people reside more or less permanently. It is usually located on crown lands under federal or provincial jurisdiction. Indian settlements have no official limits (boundaries) and have not been set apart for the use and benefit of an Indian Band as is the case with Indian Reserves.”

Only Status or Treaty Indians can have permanent residency or hold property without Band Council Resolution and Ministerial Authority.

Since there are more Indian reserve communities (and settlements) than there are Indian Bands (First Nation bands) – some Bands have joint ownership in Indian reserves – Indian reserves and settlements should be specified in relation to their First Nation. The hub of the Indian reserve business activity and service delivery is usually the responsibility of the central band administration – the Band Office. Other common facilities and services for the affiliated reserve communities if not located within the administrative offices are situated on the “main” reserve lands where the administrative functions are housed to support band operations. It is this reason coupled with the difficulties in contacting reserve level representatives that we have chosen to calculate connectivity statistics at the band level for the inaugural year of this report.

For the complete list of First Nations communities included within this report please see Appendix A.

**(iv) Inuit Community**

Inuit are definite about their people, communities and homelands. In the events leading up to the Inuvialuit and Nunavut lands claims settlements, Inuit beneficiaries were enumerated through an enrolment exercise similar to the Indian Registration to support their claims. Inuit, though a majority live north of the tree line, live throughout the country.

For the complete list of Inuit communities included within this report please see Appendix A.

**(v) Métis Community**

The Métis community is perhaps the most difficult to define as there is no enrollment procedures similar to the Inuit and Indian Registrar. The provinces of Alberta and Saskatchewan, so far, are the only provinces that formally recognize Métis settlements. The Métis community is distributed throughout many different communities including villages, towns, hamlets, rural municipalities, as well as Indian settlements throughout Canada.

For the complete list of Métis communities included within this report please see Appendix A.

**(vi) Defining Remote and Northern Communities**

| <b>Communities</b>                | <b>Latitude</b>            | <b>South of 45°</b> | <b>North of 45°</b> | <b>North of 50°</b> | <b>North of 55°</b> | <b>North of 60° *</b> | <b>North of 65° *</b> | <b>TOTAL</b> |
|-----------------------------------|----------------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|--------------|
| <b>Nearest Service Centre</b>     | <b>INAC Classification</b> | <b>A</b>            | <b>B</b>            | <b>C</b>            | <b>D</b>            | <b>E</b>              | <b>F</b>              |              |
| <b>&lt; 50 km</b>                 | 1                          | 29                  | 114                 | 51                  | 8                   | 11                    | 2                     | <b>215</b>   |
| <b>50 - 350 km</b>                | 2                          | 5                   | 91                  | 162                 | 54                  | 13                    | 1                     | <b>326</b>   |
| <b>&gt; 350 km</b>                | 3                          | 0                   | 2                   | 14                  | 6                   | 5                     | 1                     | <b>28</b>    |
| <b>No Year-Round Road Access</b>  | 4                          |                     |                     |                     |                     |                       |                       |              |
|                                   |                            | 0                   | 14                  | 73                  | 31                  | 22                    | 28                    | <b>168</b>   |
|                                   | <b>TOTAL</b>               | <b>34</b>           | <b>221</b>          | <b>300</b>          | <b>99</b>           | <b>51</b>             | <b>32</b>             | <b>737</b>   |
| <b>* includes ALL Territories</b> |                            | <b>292</b>          | <b>= Not Remote</b> |                     | <b>445</b>          | <b>= Remote</b>       |                       |              |

INAC Band Classification Manual – 2004 and INAC IMB Strategic Planning Group

## II. Background – Basic Facts

It's important to provide some context before entering into a discussion on the telecommunication infrastructure of Aboriginal communities. In 1998, the department of Indian and Northern Affairs reported that a total of 658,824 registered Indians were living both on and off reserve. By 2008, that number is projected to climb to 798,211; an increase of 21%. Today's Aboriginal population is young and active. In 1999, almost half of the registered Indian population was less than 25 years of age. For Canada as a whole, 33% of the population fell into this category.

### a. Population

Figures on the Aboriginal population of Canada vary greatly depending on the specific question posed by Statistics Canada. The 2001 census population figures vary between 976,310 people that identify themselves as Aboriginal to over 1.3 million people who respond to having Aboriginal ancestry. Statistics Canada most frequently uses the Aboriginal identity number in calculations and as a result we have chosen to do so within this report. The Aboriginal population represents approximately 3% of the total Canadian population and has been growing at an average annual rate of 4% since 1996.

#### (i) Comparing Aboriginal and Non-Aboriginal Populations

| Group                                       | Population, 1996  | Population, 2001  | Percentage of Total Canadian Population, 2001 | 1996-2001 Annual Growth Rate |
|---|-------------------|-------------------|---|------------------------------|
| <b>Total Aboriginal identity Population</b> | <b>799,005</b>    | <b>976,310</b>    | <b>3%</b>                                     | <b>4.09%</b>                 |
| Total Non-Aboriginal population             | 27,729,115        | 28,662,725        | 97%   | 0.66%                        |
| <b>TOTAL</b>                                | <b>28,528,120</b> | <b>29,639,035</b> | <b>100%</b>                                   | <b>0.77%</b>                 |

Statistics Canada - Cat. No. 97F0011XCB01001 & 93F0025XDB96002

#### (ii) Aboriginal Population by Aboriginal Identity

| Group                                       | 1996 Population | 2001 Population | Percentage of Total Aboriginal Population, 2001 | 1996-2001 Annual Growth Rate |
|---|-----------------|-----------------|---|------------------------------|
| <b>First Nation single response</b>         | 529,040         | 608,845         | 62%   | <b>2.85%</b>                 |
| <b>Inuit single response</b>                | 40,220          | 45,075          | 5%  | <b>2.31%</b>                 |
| <b>Métis single response</b>                | 204,115         | 292,310         | 30%   | <b>7.45%</b>                 |
| Multiple Aboriginal responses               | 6,415           | 6,665           | 1%  | <b>0.77%</b>                 |
| Aboriginal responses not included elsewhere | 19,215          | 23,415          | 2%  | <b>4.03%</b>                 |
| <b>TOTAL</b>                                | <b>799,005</b>  | <b>976,310</b>  | <b>100%</b>                                     | <b>4.09%</b>                 |

Statistics Canada - Cat. No. 97F0011XCB01001 & 93F0025XDB96002

(iii) **Geographic Distribution of Aboriginal Population**

| Province/Territory    | Aboriginal Population, 1996 | Aboriginal Population, 2001 | Percentage of Total Aboriginal Population, 2001 | 1996-2001 Annual Growth Rate |
|-----------------------|-----------------------------|-----------------------------|---|------------------------------|
| Alberta               | 122,840                     | 156,220                     | 16.00%  | <b>4.93%</b>                 |
| British Columbia      | 139,655                     | 170,025                     | 17.42%  | <b>4.01%</b>                 |
| Manitoba              | 128,685                     | 150,040                     | 15.37%  | <b>3.12%</b>                 |
| New Brunswick         | 10,250                      | 16,990                      | 1.74%   | <b>10.64%</b>                |
| Newfoundland          | 14,205                      | 18,780                      | 1.92%   | <b>5.74%</b>                 |
| Nova Scotia           | 12,380                      | 17,015                      | 1.74%   | <b>6.57%</b>                 |
| Northwest Territories | 18,995                      | 18,725                      | 1.92%   | <b>-0.29%</b>                |
| Nunavut               | 20,690                      | 22,720                      | 2.33%   | <b>1.89%</b>                 |
| Ontario               | 141,525                     | 188,320                     | 19.29%  | <b>5.88%</b>                 |
| Prince Edward Island  | 950                         | 1,345                       | 0.14%   | <b>7.20%</b>                 |
| Quebec                | 71,415                      | 79,400                      | 8.13%   | <b>2.14%</b>                 |
| Saskatchewan          | 111,240                     | 130,190                     | 13.33%  | <b>3.20%</b>                 |
| Yukon                 | 6,175                       | 6,540                       | 0.67%   | <b>1.16%</b>                 |
| <b>TOTAL</b>          | <b>799,005</b>              | <b>976,310</b>              | <b>100%</b>                                     | <b>4.09%</b>                 |

Statistics Canada – Cat. No. 97F0011XIE2001007 & 93F0025XDB96002

(iv) **Regional Distribution of Aboriginal Population by Aboriginal Identity (Single Responses)**

| Province/Territory    | Aboriginal Population, 2001 |               |                | Total          |
|-----------------------|-----------------------------|---------------|----------------|----------------|
|                       | First Nations               | Inuit         | Métis          |                |
| Alberta               | 84,990                      | 1,090         | 66,060         | <b>152,140</b> |
| British Columbia      | 118,290                     | 800           | 44,270         | <b>163,360</b> |
| Manitoba              | 90,340                      | 345           | 56,800         | <b>147,485</b> |
| New Brunswick         | 11,490                      | 160           | 4,290          | <b>15,940</b>  |
| Newfoundland          | 7,035                       | 4,560         | 5,480          | <b>17,075</b>  |
| Nova Scotia           | 12,920                      | 350           | 3,135          | <b>16,405</b>  |
| Northwest Territories | 10,615                      | 3,910         | 3,580          | <b>18,105</b>  |
| Nunavut               | 100                         | 22,560        | 50             | <b>22,710</b>  |
| Ontario               | 131,560                     | 1,375         | 48,340         | <b>181,275</b> |
| Prince Edward Island  | 1,035                       | 15            | 220            | <b>1,270</b>   |
| Quebec                | 51,125                      | 9,535         | 15,855         | <b>76,515</b>  |
| Saskatchewan          | 83,745                      | 235           | 43,695         | <b>127,675</b> |
| Yukon                 | 5,600                       | 140           | 535            | <b>6,275</b>   |
| <b>Canada</b>         | <b>608,845</b>              | <b>45,075</b> | <b>292,310</b> | <b>946,230</b> |

Statistics Canada – Cat. No. 97F0011XCB01002

b. **Communities**

(i) **Distribution of Aboriginal Communities by Province and Territory**

| Province/Territory    | Aboriginal Communities, 2004 |           |           | Total      |
|-----------------------|------------------------------|-----------|-----------|------------|
|                       | First Nations                | Inuit     | Métis     |            |
| Alberta               | 46                           |           | 8         | <b>54</b>  |
| British Columbia      | 201                          |           |           | <b>201</b> |
| Manitoba              | 62                           |           | 5         | <b>67</b>  |
| New Brunswick         | 15                           |           |           | <b>15</b>  |
| Newfoundland          | 3                            | 5         | 6         | <b>14</b>  |
| Nova Scotia           | 13                           |           |           | <b>13</b>  |
| Northwest Territories | 27                           | 6         |           | <b>33</b>  |
| Nunavut               |                              | 28        |           | <b>28</b>  |
| Ontario               | 140                          |           | 1         | <b>141</b> |
| Prince Edward Island  | 2                            |           |           | <b>2</b>   |
| Quebec                | 39                           | 14        |           | <b>53</b>  |
| Saskatchewan          | 70                           |           | 30        | <b>100</b> |
| Yukon                 | 16                           |           |           | <b>16</b>  |
| <b>Canada</b>         | <b>634</b>                   | <b>53</b> | <b>50</b> | <b>737</b> |

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(ii) **Breakdown of Aboriginal Communities by Population Group**

| Aboriginal Community      | Population Group |               |                |                | Total Communities | TOTAL %        | Average Community Population | TOTAL Community Population |
|---------------------------|------------------|---------------|----------------|----------------|-------------------|----------------|------------------------------|----------------------------|
|                           | <100             | 100 - 499     | 500 – 1,999    | 2,000+         |                   |                |                              |                            |
| <b>First Nation</b>       | 106              | 299           | 201            | 28             | <b>634</b>        | <b>86.02%</b>  | <b>594</b>                   | <b>376,907</b>             |
| <b>Inuit</b>              | 3                | 22            | 25             | 3              | <b>53</b>         | <b>7.19%</b>   | <b>752</b>                   | <b>39,855</b>              |
| <b>Métis</b>              | 13               | 17            | 19             | 1              | <b>50</b>         | <b>6.78%</b>   | <b>497</b>                   | <b>24,850</b>              |
| <b>TOTAL</b>              | <b>122</b>       | <b>338</b>    | <b>245</b>     | <b>32</b>      | <b>737</b>        | <b>100.00%</b> | <b>599</b>                   | <b>441,612</b>             |
| <b>TOTAL %</b>            | <b>16.55%</b>    | <b>45.86%</b> | <b>33.24%</b>  | <b>4.34%</b>   | <b>100.00%</b>    |                |                              |                            |
| <b>Average Population</b> | <b>50</b>        | <b>275</b>    | <b>933</b>     | <b>3,562</b>   | <b>599</b>        |                |                              |                            |
| <b>TOTAL Population</b>   | <b>6,065</b>     | <b>92,949</b> | <b>228,619</b> | <b>113,979</b> | <b>441,612</b>    |                |                              |                            |

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### III. Connectivity Data

The following information is a synthesis of the various data sources referenced within the above methodology.

#### a. Internet Access at the Community Level

Based upon Connectivity Survey Responses, CAP and SchoolNet Sites

| Aboriginal Community | TOTAL Communities | Internet Access | %             | NO Access | %     |
|----------------------|-------------------|-----------------|---------------|-----------|-------|
| <b>First Nations</b> | 634               | 625             | 98.58%        | 9         | 1.42% |
| <b>Inuit</b>         | 53                | 49              | 92.45%        | 4         | 7.55% |
| <b>Métis</b>         | 50                | 50              | 100.00%       | 0         | 0.00% |
| <b>TOTAL</b>         | <b>737</b>        | <b>724</b>      | <b>98.24%</b> | 13        | 1.76% |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites

At the community level, **approximately 98% of Aboriginal communities are connected to the Internet** in some way. This includes access at the Community Administration Office (CAO), Community Access Points (CAP) and SchoolNet sites, and even at the Household level.

It should be noted that not all Community Administration Offices and SchoolNet sites make their connections available to the general public.

#### (i) Toll-Free Internet Access at the Community Level

Based upon the communities that have Internet Access from the table above

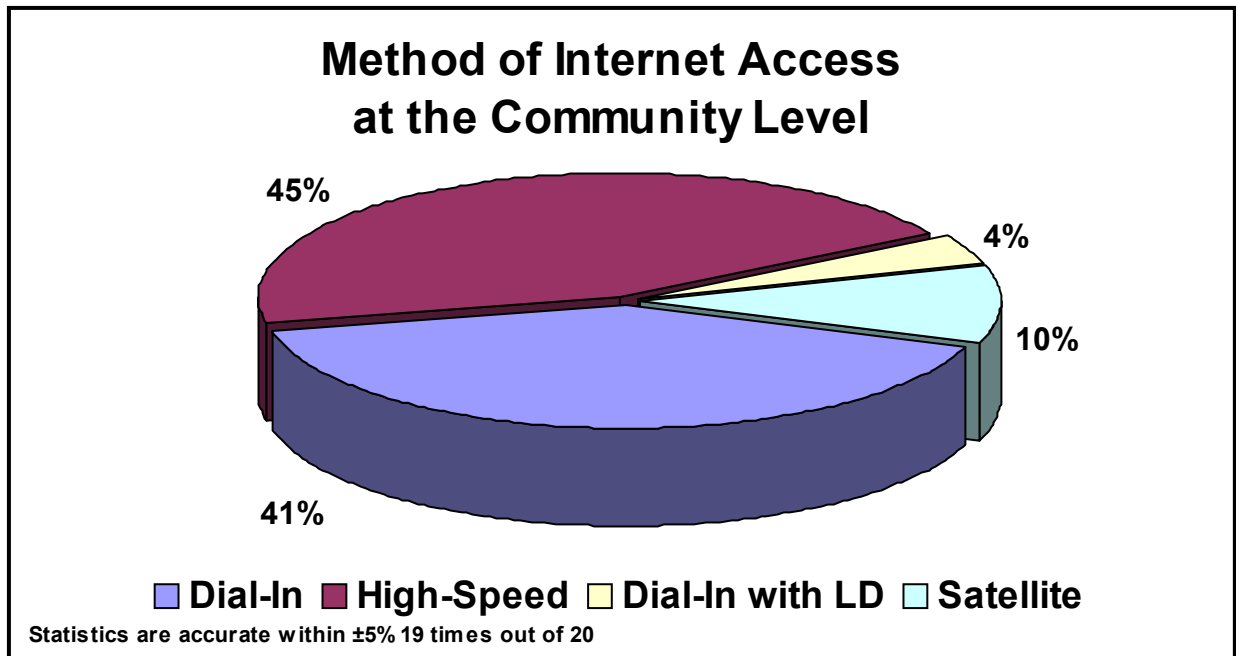
| Aboriginal Community | Toll-Free         | %             | Charged   | %      |
|----------------------|-------------------|---------------|-----------|--------|
| <b>First Nations</b> | 592 of 607        | 97.53%        | 15 of 607 | 2.47%  |
| <b>Inuit</b>         | 46 of 49          | 93.88%        | 3 of 49   | 6.12%  |
| <b>Métis</b>         | 33 of 41          | 80.49%        | 8 of 41   | 19.51% |
| <b>TOTAL</b>         | <b>671 of 697</b> | <b>96.27%</b> | 26 of 697 | 3.73%  |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites

Of the 724 respondents that indicated that their communities have Internet Access, 27 did not specify the method of connection. Therefore, as a result, the ACP Survey team has reduced the total number of communities with Internet Access from 724 to 697.

