

**Everybody In:**  
Developing a Training Strategy for  
Broadband Capacity in Nunavut



**Photo of Pangnirtung, one of  
25 Nunavut Communities**

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## Table of Contents

<b>1</b>	<b><i>Executive Summary</i></b> .....	<b>5</b>
<b>2</b>	<b><i>Introduction</i></b> .....	<b>7</b>
<b>2.1</b>	<b>The Telecommunications Environment in Nunavut</b> .....	<b>7</b>
2.1.1	Brief history of infrastructure development .....	7
2.1.2	Nunavut's telecommunications infrastructure .....	9
<b>2.2</b>	<b>Nunavut Broadband Task Force</b> .....	<b>11</b>
<b>2.3</b>	<b>The Nunavut Broadband Development Corporation</b> .....	<b>12</b>
2.3.1	Mandate and Membership .....	13
2.3.2	Activities and Outcomes.....	13
2.3.3	NBDC's Business Plan for Broadband Implementation.....	14
<b>3</b>	<b><i>Training</i></b> .....	<b>15</b>
<b>3.1</b>	<b>The Need for Training to Supplement the Business Plan</b> .....	<b>15</b>
<b>3.2</b>	<b>Potential Areas of Training Need</b> .....	<b>16</b>
<b>3.3</b>	<b>NBDC's Proposed Role in Supporting Training for Broadband Services in Nunavut</b> .....	<b>17</b>
3.3.1	Planning.....	17
3.3.2	Advocacy .....	17
3.3.3	Implementation and Monitoring.....	18
<b>3.4</b>	<b>NBDC's Strategic Training Approach</b> .....	<b>19</b>
3.4.1	Planning Principles .....	20
3.4.2	Overview of the Planning Process .....	21
3.4.3	Anticipated Outcomes and Benefits to Nunavut.....	25
<b>4</b>	<b><i>Language and Cultural Considerations</i></b> .....	<b>27</b>
<b>4.1</b>	<b>The Need for ICT to Support Language and Culture</b> .....	<b>27</b>
<b>4.2</b>	<b>Applications to support culture</b> .....	<b>27</b>
<b>4.3</b>	<b>Syllabic Unicode issues</b> .....	<b>27</b>
<b>5</b>	<b><i>Partnerships</i></b> .....	<b>28</b>
<b>5.1</b>	<b>Content development</b> .....	<b>28</b>
<b>5.2</b>	<b>Delivery</b> .....	<b>29</b>
<b>5.3</b>	<b>Funding</b> .....	<b>29</b>
<b>5.4</b>	<b>Coordination</b> .....	<b>30</b>

**6 Next Steps..... 31**

**6.1 Schedule..... 31**

**6.2 Budget..... 31**

**7 Appendices..... 32**

**7.1 Nunavut Broadband Business Plan Submission: Executive Summary ..... 32**

**7.2 Contacts ..... 32**

        7.2.1 Interview Respondents ..... 32

        7.2.2 Document Prepared By: ..... 32

**7.3 Key Reference Documents ..... 33**

**Table of Acronyms**

<b>BRAND</b>	Broadband for Rural and Northern Development Pilot Program
<b>CAP</b>	Community Access Program
<b>DCN</b>	Direct Communications Network
<b>DSD</b>	Department of Sustainable Development
<b>GC</b>	Government of Canada
<b>GN</b>	Government of Nunavut
<b>GNWT</b>	Government of the Northwest Territories
<b>HRDC</b>	Human Resource Development Canada
<b>IBC</b>	Inuit Broadcasting Corporation
<b>ICT</b>	Information and Communications Technologies
<b>INAC</b>	Indian and Northern Affairs Canada
<b>ISP</b>	Internet Service Provider
<b>NAC</b>	Nunavut Arctic College
<b>NBDC</b>	Nunavut Broadband Development Corporation
<b>NBTF</b>	Nunavut Broadband Task Force
<b>NIC</b>	Nunavut Implementation Commission
<b>NITC</b>	Nunavut Implementation Training Committee
<b>RCMP</b>	Royal Canadian Mounted Police

## 1 Executive Summary

The potential of information and communications technologies (ICT) to contribute to the economy and culture of the contemporary North is widely recognized. These new tools can support teaching and learning, business and economic development, the creation of governance and management capacity, and a wide range of cultural and artistic applications – and all in ways uniquely appropriate for the oral and visual communication tradition of Inuit. Until recently, however, the use of such applications has been constrained by the lack of high-speed, broadband access for almost all users in Nunavut.

In 2003 the Nunavut Broadband Development Corporation (NBDC) submitted a comprehensive Business Plan based on the results of an extensive needs analysis conducted within the Territory. The plan reflects the anticipated demand for broadband, and outlines how adequate broadband infrastructure can be built at a reasonable cost. The territory will see high-speed access available in all settlements within the next few years.

In order to take full advantage of this new level of service, and to ensure that benefits, to the greatest possible degree, flow to the Inuit of Nunavut, the NBDC recognizes that the roll-out of these services must be accompanied by a comprehensive training strategy. NBDC is therefore preparing to develop a five-year training plan, in conjunction with Nunavut training organizations and funders.

The planning process will begin with a sectoral training needs analysis to identify the specific training needs of Nunavummiut in order to use broadband effectively. This analysis will take into consideration the training needs associated with networking, hardware acquisition, installation and configuration, broadband application development, and language and cultural requirements. In broad terms, the assessment will identify:

- Training needs associated directly with introduction and delivery of broadband services;
- Training associated with the development and use of applications made possible through the availability of broadband services; and
- General education and training programs intended to introduce and develop skills and knowledge in the area of ICT, as part of mainstream primary and secondary school curricula.

The training strategy will also identify:

- Existing public and private sector