**At the community level, more than 96% of connected Aboriginal communities have toll-free access to the Internet.** This includes access at the Community Administration Office (CAO), Community Access Points (CAP) and SchoolNet sites, and even at the Household level.

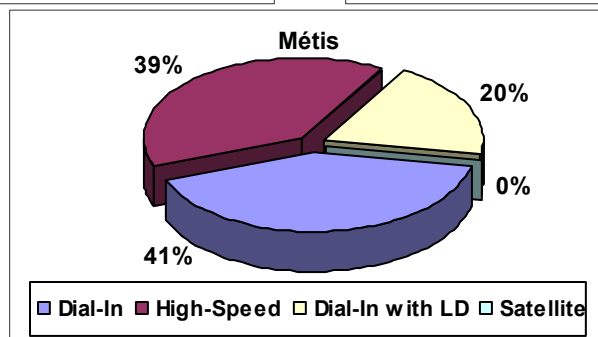
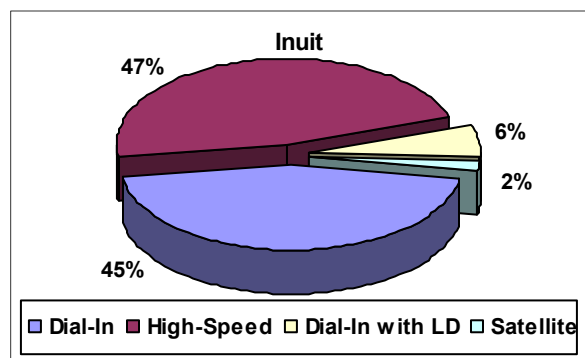
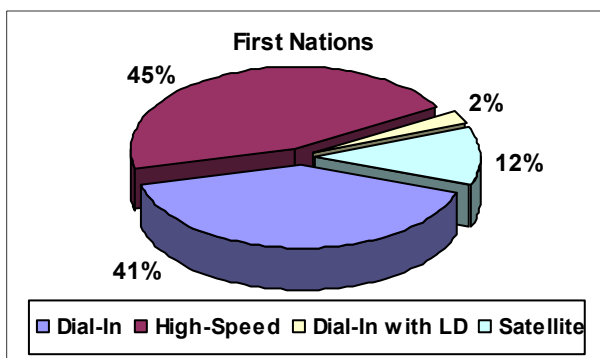
(ii) Method of Internet Access at the Community Level



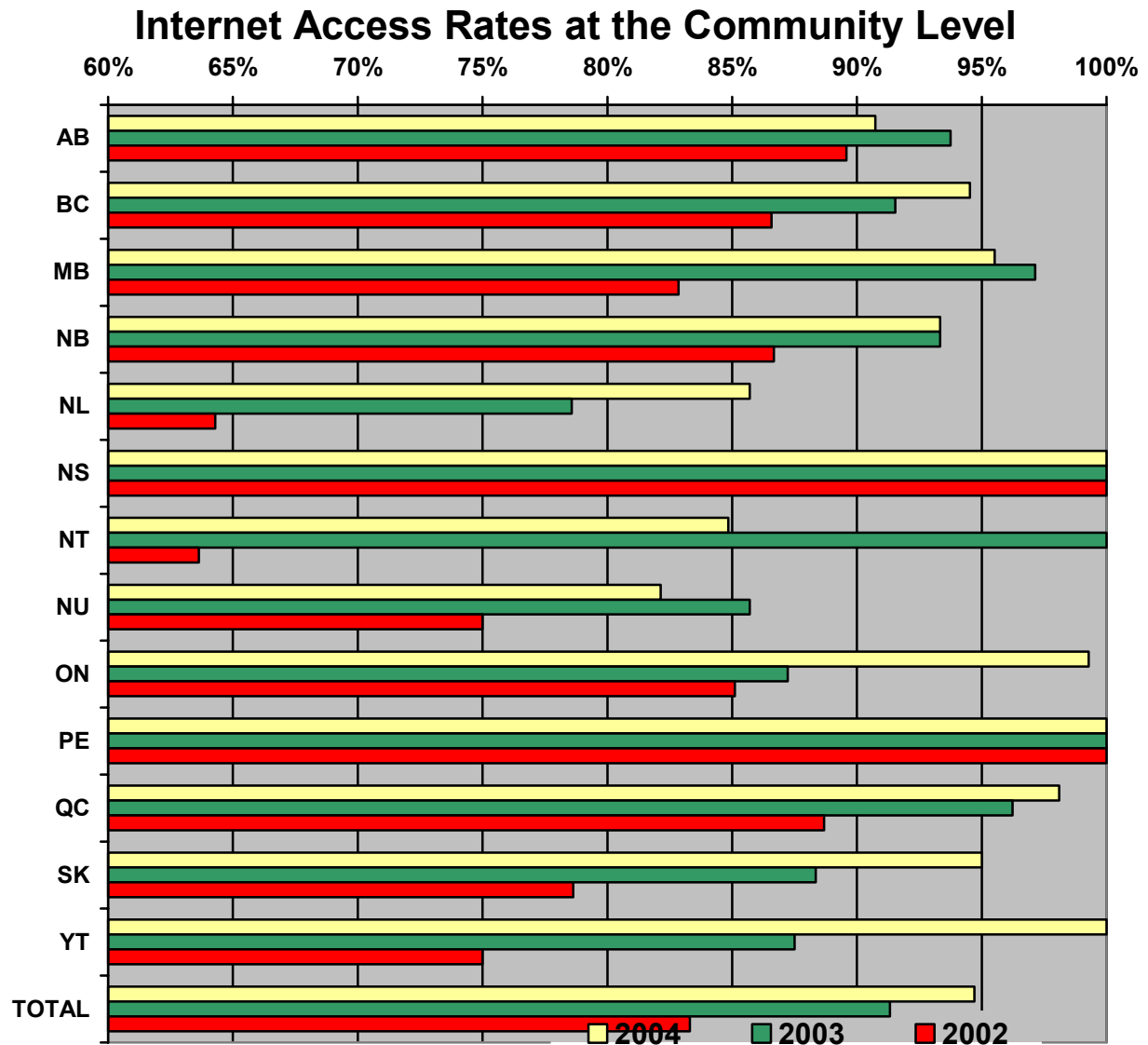
Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites  
 We have defined high-speed internet access to include ADSL, Cable, ISDN, T1, and Wireless.

Of those communities that have specified which type of Internet access they have, approximately 45% of communities use low-speed dial-in modems to connect to the Internet. Of this 45%, less than 10% of these communities (4% of the total) do so while incurring long-distance charges.

While a community that connects to the Internet via low-speed modem while incurring long-distance charges is technically “connected”, the ability for that connection to be used for research, e-commerce or educational purposes is severely limited. The ACP Survey team refers to “connected communities” as those who do not incur long distance telephone charges for its use.



(iii) Internet Access at the Community Level by Province/Territory



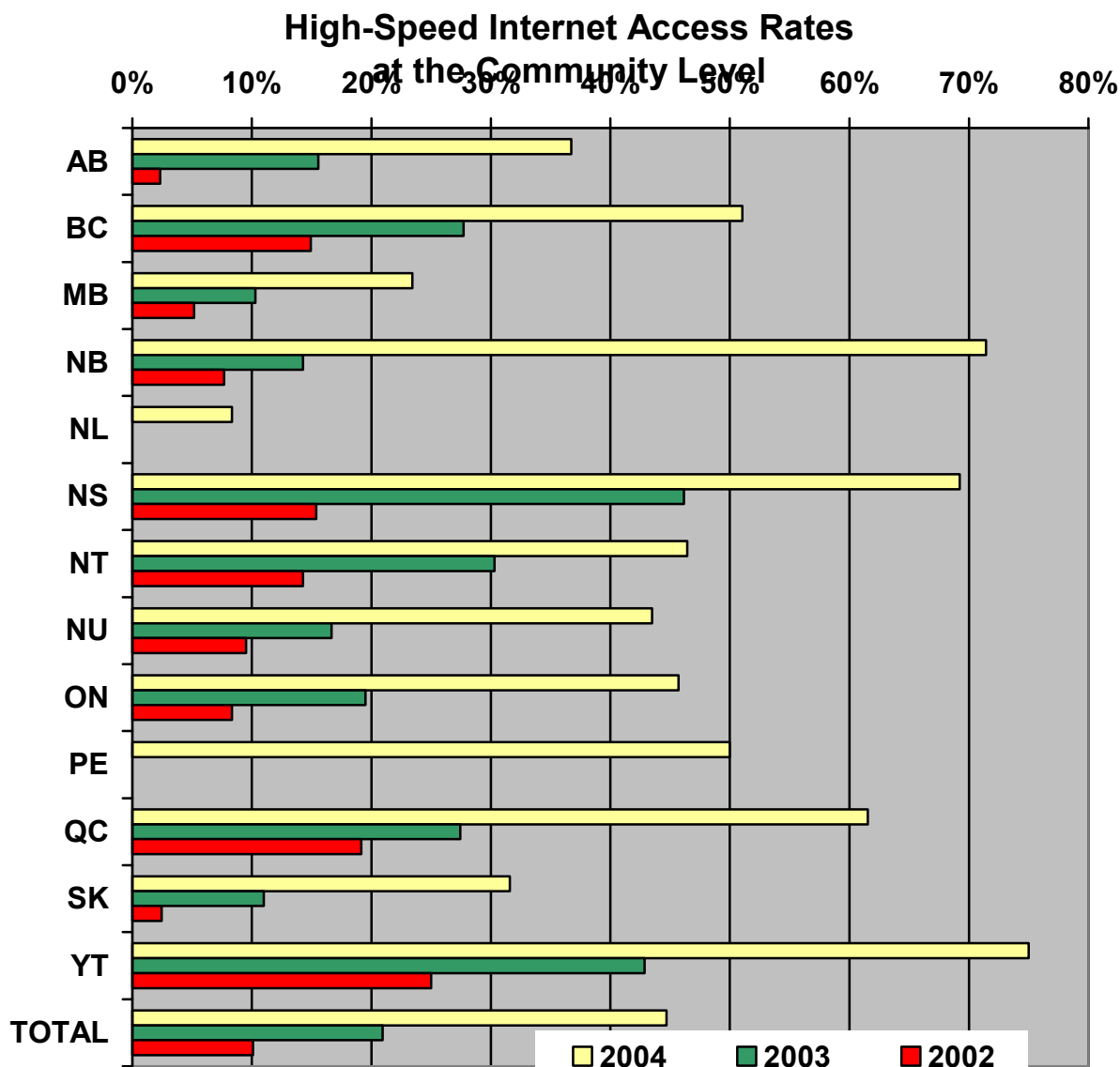
Statistics are accurate within ±10% 19 times out of 20

Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites

Keeping in mind that the ACP Survey team refers to “connected communities” as those who do not incur long distance telephone charges for its use, the level of connectivity varies from province to province but averages well over 90% for all provinces in both years, with the greatest annual gain for Internet access at the community level occurring in the Yukon Territories, moving from 87.5% in 2003 to 100% in 2004.

It should be noted that ALL Aboriginal communities in Nova Scotia and Prince Edward Island had Internet Access for all years.

(iv) High-Speed Internet Access Rates by Province/Territory at the Community Level



Statistics are accurate within  $\pm 10\%$  19 times out of 20

Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites  
We have defined high-speed internet access to include ADSL, Cable, ISDN, T1, and Wireless.

In 2004, the Yukon, New Brunswick and Nova Scotia clearly lead the country, respectively, with the highest rate of high-speed internet access at the community level. New Brunswick also had the greatest annual gain for level of high-speed connectivity at the community level, moving from 14% in 2003 to 71% in 2004. Yukon had the highest rate of high-speed internet access at the community level in 2002 with 25%, and rose to 75% in 2004. This is in large part due to the success of the Connect Yukon project. For more information on Connect Yukon and other provincial initiatives, see Appendix C.

Based upon the 2004 connectivity survey results, the level of high-speed connectivity varies from province to province but averages at approximately 45%, this is up from 21% in 2003 and 10% in 2002.

The ACP Survey team refers to “connected communities” as those who do not incur long distance telephone charges for its use.

(v) **High-Speed Internet Access Rates by Population Group at the Community Level**

| <b>High-Speed Internet Access Rate by Population Group</b> | <b>&lt;100</b> | <b>100-499</b> | <b>500-1,999</b> | <b>2000+</b>  | <b>TOTAL</b>  |
|--|----------------|----------------|------------------|---------------|---------------|
| <b>2004 High-Speed/Access</b>                              | <b>48.54%</b>  | <b>45.57%</b>  | <b>39.41%</b>    | <b>62.50%</b> | <b>44.70%</b> |
| <b>2003 High-Speed/Access</b>                              | <b>15.05%</b>  | <b>21.93%</b>  | <b>18.75%</b>    | <b>41.03%</b> | <b>20.95%</b> |
| <b>2002 High-Speed/Access</b>                              | <b>7.79%</b>   | <b>9.56%</b>   | <b>7.96%</b>     | <b>30.77%</b> | <b>10.10%</b> |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites  
We have defined high-speed internet access to include ADSL, Cable, ISDN, T1, and Wireless.

It was no surprise that larger communities are better connected to high-speed Internet services than smaller ones. As the cost of providing these services decrease and the number of customers who demand high-speed Internet services increase we should see more smaller-sized communities being offered high-speed Internet services.

High-Speed Internet Access rates have on average doubled each year. This shows that there exists an ever increasing demand for this high-speed internet service for all Aboriginal Communities.

The ACP Survey team refers to “connected communities” as those who do not incur long distance telephone charges for its use.

(vi) **Community Internet Access Sites Breakdown**

| <b>Community Internet Access Sites</b>   | <b>2004</b> | <b>%</b>      | <b>2003</b> | <b>%</b>      | <b>2002</b> | <b>%</b>      |
|--|-------------|---------------|-------------|---------------|-------------|---------------|
| <b>Community Admin Office (CAO) Only</b> | 260         | <b>38.81%</b> | 159         | <b>40.56%</b> | 235         | <b>34.61%</b> |
| <b>CAO+CAP and/or SchoolNet Sites</b>    | 374         | <b>55.82%</b> | 201         | <b>51.28%</b> | 311         | <b>45.80%</b> |
| <b>CAP and/or SchoolNet Sites Only</b>   | 17          | 2.53%         | 12          | 3.06%         | 65          | 9.57%         |
| <b>No Access</b>                         | 19          | 2.84%         | 20          | 5.10%         | 68          | 10.02%        |
| <b>TOTAL</b>                             | <b>670</b>  | 100.00%       | <b>392</b>  | 100.00%       | <b>679</b>  | 100.00%       |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses, CAP and SchoolNet sites

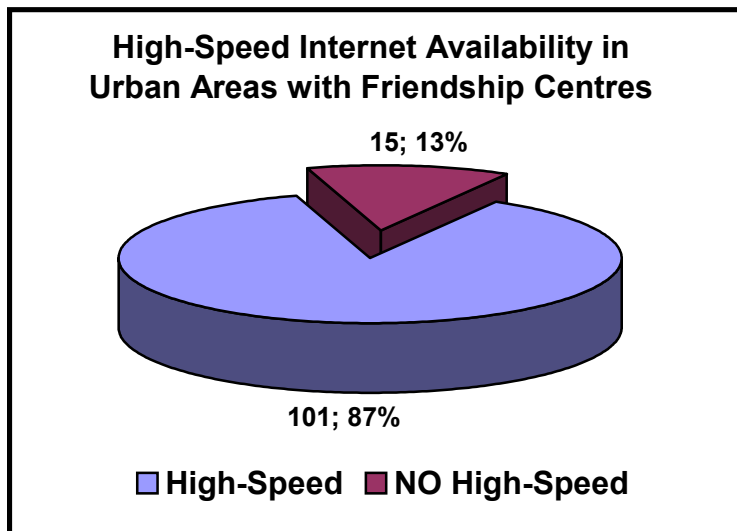
At least 90% of the Aboriginal Communities surveyed have Internet Access at their Community Administration Office (CAO).

(vii) Internet Access in Urban Areas

| GROUP                                    | Total - Area of Residence | On Reserve | Total Off Reserve = | Rural + | Urban |
|--|---------------------------|------------|---------------------|---------|-------|
| Aboriginal Population (Single Responses) | 100%                      | 30%        | 70%                 | 20%     | 50%   |
| Non-Aboriginal Population                | 100%                      | 0%         | 100%                | 19%     | 81%   |
| <b>TOTAL Population</b>                  | 100%                      | 1%         | 99%                 | 20%     | 79%   |

Statistics Canada - Cat. No. 97F0011XCB01001

Looking at the above table we see that half of the total Aboriginal population resides in urban areas off reserve. All major urban centres within Canada have access to high-speed Internet services.



Thus, one could conclude the majority of Aboriginal citizens have access to high-speed Internet services. Unfortunately, the economic situation facing most urban Aboriginals severely limits their ability to subscribe to Internet services and purchase the required computer equipment. For many, the only means of accessing the Internet is through the network of 116 Native friendships centres. 87% of friendship centres are located within urban areas that have high-speed Internet available to them. 11% of friendship centres are co-located with Industry Canada's Community Access Points (CAP sites).

**b. Internet Access at the Household  
Based upon Connectivity Survey Responses Only**

| Aboriginal Community | TOTAL Communities | Internet Access | %             | NO Access | %      |
|----------------------|-------------------|-----------------|---------------|-----------|--------|
| <b>First Nations</b> | 634               | 594             | 93.69%        | 40        | 6.31%  |
| <b>Inuit</b>         | 53                | 51              | 96.23%        | 2         | 3.77%  |
| <b>Métis</b>         | 50                | 40              | 80.00%        | 10        | 20.00% |
| <b>TOTAL</b>         | <b>737</b>        | <b>685</b>      | <b>92.94%</b> | 52        | 7.06%  |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only

At the household level, **over 90% of Aboriginal communities are connected to the Internet** in some way.

**(i) Toll-Free Internet Access at the Household Level**

**Based upon the communities that have Internet Access from the table above**

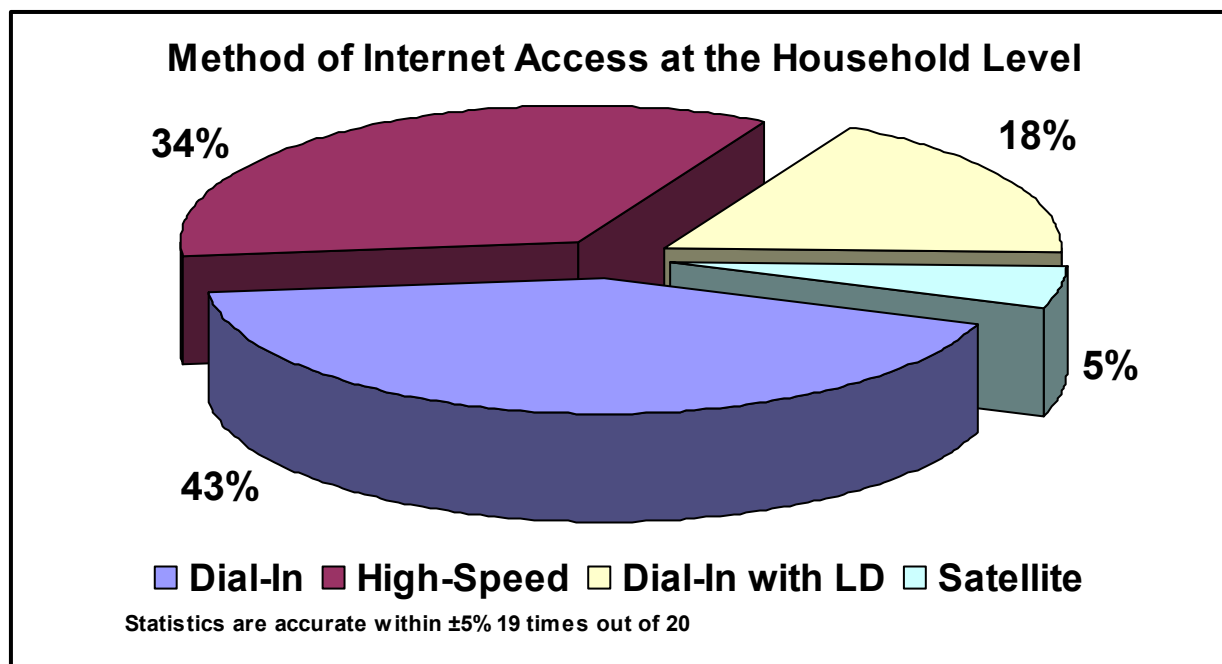
| Aboriginal Community | Toll-Free         | %             | Charged    | %      |
|----------------------|-------------------|---------------|------------|--------|
| <b>First Nations</b> | 492 of 594        | 82.83%        | 102 of 594 | 17.17% |
| <b>Inuit</b>         | 41 of 51          | 80.39%        | 10 of 51   | 19.61% |
| <b>Métis</b>         | 30 of 40          | 75.00%        | 10 of 40   | 25.00% |
| <b>TOTAL</b>         | <b>563 of 685</b> | <b>82.19%</b> | 122 of 685 | 17.81% |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only

When we exclude the number of communities with households that incur long distance charges for Internet services, the numbers change somewhat. **At the household level, more than 80% of connected Aboriginal communities have toll-free access to the Internet.**

It should be noted that our primary contact at the community was the Community Administration Office (CAO). Through this contact we attempted to ascertain what communication technologies were available to the general residential community.

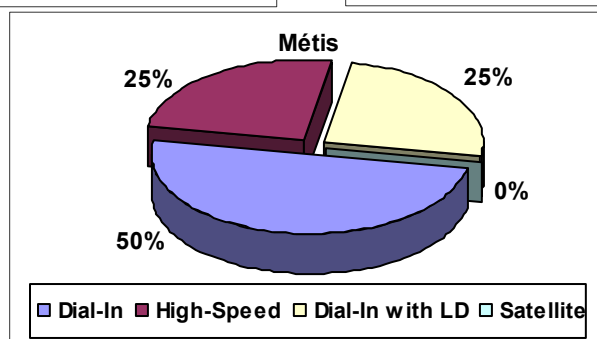
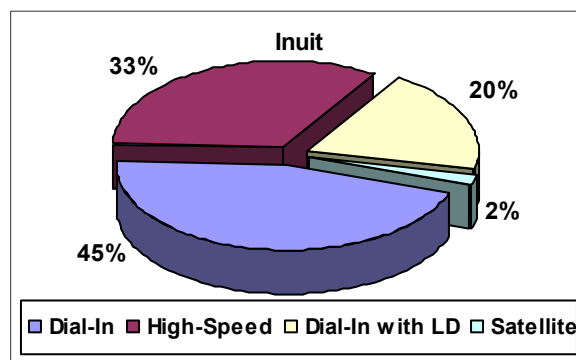
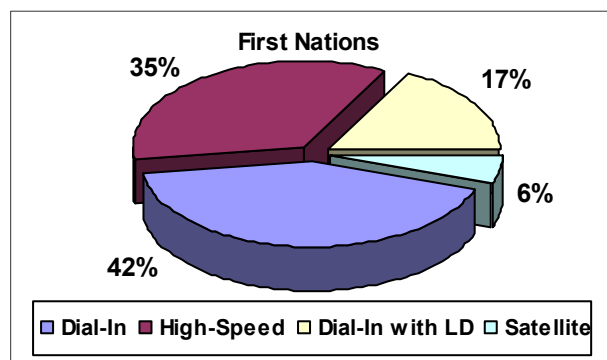
(ii) Method of Internet Access at the Household Level



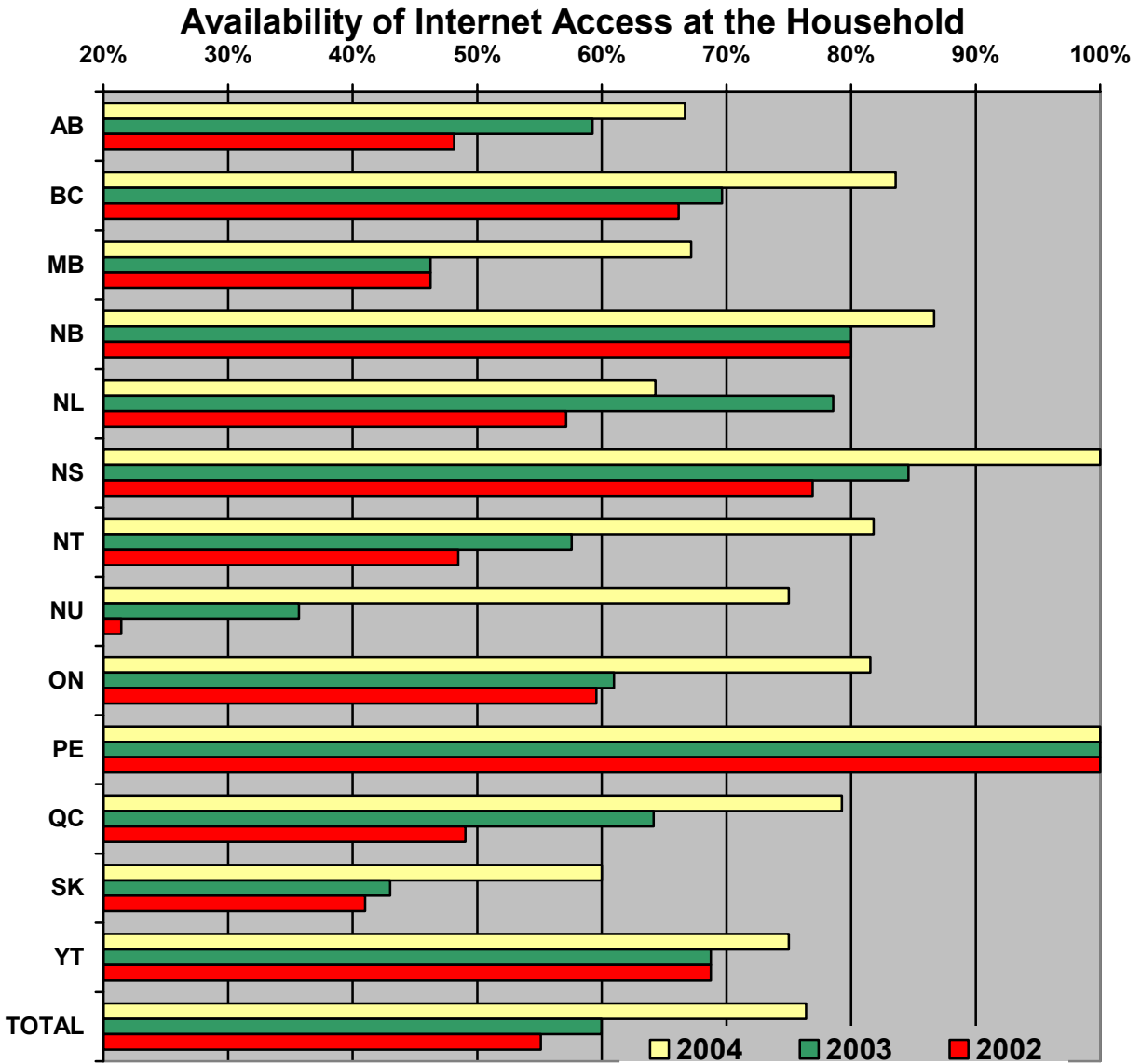
Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only  
 We have defined high-speed internet access to include ADSL, Cable, ISDN, T1, and Wireless.

Of the communities with households connected to the Internet, 61% of those communities have households that use analog dial-in modems to connect. Of this 61%, 30% of those (18% of the total) do so while incurring long-distance telephone charges.

While a community that connects to the Internet via low-speed modem while incurring long-distance charges is technically “connected”, the ability for that connection to be used for research, e-commerce or educational purposes is severely limited. The ACP Survey team refers to “connected communities” as those who do not incur long distance telephone charges for its use.



(iii) Availability of Internet Access at the Household Level by Province/Territory



Statistics are accurate within ±1% 19 times out of 20  
 Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only

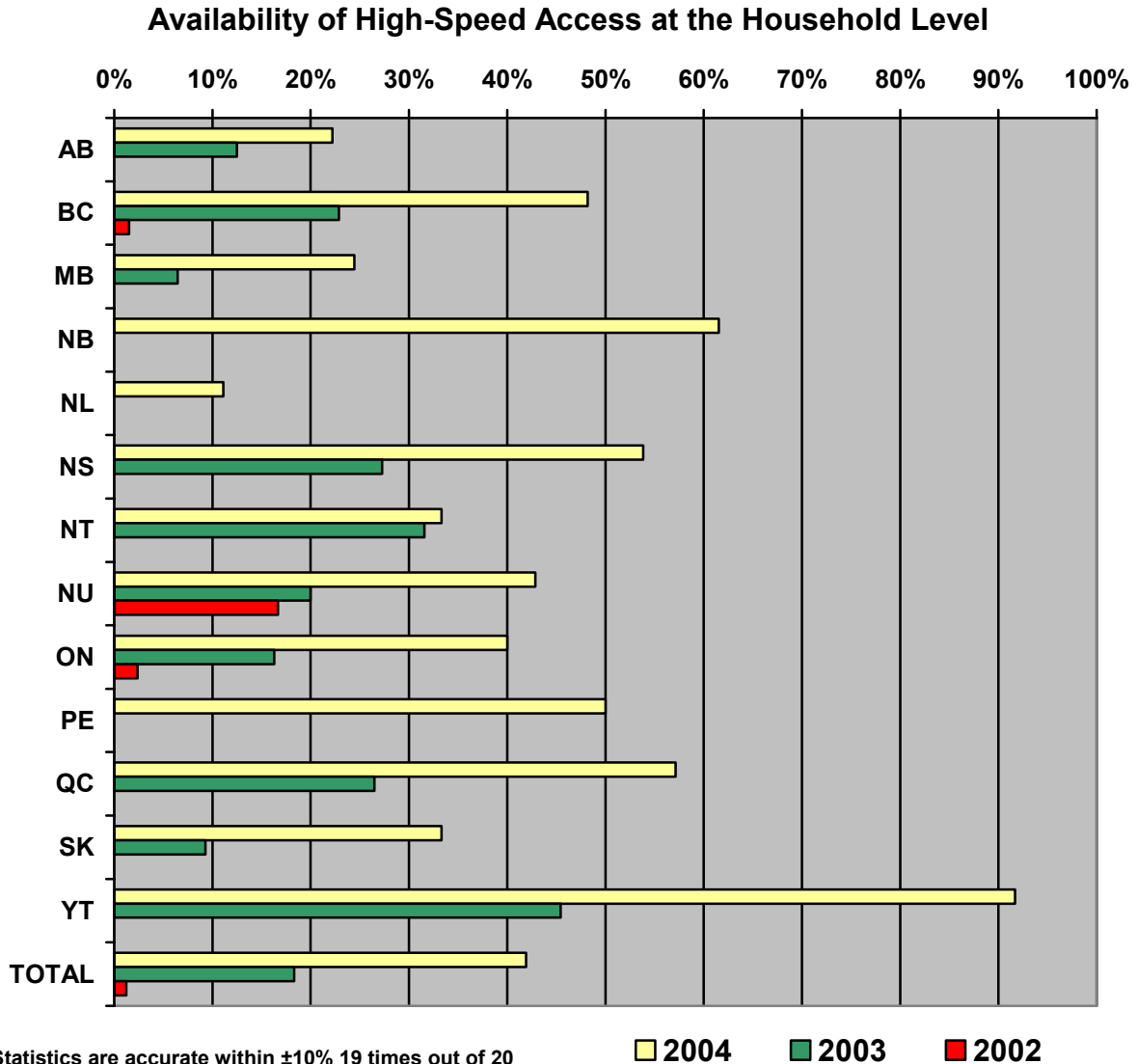
The above chart indicates the ability to connect to the Internet if provided with the appropriate equipment at the household.

Keeping in mind that the ACP Survey team refers to “connected communities” as those who do not incur long distance telephone charges for its use.

The level of connectivity varies from province to province but averages at over 75% for all provinces for 2004, up significantly from previous years. Nunavut had the greatest annual increase from 2003 to 2004.

It should be noted that ALL households within Aboriginal communities in Nova Scotia and Prince Edward Island had Internet Access in 2004.

(iv) Availability of High-Speed Internet Access at the Household Level by Province/Territory



Statistics are accurate within  $\pm 10\%$  19 times out of 20

Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only  
 We have defined high-speed internet access to include ADSL, Cable, ISDN, T1, and Wireless.

When we look at the availability of high-speed internet access, the picture is quite different and variable. The above chart tabulates the percentage of participating communities that indicated the availability of high-speed Internet services versus all internet access at the household level.

The level of availability of high-speed connectivity varies greatly from province to province and has increased dramatically from 1% in 2002 to 18% in 2003 to 42% in 2004, with the greatest annual gain coming in New Brunswick whereby the availability of high-speed internet access rates increased from 0% in 2003 to 62% in 2004. The Yukon has the highest level of availability of high-speed connectivity in 2004 with 92%.

Most satellite Internet systems currently in place are one-way systems that require a traditional analog dial-in modem for uploading. For that reason satellite systems have been excluded from the definition of high-speed.

(v) Comparing Household High-Speed Internet Access Rates by Population Group

| Household High-Speed Internet Access Rate by Population Group | <100   | 100-499 | 500-1,999 | 2000+  | TOTAL  |
|---|--------|---------|-----------|--------|--------|
| 2004 High-Speed/Access  | 37.65% | 42.28%  | 41.67%    | 53.85% | 41.92% |
| 2003 High-Speed/Access  | 11.76% | 18.78%  | 19.12%    | 28.00% | 18.33% |
| 2002 High-Speed/Access  | 1.61%  | 1.47%   | 0%        | 4.55%  | 1.23%  |

Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only  
 We have defined high-speed internet access to include ADSL, Cable, ISDN, T1, and Wireless.

It was no surprise that we identified households within larger communities as being better connected to high-speed Internet services. As the cost of providing these services decrease and the number of customers who demand high-speed Internet services increase we should see households within smaller communities being offered high-speed Internet services.

High-Speed Internet Access rates have on average doubled from 2003 to 2004 for each population group. This shows that there exists an ever increasing demand for this high-speed internet service for all households within Aboriginal Communities.

(vi) Household Internet Service Provider (ISP) Subscribers

| % of Community Residents | 2004 Household ISP Responses | %              | 2003 Household ISP Responses | %              |
|--------------------------|------------------------------|----------------|------------------------------|----------------|
| 0                        | 24                           | 3.78%          | 31                           | 8.16%          |
| 1-25                     | 301                          | 47.48%         | 236                          | 62.10%         |
| 26-50                    | 215                          | 33.91%         | 72                           | 18.95%         |
| 51-75                    | 72                           | 11.36%         | 35                           | 9.21%          |
| 76+                      | 22                           | 3.47%          | 6                            | 1.58%          |
| <b>TOTAL</b>             | <b>634</b>                   | <b>100.00%</b> | <b>380</b>                   | <b>100.00%</b> |

Based upon 2004 and 2003 Connectivity Survey Responses Only

When asked the question; “In your opinion, what percentage of community residents currently subscribe to an ISP service?” **At least 85% of the responses were in the 0 to 50% range for both years.**

(vii) Household Access to Satellite TV

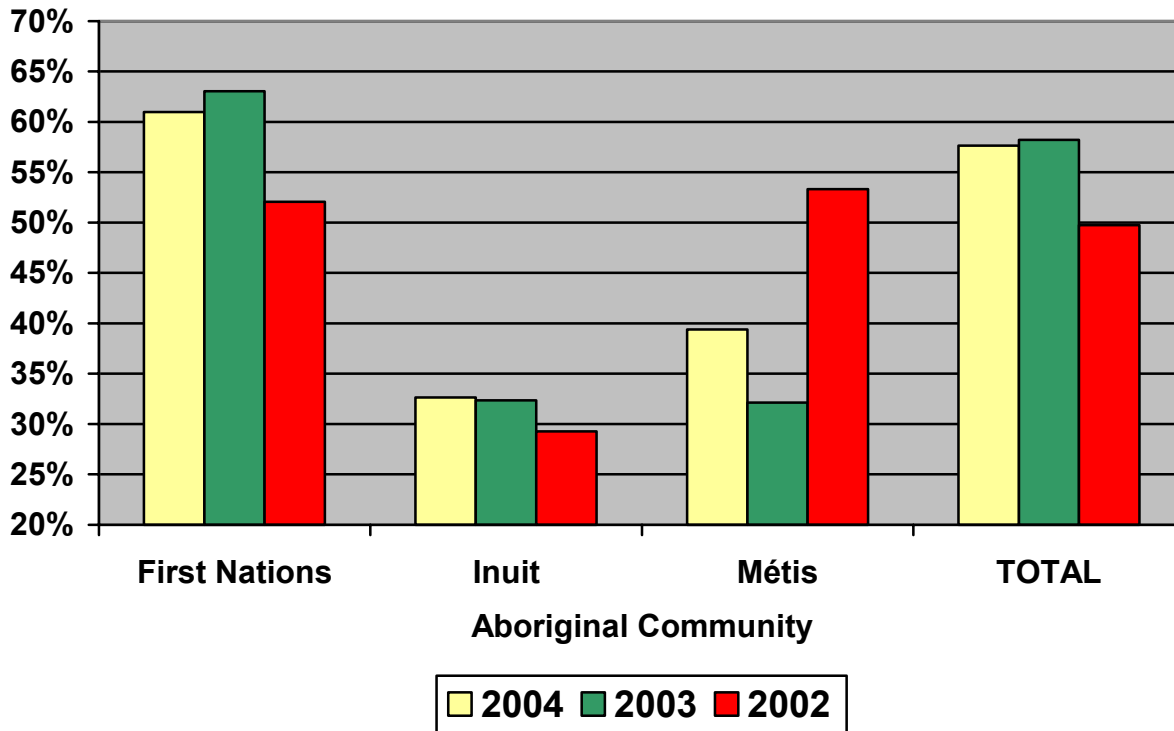
| % of Community Residents | 2004 Satellite TV Responses | %              | 2003 Satellite TV Responses | %              |
|--------------------------|-----------------------------|----------------|-----------------------------|----------------|
| 0                        | 41                          | 6.38%          | 36                          | 9.42%          |
| 1-25                     | 124                         | 19.29%         | 82                          | 21.47%         |
| 26-50                    | 93                          | 14.46%         | 67                          | 17.54%         |
| 51-75                    | 142                         | 22.08%         | 100                         | 26.18%         |
| 76+                      | 243                         | 37.79%         | 97                          | 25.39%         |
| <b>TOTAL</b>             | <b>643</b>                  | <b>100.00%</b> | <b>382</b>                  | <b>100.00%</b> |

Based upon 2004 and 2003 Connectivity Survey Responses Only

Similarly, when asked the question; “What percentage of community residents currently subscribe to a satellite television service?” **the majority of responses were in the over 50% range for both years.** It appears as though that these high numbers demonstrate a propensity to use new technology.

c. Community Member Access to the CAO's Internet Connection

### Community Members' Ability to Access the Internet at their Community Administration Office (CAO)



Based upon 2004, 2003 & 2002 Connectivity Survey Responses Only

Many communities allow residents to use their community administration office's (CAO) Internet facilities for personal use. Overall access rate for community members in all Aboriginal communities averaged at just under 60%.

Of the Aboriginal communities that allow community members to use their community administration office's Internet facilities, 60% DO NOT HAVE HIGH-SPEED access available to the individual households. Based upon 2004 survey results, of the communities that have high-speed access at the CAO, 274, 163 (60%) allow community members to use their community administration office's Internet facilities.

Therefore, it seems as though for those communities whereby the CAO has high-speed internet access and the community residents do not have similar access at their homes, then those community administration offices (CAOs) will allow public access to their internet facilities.

We invite your comments and suggestions, please direct them to [connectivity@inac.gc.ca](mailto:connectivity@inac.gc.ca)

## V. Appendices

### Appendix A – List of Aboriginal Communities

| <b>First Nation Bands</b>        |                                      |  |
|----------------------------------|--------------------------------------|--|
| Aamjiwnaang                      | Bigstone Cree Nation                 | Chippewas of Kettle and Stony Point        |
| Abegweit                         | Biinjitiwaabik Zaaging               | Chippewas of Mnjikaning First Nation       |
| Abénakis de Wólinak              | Anishinaabek                         | Chippewas of Nawash First Nation           |
| Acadia                           | Birch Narrows First Nation           | Chippewas of the Thames First Nation       |
| Acho Dene Koe                    | Birdtail Sioux                       | Clearwater River Dene                      |
| Adams Lake                       | Black Lake                           | Cold Lake First Nations                    |
| Ahousaht                         | Blood                                | Coldwater                                  |
| Ahtahkakoop                      | Bloodvein                            | Columbia Lake                              |
| Aishihik                         | Blueberry River First Nations        | Communauté anicinape de Kitcisakik         |
| Aitchelitz                       | Bonaparte                            | Comox                                      |
| Aklavik                          | Boothroyd                            | Conseil de la Première Nation Abitibiwinni |
| Albany                           | Boston Bar First Nation              | Conseil des Atikamekw de Wemotaci          |
| Alderville First Nation          | Bridge River                         | Constance Lake                             |
| Alexander                        | Brokenhead Ojibway Nation            | Cook's Ferry                               |
| Alexandria                       | Brunswick House                      | Cote First Nation 366                      |
| Alexis                           | Buctouche                            | Couchiching First Nation                   |
| Alexis Creek                     | Buffalo Point First Nation           | Cowessess                                  |
| Algonquins of Barriere Lake      | Buffalo River Dene Nation            | Cowichan                                   |
| Algonquins of Pikwakanagan       | Bunibonibee Cree Nation              | Cree Nation of Chisasibi                   |
| Animbiigoo Zaagi'igan            | Burns Lake                           | Cree Nation of Mistissini                  |
| Anishinaabek                     | Burnt Church                         | Cree Nation of Nemaska                     |
| Anishinabe of Wauzhushk          | Burrard                              | Cree Nation of Wemindji                    |
| Onigum                           | Caldwell                             | Cross Lake First Nation                    |
| Anishnaabeg of Naongashiing      | Campbell River                       | Cumberland House Cree Nation               |
| Annapolis Valley                 | Canim Lake                           | Curve Lake                                 |
| Aroland                          | Canoe Creek                          |  |
| Ashcroft                         | Canoe Lake Cree First Nation         |  |
| Athabasca Chipewyan First Nation | Canupawakpa Dakota First Nation      |  |
| Atikamekw d'Opitciwan            | Cape Mudge                           |  |
| Attawapiskat                     | Carcross/Tagish First Nations        |  |
| Aundeck-Omni-Kaning              | Carry The Kettle                     |  |
| Barren Lands                     | Cat Lake                             |  |
| Batchewana First Nation          | Cayoos Creek                         |  |
| Bay of Quinte Mohawk             | Champagne                            |  |
| Bear River                       | Champagne and Aishihik First Nations |  |
| Beardy's and Okemasis            | Chapel Island First Nation           |  |
| Bearfoot Onondaga                | Chapleau Cree First Nation           |  |
| Bearskin Lake                    | Chapleau Ojibway                     |  |
| Bearspaw                         | Chawathil                            |  |
| Beausoleil                       | Cheam                                |  |
| Beaver First Nation              | Chehalis                             |  |
| Beaver Lake Cree Nation          | Chemainus First Nation               |  |
| Beecher Bay                      | Chemawawin Cree Nation               |  |
| Behdzi Ahda" First Nation        | Cheslatta Carrier Nation             |  |
| Berens River                     | Chiniki                              |  |
| Betsiamites                      | Chipewyan Prairie First Nation       |  |
| Big Grassy                       | Chippewas of Georgina Island         |  |
| Big Island Lake Cree Nation      |                                      |  |
| Big River                        |                                      |  |

Dakota Plains  
 Dakota Tipi  
 Da'naxda'xw First Nation  
 Dauphin River  
 Day Star  
 Daylu Dena Council (Lower  
 Post First Nation)  
 Dease River  
 Dechi Laot'i First Nations  
 Deer Lake  
 Deh Gah Gotie Dene Council  
 Delaware  
 Deline  
 Dene Tha'  
 Deninu K'ue First Nation  
 Ditidaht  
 Dog Rib Rae  
 Doig River  
 Dokis  
 Douglas  
 Driftpile First Nation  
 Duncan's First Nation  
 Eabametoong First Nation  
 Eagle Lake  
 Eagle Village First Nation –  
 Kipawa  
 Eastmain  
 Ebb and Flow  
 Eel Ground  
 Eel River Bar First Nation  
 Ehattesaht  
 Elsipogtog First Nation (Big  
 Cove)  
 English River First Nation  
 Enoch Cree Nation #440  
 Ermineskin Tribe  
 Eskasoni  
 Esketemc  
 Esquimalt  
 First Nation of Nacho Nyak  
 Dun  
 Fisher River  
 Fishing Lake First Nation  
 Flying Dust First Nation  
 Flying Post  
 Fond du Lac  
 Fort Alexander  
 Fort Folly  
 Fort Good Hope  
 Fort McKay First Nation  
 Fort McMurray #468 First  
 Nation  
 Fort Nelson First Nation  
 Fort Severn  
 Fort William

Fox Lake  
 Frog Lake  
 Gamblers  
 Gameti First Nation  
 Garden Hill First Nations  
 Garden River First Nation  
 Ginoogaming First Nation  
 Gitanmaax  
 Gitanyow  
 Gitsegukla  
 Gitwangak  
 Glen Vowell  
 Glooscap First Nation  
 God's Lake First Nation  
 Gordon  
 Grand Rapids First Nation  
 Grassy Narrows First Nation  
 Gull Bay  
 Gwa'Sala-Nakwaxda'xw  
 Gwawaenuk Tribe  
 Gwicha Gwich'in  
 Hagwilget Village  
 Halalt  
 Halfway River First Nation  
 Hartley Bay  
 Hatchet Lake  
 Heart Lake  
 Heiltsuk  
 Henvey Inlet First Nation  
 Hesquiaht  
 Hiawatha First Nation  
 High Bar  
 Hollow Water  
 Homalco  
 Horse Lake First Nation  
 Hupacasath First Nation  
 Huu-ay-aht First Nations  
 Indian Island  
 Innu Takuaiakan Uashat Mak  
 Mani-Utenam  
 Inuvik Native  
 Iskatewizaagegan #39  
 Independent First Nation  
 Iskut  
 Island Lake First Nation  
 James Smith  
 Jean Marie River First Nation  
 Ka:'yu:'k't'h'/Che:k:tles7et'h'  
 First Nations  
 Ka'a'gee Tu First Nation  
 Kahkewistahaw  
 Kahnawake  
 Kamloops  
 Kanaka Bar  
 Kapawe'no First Nation  
 Kasabonika Lake

Kashechewan  
 K'atlodeeche First Nation  
 Katzie  
 Kawacatoose  
 Keeseekoose  
 Keeseekoowenin  
 Kee-Way-Win  
 Kehewin Cree Nation  
 Kingfisher  
 Kingsclear  
 Kinistin  
 Kinonjeoshtegon First Nation  
 Kispiox  
 Kitamaat  
 Kitasoo  
 Kitchenuhmaykoosib  
 Inninuweg  
 Kitigan Zibi Anishinabeg  
 Kitkatla  
 Kitselas  
 Kitsumkalum  
 Klahoose First Nation  
 Kluane First Nation  
 Kluskus  
 Konadaha Seneca  
 Kwadacha  
 Kwakiutl  
 Kwanlin Dun First Nation  
 Kwantlen First Nation  
 Kwaw-kwaw-Apilt  
 Kwiakah  
 Kwicksutaineuk-ah-kwaw-ah-  
 mish  
 Kwikwetlem First Nation

La Nation Innu Matimekush-  
 Lac John  
 La Nation Micmac de Gespeg  
 Lac Des Mille Lacs  
 Lac La Croix  
 Lac La Ronge  
 Lac Seul  
 Lake Babine Nation  
 Lake Cowichan First Nation  
 Lake Manitoba  
 Lake St. Martin  
 Lax-kw'alaams  
 Lennox Island  
 Leq' a: mel First Nation  
 Les Atikamekw de Manawan  
 Les Innus de Ekuanitshit  
 Lheidli T'enneh  
 Liard River  
 Liidlii Kue First Nation  
 Listuguj Mi'gmaq Government  
 Little Black Bear  
 Little Black River  
 Little Grand Rapids  
 Little Pine  
 Little Red River Cree Nation  
 Little Salmon/Carmacks First  
 Nation  
 Little Saskatchewan  
 Little Shuswap Lake  
 Long Lake No.58 First Nation  
 Long Plain  
 Long Point First Nation  
 Loon River Cree  
 Louis Bull  
 Lower Cayuga  
 Lower Kootenay  
 Lower Mohawk  
 Lower Nicola  
 Lower Similkameen  
 Lubicon Lake  
 Lucky Man  
 Lutsel K'e Dene  
 Lyackson  
 Lytton  
 Madawaska Maliseet First  
 Nation  
 Magnetawan  
 Makwa Sahgaiehcan First  
 Nation  
 Malahat First Nation  
 Mamalilikulla-  
 Qwe'Qwa'Sot'Em  
 Manto Sipi Cree Nation  
 Marcel Colomb First Nation  
 Martin Falls

Matachewan  
 Mathias Colomb  
 Matsqui  
 Mattagami  
 McDowell Lake  
 M'Chigeeng First Nation  
 McLeod Lake  
 Membertou  
 Metepenagiag Mi'kmaq  
 Nation  
 Metlakatla  
 Miawpukek  
 Michipicoten  
 Micmacs of Gesgapegiag  
 Mikisew Cree First Nation  
 Millbrook  
 Mishkeegogamang  
 Missanabie Cree  
 Mississauga  
 Mississauga's of Scugog  
 Island First Nation  
 Mississaugas of the Credit  
 Mistawasis  
 Mohawks of Akwesasne  
 Mohawks of Kanasatake  
 Mohawks of the Bay of  
 Quinte  
 Montagnais de Natashquan  
 Montagnais de Pakua Shipi  
 Montagnais de Unamen  
 Shipu  
 Montagnais du Lac St.-Jean  
 Montagnais Essipit  
 Montana  
 Montreal Lake  
 Moose Cree First Nation  
 Moose Deer Point  
 Moosomin  
 Moravian of the Thames  
 Moricetown  
 Mosakahiken Cree Nation  
 Mosquito, Grizzly Bear's  
 Head, Lean Man Fst.Natns.  
 Mount Currie  
 Mowachaht/Muchalaht  
 Munsee-Delaware Nation  
 Muscowpetung  
 Mushuau Innu First Nation  
 Muskeg Lake  
 Muskoday First Nation  
 Muskowekwan  
 Muskrat Dam Lake  
 Musqueam  
 Nadleh Whuten  
 Nahanni Butte  
 Naicatchewenin

Nak'azdli  
 Namgis First Nation  
 Nanoose First Nation  
 Naotkamegwanning  
 Naskapi of Quebec  
 Nation Anishnabe du Lac  
 Simon  
 Nation Huronne Wendat  
 Nazko  
 Nee-Tahi-Buhn  
 Nekaneet  
 Neskantaga First Nation  
 Neskonlith  
 New Westminster  
 Nibinamik First Nation  
 Nicickousemenecaning  
 Nicomen  
 Niharondasa Seneca  
 Nipissing First Nation  
 Nisga'a Village of Gingolx  
 Nisga'a Village of  
 Gitwinksihlkw  
 Nisga'a Village of Laxgalt'sap  
 Nisga'a Village of New  
 Aiyansh  
 Nisichawayasihk Cree Nation  
 Nooaitch  
 North Caribou Lake  
 North Spirit Lake  
 North Thompson  
 Northlands  
 Northwest Angle No.33  
 Northwest Angle No.37  
 Norway House Cree Nation  
 N'Quatqua  
 Nuchatlaht  
 Nuxalk Nation

Ocean Man  
Ochapowace  
O-Chi-Chak-Ko-Sipi First Nation  
O'Chiese  
Ochiichagwe'babigo'ining First Nation  
Odanak  
Ojibway Nation of Saugeen  
Ojibways of Onigaming First Nation  
Ojibways of the Pic River First Nation  
Okanagan  
Okanese  
Old Massett Village Council  
One Arrow  
Oneida  
Oneida Nation of the Thames  
Onion Lake  
Onondaga Clear Sky  
Opaskwayak Cree Nation  
Oregon Jack Creek  
Oromocto  
Osoyoos  
Oweekeno/Wuikinuxv Nation  
Pabineau  
Pacheedaht First Nation  
Paq'tnkek First Nation  
Pasqua First Nation #79  
Paungassi First Nation  
Paul  
Pauquachin  
Pays Plat  
Peepeekisis  
Peguis  
Pehdzeh Ki First Nation  
Pelican Lake  
Penelakut  
Penticton  
Peter Ballantyne Cree Nation  
Peters  
Pheasant Rump Nakota  
Piapot  
Pic Mobert  
Pictou Landing  
Piikani Nation  
Pikangikum  
Pinaymootang First Nation  
Pine Creek  
Popkum  
Poplar Hill  
Poplar River First Nation  
Poundmaker

Première nation de Whapmagoostui  
Première Nation Malecite de Viger  
Prophet River Band, Dene  
Tsaa Tse K'Nai First Nation  
Qualicum First Nation  
Quatsino  
Rainy River  
Red Bluff  
Red Earth  
Red Pheasant  
Red Rock  
Red Sucker Lake  
Rolling River  
Roseau River Anishinabe  
First Nation Government  
Ross River  
Sachigo Lake  
Saddle Lake  
Sagamok Anishnawbek  
Saik'uz First Nation  
Saint Mary's  
Sakimay  
Salt River First Nation #195  
Samahquam  
Sambaa K'e (Trout Lake) Dene  
Samson  
Sandpoint  
Sandy Bay  
Sandy Lake  
Sapotawayak Cree Nation  
Saugeen  
Saulteau First Nations  
Saulteaux  
Sawridge  
Sayisi Dene First Nation  
Scowlitz  
Seabird Island  
Sechelt  
Seine River First Nation  
Selkirk First Nation  
Semiahmoo  
Serpent River  
Seton Lake  
Shackan  
Shamattawa First Nation  
Shawanaga First Nation  
Sheguiandah  
Sheshatshiu Innu First Nation  
Sheshegwaning  
Shoal Lake No.40  
Shoal Lake of the Cree Nation  
Shubenacadie

Shuswap  
Shxw'ow'hamel First Nation  
Siksika Nation  
Sioux Valley Dakota Nation  
Siska  
Six Nations of the Grand River  
Skatin Nations  
Skawahlook First Nation  
Skeetchestn  
Skidegate  
Skin Tyee  
Skowkale  
Skownan First Nation  
Skuppah  
Skwah  
Skway  
Slate Falls Nation  
Sliammon  
Smith's Landing First Nation  
Snuneymuxw First Nation  
Soda Creek  
Songhees First Nation  
Soowahlie  
Spallumcheen  
Spuzzum  
Squamish  
Squiala First Nation  
St. Mary's  
St. Theresa Point  
Standing Buffalo  
Stanjikoming First Nation  
Star Blanket  
Stellat'en First Nation  
Stone  
Stoney  
Sturgeon Lake Cree Nation  
Sturgeon Lake First Nation  
Sucker Creek  
Sumas First Nation  
Sunchild First Nation  
Swan Lake  
Swan River First Nation  
Sweetgrass

Ta'an Kwach'an  
 Tahltan  
 Takla Lake First Nation  
 Taku River Tlingit  
 Tallcree  
 Tataskweyak Cree Nation  
 Taykwa Tagamou Nation  
 Temagami First Nation  
 Teslin Tlingit Council  
 Tetlit Gwich'in  
 The Crees of the  
 Waskaganish First Nation  
 The Key First Nation  
 Thessalon  
 Thunderchild First Nation  
 Timiskaming First Nation  
 T'it'q'et  
 Tla-o-qui-aht First Nations  
 Tlatlasikwala  
 Tl'azt'en Nation  
 T'letinnox-t'in Government  
 Office  
 Tlowitsis Tribe  
 Tobacco Plains  
 Tobique  
 Toosey  
 Tootinaowaziibeeng Treaty  
 Reserve  
 Toquaht  
 Tr'on dëk Hwëch'in  
 Tsartlip  
 Tsawataineuk  
 Tsawout First Nation  
 Tsawwassen First Nation  
 Tsay Keh Dene  
 Tseshaht  
 Tseycum  
 Ts'kw'aylaxw First Nation  
 T'Sou-ke First Nation  
 Tsuu T'Ina Nation  
 Tulita Dene  
 Tuscarora  
 Tzeachten  
 Uchucklesaht  
 Ucluelet First Nation  
 Ulkatcho  
 Union Bar  
 Upper Cayuga  
 Upper Mohawk  
 Upper Nicola  
 Upper Similkameen  
 Vuntut Gwitchin First Nation  
 Wabaseemoong Independent  
 Nations  
 Wabauskang First Nation

Wabigoon Lake Ojibway  
 Nation  
 Wagmatcook  
 Wahgoshig  
 Wahnapiatae  
 Wahpeton Dakota Nation  
 Wahta Mohawk  
 Walker Mohawk  
 Walpole Island  
 Wapekeka  
 War Lake First Nation  
 Wasagamack First Nation  
 Wasauksing First Nation  
 Washagamis Bay  
 Waswanipi  
 Waterhen Lake  
 Wawakapewin  
 Waycobah First Nation  
 (Whycocomagh)  
 Waywayseecappo First  
 Nation Treaty Four - 1874  
 Webequie  
 Weenusk  
 Wesley  
 West Moberly First Nations  
 West Point First Nation  
 Westbank First Nation  
 Wet'suwet'en First Nation  
 Wha Ti First Nation  
 Whispering Pines/Clinton  
 White Bear  
 White River First Nation  
 Whitecap Dakota First Nation  
 Whitefish Lake  
 Whitefish Lake  
 Whitefish River  
 Whitesand  
 Wikwemikong  
 Williams Lake  
 Witchehan Lake  
 Wolf Lake  
 Wood Mountain  
 Woodland Cree First Nation  
 Woodstock  
 Wunnumin  
 Wuskwi Sipihk First Nation  
 Xaxli'p (Fountain)  
 Xenigwet'in First Nations  
 Government  
 Yakwekwioose  
 Yale First Nation  
 Yekooche  
 Yellow Quill  
 Yellowknives Dene First  
 Nation  
 York Factory First Nation

Zhiibaahaasing First Nation

**Inuit Communities**

Aklavik  
Akulivik  
Arctic Bay  
Arviat  
Aupaluk  
Baker Lake  
Bathurst Inlet  
Broughton Island or  
(Qikiqtarjuaq)  
Cambridge Bay  
Cape Dorset  
Chesterfield Inlet  
Clyde River  
Coral Harbour  
Gjoa Haven  
Grise Fiord  
Hall Beach  
Holman  
Hopedale  
Igloodik  
Inukjuak  
Inuvik  
Iqaluit  
Ivujivik  
Kangiqsualujuaq  
Kangiqsujuaq  
Kangirsuk  
Kimmirut  
Kugluktuk  
Kuujuuaq  
Kuujuarapik  
Makkovik  
Nain(Head office)  
Nanisivik  
Pangirtung  
Paulatuk  
Pelly Bay changed to  
Kugaaruk  
Pond Inlet  
Postville  
Puvirnituq/Povungnituk  
Quaqtaq  
Rankin Inlet  
Repulse Bay office  
Resolute  
Rigolet  
Sachs Harbour  
Salluit  
Sanikiluaq

Taloyoak  
Tasiujaq  
Tuktoyaktuk  
Umingmaktok or BayChimo  
Umiujaq  
Whale Cove

**Métis Communities**

Alonsa  
Aquadeo  
Beauval  
Binscarth  
Buffalo Lake Metis  
Settlement  
Buffalo Narrows  
Cartwright  
Charlottetown  
Chitek Lake  
Cochin  
Cole Bay  
Cumberland House  
Debden  
Division no.10  
(subdivision B)  
Dore Lake  
Duck Lake  
Duff  
East Prairie Metis  
Settlement  
Elizabeth Metis Settlement  
Fishing Lake Metis  
Settlement  
Gerald  
Gift Lake Metis Settlement  
Green Lake  
Ile a La Crosse  
Jans Bay  
Kikino Metis Settlement  
La Loche  
La Ronge  
Lebret  
Mary's Harbour  
Meadow Lake  
Michel Village  
Morson  
Paddle Prairie Metis  
Settlement  
Patuanak  
Peavine Metis Settlement  
Pinehouse  
Port Hope Simpson

Shell Lake  
Smoky Lake County #13  
St. Lewis  
St-Laurent  
St-Lazare  
St-Louis  
Timber Bay  
Turnor Lake  
Vawn  
Weldon  
Weyakwin  
Winnipegosis

## Appendix B – Aboriginal Friendship Centre Internet Availability

| Name  | City             | Prov/Terr             | Postal Code | CAP Site | High-Speed           |
|---|------------------|-----------------------|-------------|----------|----------------------|
| Athabasca Native Friendship Centre Society    | Athabasca        | Alberta               | T9S 1L1     |          | DSL                  |
| Atikokan Native Friendship Centre             | Atikokan         | Ontario               | P0T 1C0     |          | Wireless             |
| Barrie Native Friendship Centre               | Barrie           | Ontario               | L4M 3B4     |          | DSL, Cable           |
| Battlefords Indian & Métis Friendship Centre  | North Battleford | Saskatchewan          | S9A 1K2     |          | DSL, Cable           |
| Bonnyville Canadian Native Friendship Centre  | Bonnyville       | Alberta               | T9N 2G5     |          | DSL, Cable           |
| Brandon Friendship Centre                     | Brandon          | Manitoba              | R7A 0T8     |          | DSL, Cable, Wireless |
| Buffalo Narrows Friendship Centre             | Buffalo Narrows  | Saskatchewan          | S0M 0J0     |          | DSL                  |
| Calgary Native Friendship Society             | Calgary          | Alberta               | T1Y 6H2     | Yes      | DSL, Cable           |
| Can Am Indian Friendship Centre of Windsor    | Windsor          | Ontario               | N8Y 3X7     |          | DSL, Cable           |
| Canadian Native Friendship Centre             | Edmonton         | Alberta               | T5G 2A4     | Yes      | DSL, Cable           |
| Cariboo Friendship Society                    | Williams Lake    | British Columbia      | V2G 1J1     |          | DSL, Cable, Wireless |
| Centre d'amitié autochtone de Québec          | Loretteville     | Quebec                | G2B 1L4     |          | DSL, Cable           |
| Centre d'amitié autochtone de Senneterre Inc. | Senneterre       | Quebec                | J0Y 2M0     |          | DSL                  |
| Centre d'Amitié Autochtone de Val d'Or        | Val-d'Or         | Quebec                | J9P 6W6     |          | DSL, Cable           |
| Centre d'amitié autochtone La Tuque Inc.      | La Tuque         | Quebec                | G9X 2Y4     |          | DSL                  |
| Cold Lake Native Friendship Society           | Cold Lake        | Alberta               | T9M 1P4     | Yes      | DSL, Cable           |
| Conayt Friendship Centre                      | Merritt          | British Columbia      | V1K 1B8     |          | DSL, Cable           |
| Council Fire Native Cultural Centre Inc.      | Toronto          | Ontario               | M5A 2B1     |          | DSL, Cable           |
| Cree Indian Centre of Chibougamau Inc.        | Chibougamau      | Quebec                | G8P 2G1     |          | DSL                  |
| Dauphin Friendship Centre                     | Dauphin          | Manitoba              | R7N 1A7     |          | DSL                  |
| Deh Cho Society Centre                        | Fort Simpson     | Northwest Territories | X0E 0N0     |          | None                 |
| Dryden Native Friendship Centre               | Dryden           | Ontario               | P8N 1J7     |          | DSL                  |
| Dze L K'ant Indian Friendship Centre          | Smithers         | British Columbia      | V0J 2N0     | Yes      | DSL                  |
| Edson Friendship Centre                       | Edson            | Alberta               | T7E 1T9     |          | DSL                  |
| First Nations Friendship Centre               | Vernon           | British Columbia      | V1T 1Y7     |          | DSL, Cable           |
| Flin Flon Indian-Métis Friendship Assoc. Inc. | Flin Flon        | Manitoba              | R8A 1M7     |          | DSL                  |
| Fort Erie Native Friendship Centre            | Fort Erie        | Ontario               | L2A 5H2     | Yes      | DSL                  |
| Fort Nelson Aboriginal Friendship Society     | Fort Nelson      | British Columbia      | V0C 1R0     |          | DSL, Cable, Wireless |
| Fort St. John Friendship Society              | Fort St. John    | British Columbia      | V0J 1Z0     |          | DSL                  |
| Fredericton Native Friendship Centre          | Fredericton      | New Brunswick         | E3B 3W4     |          | DSL, Cable           |
| Friendship House Association of Prince Rupert | Prince Rupert    | British Columbia      | V8J 1P9     | Yes      | DSL                  |
| Georgian Bay Friendship Centre                | Midland          | Ontario               | L4R 2A7     |          | DSL, Cable           |
| Grande Prairie Friendship Centre              | Grande Prairie   | Alberta               | T8V 4L1     |          | DSL, Cable, Wireless |

|  |                        |                         |         |     |                      |
|--|------------------------|-------------------------|---------|-----|----------------------|
| Hamilton Regional Indian Centre                | Hamilton               | Ontario                 | L8M IK8 |     | DSL, Cable, Wireless |
| High Level Native Friendship Centre            | High Level             | Alberta                 | T0H 1Z0 |     | DSL                  |
| High Prairie Native Friendship Centre          | High Prairie           | Alberta                 | T0G 1E0 |     | DSL                  |
| Hiiye'yu LeLum (House of Friendship) Society   | Duncan                 | British Columbia        | V9L 3Y2 |     | DSL, Cable           |
| Hinton Friendship Centre Society               | Hinton                 | Alberta                 | T7V 2A6 |     | DSL, Cable           |
| Houston Friendship Centre Society              | Houston                | British Columbia        | V0J 1Z0 | Yes | None                 |
| Ile a la Crosse Friendship Centre              | Ile a la Crosse        | Saskatchewan            | S0M 1C0 |     | None                 |
| Indian & Métis Friendship Centre               | Winnipeg               | Manitoba                | R2W 5H5 |     | DSL, Cable, Wireless |
| Indian Friendship Centre                       | Sault Ste. Marie       | Ontario                 | P6A 3C6 |     | DSL, Cable           |
| Ingamo Hall Friendship Centre                  | Inuvik                 | Northwest Territories   | X0E 0T0 |     | DSL, Cable           |
| Ininev Friendship Centre                       | Cochrane               | Ontario                 | P0L 1C0 |     | DSL, Cable           |
| Interior Indian Friendship Society             | Kamloops               | British Columbia        | V2B 8J7 |     | DSL, Cable           |
| Kapuskasing Indian Friendship Centre           | Kapuskasing            | Ontario                 | P5N 1X5 |     | DSL, Cable           |
| Katarokwi Native Friendship Centre             | Kingston               | Ontario                 | K7K 2N6 |     | DSL, Cable           |
| Kermode Friendship Centre                      | Terrace                | British Columbia        | V8G 2N7 |     | DSL, Cable           |
| Kikinahk Friendship Centre                     | La Ronge               | Saskatchewan            | S0J 1L0 |     | DSL                  |
| Ki-Low-Na Friendship Society                   | Kelowna                | British Columbia        | V1Y 6J3 |     | DSL, Cable           |
| La Loche Friendship Centre                     | La Loche               | Saskatchewan            | S0M 1G0 |     | DSL                  |
| Labrador Friendship Centre                     | Happy Valley-Goose Bay | Newfoundland & Labrador | A0P 1E0 |     | Cable                |
| Lac La Biche Canadian Native Friendship Centre | Lac La Biche           | Alberta                 | T0A 2C0 |     | DSL                  |
| Lillooet Friendship Centre Society             | Lillooet               | British Columbia        | V0K 1V0 |     | DSL                  |
| Lloydminster Native Friendship Centre          | Lloydminster           | Saskatchewan            | S9V 1K4 |     | DSL                  |
| Lynn Lake Friendship Centre                    | Lynn Lake              | Manitoba                | R0B 0W0 |     | None                 |
| Ma-Mow-We-Tak Friendship Centre Inc.           | Thompson               | Manitoba                | R8N 0R6 | Yes | DSL, Wireless        |
| Mannawanis Native Friendship Centre Society    | St. Paul               | Alberta                 | T0A 3A0 |     | DSL, Cable           |
| Micmac Native Friendship Centre                | Halifax                | Nova Scotia             | B3K 3B4 |     | DSL, Cable           |
| Mission Indian Friendship Centre               | Mission                | British Columbia        | V2V 1G4 |     | DSL, Cable           |
| Moose Mountain Friendship Centre               | Carlyle                | Saskatchewan            | S0C 0R0 |     | DSL                  |
| Moosonee Native Friendship Centre              | Moosonee               | Ontario                 | P0L 1Y0 | Yes | None                 |
| M'Wikwedong Friendship Centre                  | Owen Sound             | Ontario                 | N4K 3C4 |     | DSL, Cable, Wireless |
| N'Amerind Friendship Centre                    | London                 | Ontario                 | N6B 2S6 |     | DSL, Cable, Wireless |
| Napi Friendship Association                    | Pincher Creek          | Alberta                 | T0K 1W0 |     | DSL, Cable           |
| Native Canadian Centre of Toronto              | Toronto                | Ontario                 | M5R 2S7 |     | DSL, Cable           |
| Native Friendship Centre of Montréal           | Montréal               | Quebec                  | H2X 2T3 |     | DSL, Cable           |
| Nawican Friendship Centre                      | Dawson Creek           | British Columbia        | V1G 2C6 |     | DSL                  |

|  |                      |                         |         |     |                      |
|--|----------------------|-------------------------|---------|-----|----------------------|
| Ne-Chee Friendship Centre                      | Kenora               | Ontario                 | P9N 3X3 |     | DSL, Cable           |
| Niagara Regional Native Centre                 | Niagara-on-the-Lake  | Ontario                 | L0S 1J0 |     | DSL                  |
| Nishnawbe-Gamik Friendship Centre              | Sioux Lookout        | Ontario                 | P8T 1B8 |     | None                 |
| Nistawoyou Association Friendship Centre       | Fort McMurray        | Alberta                 | T9H 1W1 |     | DSL                  |
| North Bay Indian Friendship Centre             | North Bay            | Ontario                 | P1B 4A6 |     | DSL, Cable           |
| Northwest Friendship Centre                    | Meadow Lake          | Saskatchewan            | S0M 1V0 |     | DSL, Cable           |
| N'Swakamok Native Friendship Centre            | Sudbury              | Ontario                 | P3C 1T5 |     | DSL, Cable           |
| Odawa Native Friendship Centre                 | Ottawa               | Ontario                 | K1Y 1P8 |     | DSL, Cable, Wireless |
| Parry Sound Friendship Centre                  | Parry Sound          | Ontario                 | P2A 2K7 |     | DSL, Cable           |
| Peterborough Native Friendship Centre          | Peterborough         | Ontario                 | K9H 3L8 |     | DSL, Cable           |
| Pine Tree Native Centre of Brant               | Brantford            | Ontario                 | N3T 3C4 |     | DSL, Cable, Wireless |
| Port Alberni Friendship Centre                 | Port Alberni         | British Columbia        | V9Y 4H3 |     | DSL, Cable           |
| Portage Friendship Centre                      | Portage La Prairie   | Manitoba                | R1N 1N4 |     | DSL, Cable           |
| Prince Albert Indian & Métis Friendship Centre | Prince Albert        | Saskatchewan            | S6V 2B2 |     | DSL, Cable           |
| Prince George Native Friendship Centre         | Prince George        | British Columbia        | V2L 3G6 |     | DSL, Cable           |
| Pulaarvik Kablu Friendship Centre              | Rankin Inlet         | Northwest Territories   | X0C 0G0 |     | None                 |
| Qu'Appelle Valley Friendship Centre            | Fort Qu'Appelle      | Saskatchewan            | S0G 1S0 |     | DSL, Wireless        |
| Quesnel Tillicum Society Friendship Centre     | Quesnel              | British Columbia        | V2J 1Y8 |     | DSL, Cable, Wireless |
| Rae-Edzo Friendship Centre                     | Fort Rae             | Northwest Territories   | X0E 0Y0 |     | None                 |
| Red Deer Native Friendship Society             | Red Deer             | Alberta                 | T4N 1Z1 |     | DSL, Cable           |
| Red Lake Indian Friendship Centre              | Red Lake             | Ontario                 | P0V 2M0 |     | None                 |
| Regina Friendship Centre Corporation           | Regina               | Saskatchewan            | S4R 2E9 |     | DSL, Cable, Wireless |
| Riverton & District Friendship Centre Inc.     | Riverton             | Manitoba                | R0C 2R0 | Yes | None                 |
| Rocky Native Friendship Society                | Rocky Mountain House | Alberta                 | T0M 1T0 |     | DSL, Cable           |
| Sagitawa Friendship Centre                     | Peace River          | Alberta                 | T8S 1R7 |     | DSL, Wireless        |
| Saskatoon Indian & Métis Friendship Centre     | Saskatoon            | Saskatchewan            | S7K 1N4 |     | DSL, Cable           |
| Selkirk Friendship Centre                      | Selkirk              | Manitoba                | R1A 2J5 | Yes | DSL                  |
| Sik-Ooh-Kotoki Friendship Centre               | Lethbridge           | Alberta                 | T1J 0E1 |     | DSL, Cable           |
| Skookum Jim Friendship Centre                  | Whitehorse           | Yukon                   | Y1A 1G1 |     | DSL, Cable           |
| Slave Lake Native Friendship Centre            | Slave Lake           | Alberta                 | T0G 2A2 |     | DSL                  |
| Soaring Eagle Friendship Centre                | Hay River            | Northwest Territories   | X0E 1G1 |     | DSL                  |
| South Okanagan Urban Native Delegation Society | Penticton            | British Columbia        | V2A 1M1 |     | DSL, Cable           |
| St. John's Native Friendship Centre            | St. John's           | Newfoundland & Labrador | A1C 4X7 |     | DSL, Cable           |
| Swan River Friendship Centre                   | Swan River           | Manitoba                | R0L 1Z0 |     | DSL                  |

|  |                 |                       |         |     |                      |
|--|-----------------|-----------------------|---------|-----|----------------------|
| Tansi Friendship Centre Society                | Chetwynd        | British Columbia      | V0C 1J0 |     | None                 |
| The Pas Friendship Centre                      | The Pas         | Manitoba              | R9A 1M3 |     | DSL                  |
| Thunder Bay Indian Friendship Centre           | Thunder Bay     | Ontario               | P7A 4P7 |     | DSL, Cable           |
| Thunderbird Friendship Centre                  | Geraldton       | Ontario               | P0T 1M0 |     | None                 |
| Tillicum Haus Native Friendship Centre         | Nanaimo         | British Columbia      | V9R 6N4 |     | DSL, Cable           |
| Timmins Native Friendship Centre               | Timmins         | Ontario               | P4N 2M9 | Yes | DSL, Cable           |
| Tree of Peace Friendship Centre                | Yellowknife     | Northwest Territories | X1A 2P9 |     | DSL, Cable           |
| Uncle Gabe's Friendship Centre                 | Fort Smith      | Northwest Territories | X0E 0P0 |     | None                 |
| United Native Friendship Centre                | Fort Frances    | Ontario               | P9A 3N1 |     | None                 |
| Vancouver Aboriginal Friendship Centre Society | Vancouver       | British Columbia      | V5L 1S7 |     | DSL, Cable           |
| Victoria Native Friendship Centre              | Victoria        | British Columbia      | V9A 3K5 |     | DSL, Cable           |
| Wachiay Friendship Centre Society              | Courtenay       | British Columbia      | V9N 5N4 | Yes | DSL, Cable           |
| Yorkton Friendship Centre                      | Yorkton         | Saskatchewan          | S3N 1P7 |     | DSL, Cable, Wireless |
| Zhahti Koe Friendship Centre General           | Fort Providence | Northwest Territories | X0E 0L0 |     | None                 |

## **Appendix C – Federal Connectivity Initiatives**

### **Broadband for Rural and Northern Development Pilot Program (BRAND)**

Industry Canada's Broadband for Rural and Northern Development Pilot Program provides funding through a competitive process to bring publicly available broadband access to Canadian communities, with priority given to First Nations, northern, remote and rural communities which are currently un-served by Digital Subscriber Line (DSL) or cable modem service. The broadband initiative is part of the Government of Canada's commitment to ensuring broadband access for all Canadian communities by 2005.

Selections will be made through a two-step process. First, applicants submit proposals for funding to support the development of a business plan. Successful applicants will be eligible to receive up to \$30,000 for this purpose. Additional funds will be available on a competitive basis to eligible applicants to implement their business plans. The level of contribution will be subject to the quality of the submissions and the availability of funds.

For more information, please contact:

Information Distribution Centre  
Communications and Marketing Branch  
Industry Canada  
Room 268D, West Tower  
235 Queen Street  
Ottawa ON K1A 0H5  
Tel.: (613) 947-7466  
Fax: (613) 954-6436  
E-mail: [publications@ic.gc.ca](mailto:publications@ic.gc.ca)  
Web site: <http://broadband.gc.ca>

## **Community Access Program (CAP)**

Industry Canada's Community Access Program (CAP) gives to the residents of rural, remote, and urban communities across Canada affordable access to the Internet. This provides Canadians with a new way to communicate, learn, and do business in today's knowledge-based economy. The Community Access Program is pursuing the following objectives:

- To promote public awareness of the benefits and opportunities of using information technology and services;
- To help citizens become better informed through the exchange of ideas and information;
- To provide training for individuals in the use of information technologies;
- To support on-line delivery of government programs and services;
- To facilitate business activities such as electronic commerce; and
- To conduct on-line learning and researching.

The Community Access Program is a partnership between governments, the private sector, and community organizations designed to help accelerate public access to the Internet all across the country. At present, 8,800 affordable Internet access sites have been established or approved. The program has a significant impact at the grassroots level and has become an important economic and social development tool in communities. Momentum has been building over the years, producing a national network of CAP communities/champions resulting in local Web sites, innovations and economic growth. In terms of overall impact, CAP has connected Canadians to the Internet and to each other from coast to coast.

To obtain more information, please contact CAP directly at:

Community Access Program  
Industry Canada  
Tel: 1-800-575-9200  
TTY: 1-800-465-7735  
Fax: (613) 952-8711  
E-mail: [comaccess@ic.gc.ca](mailto:comaccess@ic.gc.ca)  
Internet: <http://cap.ic.gc.ca>

## **First Nations SchoolNet**

First Nations SchoolNet (FNS) gives First Nations communities the opportunity to use exciting new technologies by providing schools with an affordable, high-speed connection to the Internet via DirecPC(tm) satellite terminals. To date, 80 percent of eligible schools are participating. Helping Canadians become connected to the Internet is part of Connecting Canadians, the Government of Canada's vision and plan to make Canada the most connected country in the world. FNS is part of the broader SchoolNet initiative of Industry Canada's Information Highway Applications Branch. The work is being led by Industry Canada in partnership with the Assembly of First Nations, Canadian telecommunications companies through the former Stentor Alliance, and First Nations schools and communities.

The installation and use of FNS equipment is also supported by a network of help desks located in First Nations organizations or Aboriginal businesses across the country. All eligible schools (i.e., schools under federal jurisdiction) receive information packages on FNS. They can then contact SchoolNet to make arrangements. Equipment is sent to the schools and contact is made with the closest help desk to help support installation. Funding is also put in place to support Internet access and long distance expenses (where applicable).

For more information, please contact:

Telephone: 1-800-575-9200  
TTY: 1-800-465-7735  
Web site: <http://www.schoolnet.ca/aboriginal>

## Appendix D – Provincial Connectivity Initiatives

### Alberta

Alberta SuperNet <http://www.albertasupernet.ca>

Alberta SuperNet is an endeavor to provide affordable high-speed network connectivity and Internet access to all universities, school boards, libraries, hospitals, provincial government buildings and regional health authorities throughout the province. At the same time, SuperNet will ensure businesses and residences in 422 communities will have access to high-speed Internet at competitive rates.

Estimated date of completion: 2004

### British Columbia

NetworkBC <http://www.network.gov.bc.ca>

The provincial government is consolidating the annual telecommunications spending of core government and the broader public sector, and leveraging this spending over the next 10 years. In return for this consolidation, they expect the private sector to work with the provincial government on a solution that provides affordable broadband Internet access to un-served communities and improve services for all British Columbians. They are also working with the federal government on technology initiatives, and are seeking further federal partnership opportunities.

### Manitoba

Canada-Manitoba Infrastructure Program <http://www.infrastructure.mb.ca/e/proinfo.html>

A multi-focused program that for which projects related to Rural and Northern Telecommunications Infrastructure and High-Speed Internet Access for Public Institutions are included.

Estimated date of completion: March 31, 2007

### Nova Scotia

Information Economy Initiative <http://www.gov.ns.ca/econ/iei/default.asp>

Creation of an additional 130 CAP sites.

Estimated date of completion: 2003

### Ontario

Connect Ontario [http://www.superbuild.gov.on.ca/userfiles/HTML/nts\\_2\\_21077\\_1.html](http://www.superbuild.gov.on.ca/userfiles/HTML/nts_2_21077_1.html)

Connect Ontario: Broadband Regional Access (COBRA) is a three-year \$55 million SuperBuild program to provide high-speed telecommunications in rural and northern Ontario. The program is the second phase of Connect Ontario, an initiative to improve community-based information and services. COBRA provides the necessary broadband infrastructure for communities to provide web-based services.

### Saskatchewan

Saskatchewan Partnership for Prosperity <http://www.saskprosperity.sk.ca>

Increase access to high-speed Internet to at least 250 communities by 2005; increase the number of businesses and families connected to the Internet by 40%.

Estimated date of completion: 2005

### Yukon

Connect Yukon Project <http://www.gov.yk.ca/news/2001/Aug-01/01-201.pdf>

Primary goals are to provide:

- high-speed Internet service to 17 Yukon communities,
- better telephone service to all Yukon communities,
- high-speed data services to most Yukon communities for business applications, and
- new telephone services to many areas that presently don't have telephone service.

Every community will benefit from a doubling of the telecommunications capacity available for voice telephone services. This will reduce the incidence of busy signals and poor FAX performance.

Estimated date of completion: Completed August, 2001

## Appendix E – Introduction to High-Speed Broadband Technology Definitions

The key to taking advantage of the Internet's potential is connecting at a reliable, high transfer rate, i.e. being in possession of and mastering high-speed broadband connectivity. Advanced applications like distance education, tele-health, and e-business require broadband access. Depending on the source, definitions of broadband vary between 200kpbs and 30Mbps with most focusing on the T1 level of 1.544 bi-directional Mbps.

The various high-speed broadband technologies we will be defining are as follows:

- ADSL;
- Cable;
- ISDN;
- T1/T3;
- Wireless; and
- Satellite.

### ADSL

Digital Subscriber Line (DSL) is a very high-speed connection that uses the same wires as a regular telephone line. ADSL is Asymmetric DSL (ADSL), a distance-sensitive technology: as the connection's length increases, the signal quality decreases and so does the connection speed. Asymmetric Digital Subscriber Line is a technology that allows more data to be sent over existing copper telephone lines.

ADSL supports data rates of from 1.5 to 9 Mbps when receiving data (known as the *downstream* rate) and from 16 to 640 Kbps when sending data (known as the *upstream* rate). The limit for ADSL service is 5.46 km, although for speed and quality of service reasons many ADSL providers place a lower limit on the distances for the service. At the extremes of the distance limits, ADSL customers may see speeds far below the promised maximums, while customers nearer the central office have faster connections and may see extremely high-speeds in the future. In practice, the best speeds widely offered today are 1.5 Mbps downstream, with upstream speeds varying between 64 and 640 Kbps.

ADSL requires a special ADSL modem. ADSL uses 2 pieces of equipment, 1 on the customer end and 1 at the Internet service provider. At the customer's location there is a DSL **transceiver**, and the DSL service provider has a **DSL Access Multiplexer (DSLAM)**. Most residential customers call their DSL transceiver a DSL modem. It is simply a piece of equipment that connects the customer's equipment to the DSL line. The DSLAM at the access provider is the equipment that really allows DSL to happen. DSLAM takes connections from many customers and aggregates them onto a single, high-capacity connection to the Internet. Because cable-modem users generally share a network loop that runs through a neighborhood, adding users means lowering performance in many instances. ADSL provides a dedicated connection from each user back to the DSLAM, meaning that users won't see a performance decrease as new users are added.

**Very high bit-rate DSL (VDSL)** - This is a fast connection, but works only over a short distance.

**Symmetric DSL (SDSL)** - This connection, used mainly by small businesses, does not allow the user to use the phone at the same time, but the speed of receiving and sending data is the same.

**Rate-Adaptive DSL (RADSL)** - This is a variation of ADSL, but the modem can adjust the speed of the connection depending on the length and quality of the line. Current technology can provide a theoretical maximum of up to 7 megabits per second, and research promises even greater performance in the future with VDSL protocols.

## **CABLE**

A modem designed to operate over cable TV lines. Because the coaxial cable used by cable TV provides much greater bandwidth than telephone lines, a cable modem can be used to achieve extremely fast access to the World Wide Web.

Cable TV infrastructure is designed to broadcast TV signals in just one direction, from the cable TV company to people's homes. The Internet, however, is a 2-way system where data also needs to flow from the client to the server.

When a cable company offers Internet access, information is sent from the Internet to an individual computer using a 6 MHz channel. Internet downstream data takes up the same amount of cable space as any single channel of programming. Upstream data, information sent from an individual back to the Internet requires even less of the cable's bandwidth, just 2 MHz. Putting both upstream and downstream data on the cable television system requires two types of equipment: a cable modem at the customer end and a Cable-Modem Termination System (CMTS) at the cable provider's end.

CMTS will enable as many as 1,000 users to connect to the Internet through a single 6 MHz channel. Since a single channel is capable of 30-40 megabits per second of total throughput, this means that users may see far better performance than is available with standard dial-up modems. As one of the first users to connect to the Internet through a particular cable channel, a user may have nearly the entire bandwidth of the channel available for their own use, but as new users appear, especially those requiring heavy-access, all users are connected to the channel, and all have to share bandwidth, and all may see their performance degrade as a result. It is possible, that, in times of heavy usage with many connected users, performance will be far below the theoretical maximums. The good news is that cable companies add new channels, and thus splitting the base of users will resolve this particular performance issue. Another benefit of the cable modem for Internet access is that, unlike ADSL, its performance doesn't depend on distance from the central cable office. A digital DATV system is designed to provide digital signals at a particular quality to customer households.

## ISDN

Integrated Services Digital Network, is an international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires. ISDN is a system of digital phone connections which has been available for over a decade. This system allows voice and data to be transmitted simultaneously across the world using end-to-end digital connectivity.

ISDN supports data transfer rates of 64 Kbps (64,000 bits per second). With ISDN, voice and data are carried by bearer channels (**B channels**) occupying a bandwidth of 64 kb/s (bits per second). Some switches limit B channels to a capacity of 56 kb/s. A data channel (**D channel**) handles signaling at 16 kb/s or 64 kb/s, depending on the service type. Note that, in ISDN terminology, "k" means 1,000 ( $10^3$ ), not 1,024 ( $2^{10}$ ) as in many computer applications (the designator "K" is sometimes used to represent this value); therefore, a 64 kb/s channel carries data at a rate of 64,000 b/s. A new set of standard prefixes has recently been created to handle this. Under this scheme, "k" (kilo-) means 1,000 ( $10^3$ ), "M" (mega-) means 1,000,000 ( $10^6$ ), and so on, and "Ki" (kibi-) means 1,024 ( $2^{10}$ ), "Mi" (mebi-) means 1,048,576 ( $2^{20}$ ), and so on.

There are 2 types of ISDN:

Basic Rate Interface (BRI) -- consists of 2 64-Kbps B-channels and 1 16 kb/s D-channel for a total of 144 kb/s for transmitting control information. This basic service is intended to meet the needs of most individual users.

Primary Rate Interface (PRI) -- consists of 23 B channels and 1 64 kb/s D channel for a total of 1536 kb/s. In Europe, PRI consists of 30 B channels plus 1 64 kb/s D channel for a total of 1,984 kb/s. PRI is intended for users with greater capacity requirements. It is also possible to support multiple PRI lines with 1 64 kb/s D channel using **Non-Facility Associated Signaling (NFAS)**.

They are implemented as:

- H0 = 384 kb/s (6 B channels)
- H10 = 1472 kb/s (23 B channels)
- H11 = 1536 kb/s (24 B channels)
- H12 = 1920 kb/s (30 B channels) - International (E1) only

The original version of ISDN employs baseband transmission. Another version, called B-ISDN, uses broadband transmission and is able to support transmission rates of 1.5 Mbps. B-ISDN requires fiber optic cables and is not widely available.

To access BRI service, it is necessary to subscribe to an ISDN phone line. Customer must be within 18,000 feet (about 3.4 miles or 5.5 km) of the telephone company central office for BRI service; beyond that, expensive repeater devices are required, or ISDN service may not be available at all. Customers will also need special equipment to communicate with the phone company switch and with other ISDN devices. These devices include ISDN **Terminal Adapters** (sometimes called, incorrectly, "ISDN Modems") and **ISDN Routers**.

## T1

T1 or Trunk Level 1 is a digital transmission link with a total signaling speed of 1.544 Mbps. Since the development of T1 in 1957 by AT&T's Bell Labs, it has become the building block of dedicated voice and data service in North America. T1, also known as DS1, is part of a progression of digital transmission pipes - a hierarchy known generically as DS, or Digital Signal Level.

T1 service can be delivered to the end user in either a channelized format or an unchannelized raw bit stream. North American carriers typically deliver T1 split into 24 56/64kbps channels. These channels can be used to transmit voice (typically 1 conversation per channel) or data across a network. T1 alone provides no services to a location, only a means of getting those services from the network to the office. For example, should a location require a dedicated T1 for internet access, users would have to pay both the T1 charge (commonly known as the "loop" charge) and the Internet access port charge; this is the cost of the throughput into the Internet. These charges often make the cost of a Trunk Level 1 line considerably higher than a DSL line.

When a carrier gives the option of purchasing full T1, users can get the full 1.544Mbps circuit unchannelized direct into the Internet (or Frame Network, or Point-to-Point); also known as a clear channel T1. A Fractional T1 is a channelized T1 with only some of the channels turned on. Fractionals are normally priced in terms of Kbps, i.e. users can get 384kbps, 512kbps or 768kbps from most carriers. However, given the cost of provisioning, users may be better off paying a couple hundred dollars extra for the full line.

### **Integrated T1**

Because T1s can be broken out into channels, voice and data can run side by side on the same circuit. They require a device to convert the signaling from that used on the T1 into signaling that can be used by the phone, the equipment, or router. The technical name for this process is multiplexing and the equipment required is called a multiplexer; but it is known more commonly as a channel bank, CSU/DSU or T1 card. In the case of integrated T1, the service can be run from the phone company's jack into the channel bank where the voice service is terminated and a jack for the data service is located. The benefits of using an integrated version include lower rates for long distance, additional lines for long distance and toll free calling and the ability to bundle data and phone costs on the same bill and same circuit. Nearly all providers are capable of offering integrated voice and data products, some can even bundle local, long distance and data all on the same circuit.

### **Frame Relay, VPN, Dedicated Internet and T1**

Frame Relay, VPN and Dedicated Internet Access all use T1 connections to make the respective service possible, but they are not the same. By itself, Trunk Level 1 service is nearly useless. It takes a standard or protocol like Frame Relay or VPN to provide data transport over a Wide Area Network.

The 4 most common uses of a T1 line include:

1. From 1 point to another, this is often referred to as a Private Line;
2. From 1 point into a secure carrier network as with Frame Relay;
3. From 1 point into the public Internet; and
4. From 1 point into a carrier's voice network.

## **T3**

T3 is comprised of 28 T1 lines, each operating at total signaling rate of 1.544 Mbps. T3 is the second fastest, non-optical connection offered in North America. T3 line (also known as a DS-3) is an ultra high-speed connection capable of transmitting data at rates up to 45 Mbps. T3 line is equal to approximately 672 regular voice-grade telephone lines, which is fast enough to transmit full-motion, real-time video, and very large databases over a busy network. T3 line is typically installed as a major networking artery for large corporations and universities with high-volume network traffic.

### **Difference between T1 and T3 Lines**

The most significant differences between T1 lines and T3 lines are cost and speed. The typical T1 connection costs approximately \$800 per month while a T3 connection can cost as much as \$15,000 per month. T3 lines are extremely high bandwidth connections into a carrier's backbone. They typically include SLAs (Service Level Agreements) that guarantee uptime and performance.

T3 connection is comprised up of 2 monthly charges: the local loop and the port charge. The local loop charge is the cost of the circuit provided by the Local Exchange Carrier (LEC) that allows T3 access into the carrier's network. The loop charge is based on the distance from the customer's location to the edge of the carrier's network; the farther the customer is from the network, the more the loop will cost. Nearly every carrier prices loops differently so it is best to price T3 service with several providers to ensure the best possible value.

T3 Internet Access is the ideal solution for businesses that require high-bandwidth access at a reduced price. Whether hosting high-traffic Web sites, supporting Web hosting or needing high-capacity bandwidth on an as-needed basis, there's a level of T3 service (Full or fractional) that will meet users needs. Fractional to full DS3 or T3 circuits run from speeds of 3 Mbps up to 45 Mbps.

For customers that require more bandwidth than a T1 line can provide but do not yet require the capacity of a full T3 line, a fractional T3 connection is the ideal solution. Fractional T3 is similar to a full T3, only with some of the channels turned off. This reduces the total monthly cost and provides additional capacity that can be turned up in a matter of days. Unfortunately, the T3 loop is still required for this service.

### **Types of T3 Connections**

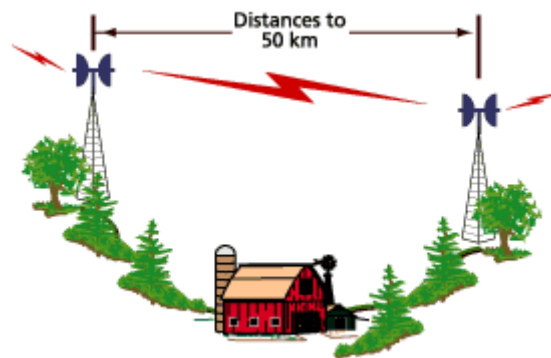
T3 service can be deployed for a wide variety of applications. Most common uses are T3 point-to-point, T3 internet, T3 frame relay, T3 voice and T3 VPN. The pricing for these connections varies widely depending on the carrier, location of service and the application for which the connection is being used.

## WIRELESS

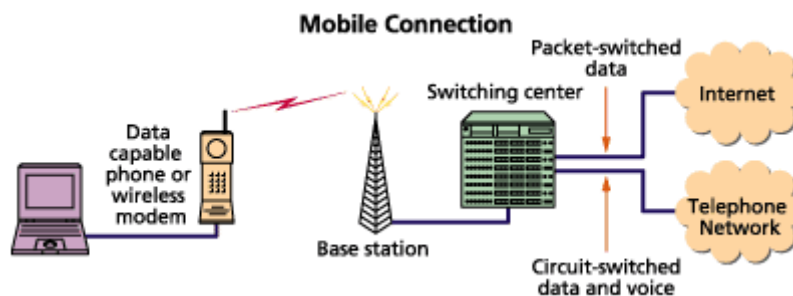
Wireless has always been an alternative for high-speed connections, but never has the range of choices been as great or the rate of innovation as rapid. Wireless broadband and other fixed-wireless connections deliver data rates from T1 to 155 Mbps. These wireless connections serve the same function as a wire line - interconnecting private networks, bypassing a local exchange carrier or connecting to the Internet.

Wire or fiber-based data communications spans a huge range of throughputs and distances --28.8 Kbps over a modem connection; 10/100 Mbps over an Ethernet segment; and gigabit speeds over fiber. Similarly, wireless connections span a huge range. The world of wireless data includes; fixed microwave links, wireless LANs, data over cellular networks, wireless WANs, satellite links, digital dispatch networks, 1-way and 2-way paging networks, diffuse infrared, laser-based communications, keyless car entry, the Global Positioning System and more.

The benefits of wireless include connections when no others are possible, connections at lower cost in many scenarios, faster connections, backups to landlines, networks that are much faster to install and data connections for mobile users.

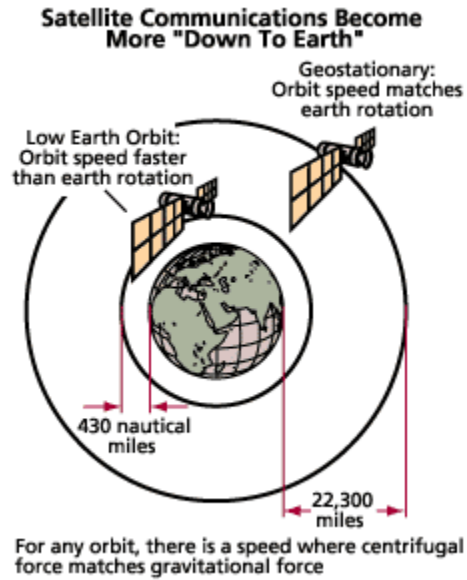


An important distinction in the uses of wireless data is between; vertical market applications and horizontal market applications. In vertical market applications, a very specific business need is addressed for a particular company or industry. Horizontal market applications provide a clear benefit through higher productivity or other competitive advantage. Most wireless applications are in the vertical arena. Wireless vendors strongly desire to address much larger horizontal markets where a broad spectrum of business users and consumers will use wireless communications. This transition will occur once wireless communications is inexpensive enough, broadly deployed and easy to use and once a large number of off-the-shelf applications are available. We are rapidly approaching this stage.



## SATELLITE

People have used satellites to communicate data for decades, though most communications involves fixed earth stations communicating with geostationary satellites. Only recently has it become practical to communicate data using mobile stations. Today, the smallest such mobile terminal is about the size of a brief case, but that is about to change with the deployment of some half dozen different low earth orbiting (LEO) networks. A network of LEO (low earth orbiting) satellites uses a larger number of satellites in orbits much closer to earth than geostationary systems. For example, Iridium will use 66 satellites at an altitude of 420 miles, compared to a typical geostationary system today that uses 3 satellites at an altitude of 22,300 miles. The shorter distances will substantially reduce time delays and the amount of power required for transmissions. Handheld satellite telephones will be possible for the first time.



## **Future Wireless Broadband Services**

Wireless broadband services will offer data rates from ISDN speeds (64 Kbps) through to ATM rates (155 Mbps) and higher. Services include Multichannel Multipoint Distribution Service (MMDS), for which spectrum is currently available, and Local Multipoint Distribution Service (LMDS), for which extremely large blocks of spectrum in excess of 1 GHz will soon be auctioned, and next generation microwave systems that will apply cellular techniques to licensed microwave bands (e.g. 38 GHz) to optimize capacity. For the most part, providers are targeting these services for companies seeking high-speed Internet access or bypass of the local telephone company and are not targeting individual or mobile users.

In the mobile area, international standards efforts will develop third-generation cellular technology, called IMT-2000. Present digital cellular and PCS standards (CDMA, TDMA, GSM) are considered second-generation systems, with analog cellular being the first generation. The goal of IMT-2000 is to standardize on one technology worldwide by the year 2000, and to provide a mobile data rate of 144 Kbps, a portable data rate of 384 Kbps and an in-building fixed data rate of 2 Mbps. Given that second-generation networks are only now being deployed on a broad scale third-generation systems will most likely not see the light of day until well into the next decade.

There are as many variations in high-speed wireless systems as there are variations in wireline systems. Fixed-wireless systems have a long history. Point-to-point microwave connections have long been used for voice and data communications, generally in backhaul networks operated by phone companies, cable TV companies, utilities, railways, paging companies and government agencies, and will continue to be an important part of the communications infrastructure. Frequencies used range from 1 GHz to 40 GHz. But technology has continued to advance, allowing higher frequencies, and thus smaller antennas, to be used, resulting in lower costs and easier-to-deploy systems for private use and for a whole new generation of carriers that are planning to use wireless access as their last mile of communication. The terms wireless broadband and broadband wireless are not used consistently, but generally both apply to carrier-based services in which multiple data streams are multiplexed onto a single radio-carrier signal. Some vendors also use the terms to refer to privately deployed networks.

A backhaul connection is a company's internal infrastructure connection. For example, a phone company's backhaul might be from one central office to another.

Fixed-wireless systems are no longer a communications tool restricted to large or specialized organizations. They are available to almost any size company in a variety of ways for a variety of purposes. There are a wide range of choices, including whether to use licensed or unlicensed spectrum, whether to deploy a private network or use a carrier network, and whether to use a terrestrial network or a satellite network. In some cases, users may not even know that their service provider is using wireless technology.

## Appendix F – ACP Connectivity Surveys

### 2004 Aboriginal Canada Portal Connectivity Survey

We would like to thank everyone who participated in the 2002/2003 Aboriginal Canada Portal connectivity survey. Over 55% of the Aboriginal communities in Canada responded to last year's survey. This excellent response rate enabled us to produce the 2003 Report on *Aboriginal Community Connectivity Infrastructure* that is now available through the Aboriginal Canada Portal at: <http://www.aboriginalcanada.gc.ca/connectivity>.

This year, we are once again contacting communities to assess their level of Internet Connectivity and usage. The format and questions of this year's survey are very similar to previous years with the exception of additional questions for:

- The cost of Internet connectivity;
- The level of technical support services;
- The perceived importance of Internet access; and
- The technical knowledge of administration staff

#### Aboriginal Canada Portal (ACP)

The Aboriginal Canada Portal (ACP) is more than a single window to Canadian Aboriginal on-line resources. It is a web site created by a collaborative working group of federal departments and national Aboriginal organizations working in a collective effort to promote the importance of the Internet and broadband connectivity, encouraging the development and awareness of on-line Aboriginal content and examining ways to reduce the digital divide within urban, rural and remote aboriginal communities. Membership includes; the Assembly of First Nations, the Congress of Aboriginal Peoples, Council for the Advancement of Native Development Officers, Inuit Tapiriit Kanatami, Métis National Council and Native Woman Association of Canada.

As the information revolution transforms the way the world communicates and conducts business, quality Internet connectivity is becoming essential. The information collected through this survey allows the ACP working group to better understand the connectivity needs of Aboriginal communities and provide informed responses and input to government policies.

If you require more information or assistance, please contact Joseph Radzius toll-free at 1-888-399-0111, by FAX at 1-866-442-0443, or via E-Mail at [connectivity@inac.gc.ca](mailto:connectivity@inac.gc.ca)

Once again, thank you for your continued participation and we look forward to hearing from you over the upcoming months. Your participation is very much appreciated.

#### Section 1 - General Information

- 1.1 Community Name: \_\_\_\_\_
- 1.2 Contact Name: \_\_\_\_\_
- 1.3 Title: \_\_\_\_\_
- 1.4 E-Mail Address: \_\_\_\_\_
- 1.5 Website: \_\_\_\_\_
- 1.6 Telephone: \_\_\_\_\_ 1.7 FAX: \_\_\_\_\_

## Section 2 - Community Internet Connectivity Infrastructure

These questions apply to the Band or Community Administration Office.  
Please answer as many questions as possible.

2.1 Is the band office located on reserve? *(This question applies for First Nation's only)*

- Yes       No

2.2 What level of Internet access is available to the Band or Community Administration Office?

**High-Speed:**

- ADSL (high-speed telephone line)  
 Cable  
 ISDN  
 T1/T3  
 Wireless

**Satellite:**

- Two-way Satellite (Satellite down and up)  
 One-way Satellite (Satellite down, telephone up)

**Dial-In:**

- Dial-In (modem) **without** incurring long-distance charges  
 Dial-In (modem) while incurring long-distance charges

**None (No Internet Access)**

**Other (Please Specify)** \_\_\_\_\_

2.3 If the Band or Administration Office is not using a High-Speed Internet connection, what factors are preventing the use such a service? (Select all that apply)

- High-Speed Internet service unavailable to the area  
 Inadequate computer equipment  
 Not a priority for the community  
 High Cost  
 Other (Please Specify) \_\_\_\_\_

2.4 If available, what is the cost for Internet service at the Band or Administration Office?

- Expensive (more than \$3,000 per annum)  
 Reasonable (between \$1,000 and \$3,000 per annum)  
 Inexpensive (less than \$1,000 per annum)

2.5 What level of technical support is being provided for the Band or Administration Office's Internet service?

- Full-time on premises  
 Part-time basis  
 Call when a problem arises  
 No technical support is available  
 Other (Please Specify) \_\_\_\_\_

**2.6** How would you rate the general computer skills of employees at the Band or Administration Office?

- Excellent
- Adequate
- Poor

**2.7** How important is Internet service to the Band or Administration Office?

- Essential
- Important
- Not Important

**2.8** Do members of the community have access to the Internet using the Band or Community Administration office's Internet connection?

- Yes
- No

**2.9** Does the economic development officer (EDO) for your community work out of the same facility as the Band or Community Administration?

- Yes
- No
- Community does not have an Economic Development Officer

### Section 3 - Residential Internet Connectivity Infrastructure

These questions apply to residences within the community. Please answer as many as possible.

**3.1** What type of Internet access is available to the residents in the community? (Check as many as apply)

**High-Speed:**

- ADSL (high-speed telephone line)
- Cable
- ISDN
- T1/T3
- Wireless

**Satellite:**

- Two-way Satellite (Satellite down and up)
- One-way Satellite (Satellite down, telephone up)

**Dial-In:**

- Dial-In (modem) **without** incurring long-distance charges
- Dial-In (modem) while incurring long-distance charges

**None (No Internet Access)**

**Other (Please Specify)** \_\_\_\_\_

**3.2** In your estimation, what percentage of the residents in the community subscribes to an Internet service?

- More than 75%     51% to 75%     26 to 50%     1% to 25%     None

**3.3** In your estimation, what percentage of the residents in the community subscribes to a Satellite Television Service?

- More than 75%     51% to 75%     26 to 50%     1% to 25%     None

### Section 4 - Comments

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## 2003 Aboriginal Connectivity Survey

### Aboriginal Community Connectivity Infrastructure Study 2002/2003

We would like to thank everyone who participated in the 2001/2002 connectivity survey. As a result, we were able to produce the Report on *Aboriginal Community Connectivity Infrastructure*. Almost 75% of the Aboriginal communities in Canada responded to our survey. This excellent response rate enabled us to compile an accurate report on the state of connectivity in Aboriginal communities. The report is available through the Aboriginal Canada Portal at the following URL: <http://www.aboriginalcanada.gc.ca/connectivity>. If you do not have access to the Internet, you may request a copy by calling; Elaine Rochon at 1 888 399-0111.

#### What is the Aboriginal Canada Portal (ACP) Workgroup?

The Aboriginal Canada Portal Working Group is more than a single window to Canadian Aboriginal on-line resources. It is a collaborative grouping of federal departments and national Aboriginal organizations working in a collective effort to promote the importance of the Internet and broadband connectivity, encouraging the development and awareness of on-line Aboriginal content and examine ways to reduce the digital divide within urban, rural and remote aboriginal communities. Membership includes; the Assembly of First Nations, the Congress of Aboriginal Peoples, Council for the Advancement of Native Development Officers, Inuit Tapiriit Kanatami, Métis National Council and Native Woman Association of Canada.

#### Why is this survey important to us?

As the information revolution transforms the way the world communicates and conducts business, quality Internet connectivity is becoming essential. The government of Canada is committed to ensuring that all communities have access high-speed Internet service. The information collected through this survey allows us to better understand the connectivity needs of Aboriginal communities and enables us to provide informed responses and input to future government policies.

#### Section 1 – General Information

Community Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Title: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

## Section 2 – Community Telecommunications Infrastructure

These questions apply to your Band or Community Administration office.  
Please answer as many questions as possible.

1. Is your band office on a reserve?  Yes  No

“This question applies for First Nation’s only.”

2. Do you have telephone access?  Yes  No

Which telephone company: \_\_\_\_\_

3. Is your telephone service provided by satellite?

Yes  No  Other: \_\_\_\_\_

4. Do you have access to the Internet?  Yes  No

If yes, which type of connection:

- Dial-in (modem) while incurring long distance charges
- Dial-in (modem) without incurring long distance charges
- ISDN
- One way Satellite (Satellite down, telephone up)
- Two way Satellite (Satellite down and up)
- Wireless
- ADSL (high-speed telephone line)
- Cable
- T1/T3
- Other \_\_\_\_\_

5. Can members of the general population have access to the Internet using the Band or Community Administration office’s Internet connection?

Yes  No

6. Does your community have a Web site?  Yes  No

If yes, what is the location (URL):

http://\_\_\_\_\_

eg. http:// [www.aboriginalcanada.gc.ca](http://www.aboriginalcanada.gc.ca)

7. What does your Web Site offer? (select all types)

- E-Commerce (do you sell items online)?
- E-Tourism (do you promote your community as a tourist destination)?
- Culture (do you promote your art, language, history, festivals or celebrations)?
- Community use only (inform community members of events and activities)

8. Which language does your band prefer to use on the Internet?

- English
- French
- Inuktitut
- Ojibway
- Cree
- Other: \_\_\_\_\_


**Section 3 - Residential Connectivity**

**These questions apply to your community**

9. Do residents of your community have telephone service at home?  Yes  No

10. Do residents have Internet access?  Yes  No

11. What is the fastest method of connection available to your residents?

- Dial-in (modem) while incurring long distance charges Slowest
  - Dial-in (modem) without incurring long distance charges
  - ISDN
  - One way Satellite (Satellite down, telephone up)
  - Two way Satellite (Satellite down and up)
  - Wireless
  - ADSL (high-speed telephone line)
  - Cable
  - T1/T3 Fastest
  - Other \_\_\_\_\_
- 

12. What percentage of your residents subscribe to an Internet service?

- More than 75%
- 51% to 75%
- 26 to 50%
- 1% to 25%
- None

13. What percentage of your residents subscribe to a satellite television service?

- More than 75%
- 51% to 75%
- 26 to 50%
- 1% to 25%
- None

14. How important is Internet services to your community?

- 1 2 3 4 5
- Essential Important Not important

**Section 4 – Comments and Thank You**

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We thank you for your time and participation with this survey. If you have any questions or require further information either on the questionnaire or the Aboriginal Canada Portal site you may contact Elaine Rochon at 1 888 399-0111 or you may write to us at [connectivity@inac.gc.ca](mailto:connectivity@inac.gc.ca)

## **2002 Aboriginal Connectivity Survey**

### **Aboriginal Canada Portal Questions for Aboriginal Communities**

#### **What is the Aboriginal Canada Portal (ACP)?**

The Aboriginal Canada Portal (ACP) is a partnership project of the Government of Canada (GOC), provincial governments and Aboriginal organizations such as the Assembly of First Nations, the Congress of Aboriginal Peoples, the Council for the Advancement of Native Development Officers, Inuit Tapirisat and the Métis National Council.

The Aboriginal Canada Portal offers all Aboriginal community, provincial, territorial and federal aboriginal related government information and services. It is also the goal to include all Aboriginal associations, businesses, organizations, bands, communities, news and peoples information within the portal. It operates as a single window to all on-line Aboriginal related information offering ease of access and navigation to this information.

Connecting Canadians is part of a larger Federal Government mandate to avail all information and services on-line to Canadians by the year 2004. Beyond the digitization of paper-based documents and services, the government's plan is to ensure that all information is client driven, integrated, and interactive. This single window (ACP) will serve as the medium in which to integrate all the government's Aboriginal information and services.

#### **What is a Portal?**

A portal is larger in scope than a traditional web site, for it is a single window to on-line information and services of a common interest. The information in a portal site is organized and displayed from a user's perspective. The ACP will link to the following sites in an organized manner: all national Aboriginal organization sites, 12 federal government departments with Aboriginal mandates, all provincial and territorial governments and organizations with Aboriginal responsibilities, plus all related Aboriginal community information.

**The information you provide will allow us to better understand the needs of Aboriginal communities across Canada in relation to connectivity on the Internet. Please take time to try and answer as many questions as possible and fax back the completed questionnaire at (819) 994-7825 by March 27<sup>th</sup>, 2002.**

**1. Contact Information:**

(A contact person should be designated in order to ensure ongoing communication with the Aboriginal Canada Portal team. This person preferably would be knowledgeable or involved in economic development for the community and/or can be responsible for the maintenance of an existing community homepage.)

|                          |                                  |
|--------------------------|----------------------------------|
| Contact's name:          | Title:                           |
| Organization name:       |                                  |
| Mailing Address:         | Physical Address (if different): |
| Telephone number: (    ) | Fax number: (    )               |

**2. Community Internet information:**

|  |
|--|
| Do you have access to email? <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| If yes, then please provide us with an email address where we may contact you.                   |
| _____  |
| Does your community have a website? <input type="checkbox"/> Yes <input type="checkbox"/> No     |
| If yes, may we have the URL to add your community homepage to the Aboriginal Canada Portal site? |
| _____  |
| If no, are there any plans to have one developed in the future?                                  |
| <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know     |



**4. Community Information:**

|   |
|---|
| What is your community's official name?   |
| How many people live in your community?   |
| Is your community dispersed over more than one site?<br><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know                              |
| If yes, is the level of communication infrastructure consistent across all sites?<br><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know |

**5. Comments:**

|  |
|--|
| Have any comments you'd like to share? |
|--|

We thank you for your time and participation with this questionnaire. If you have any questions or require further information either on the questionnaire or the Canada Aboriginal Portal site you may contact us at 1-888-399-0111 or you may write to us at [ACP@inac.gc.ca](mailto:ACP@inac.gc.ca)

**If you have access to the Internet come and visit!**  
[www.aboriginalcanada.gc.ca](http://www.aboriginalcanada.gc.ca)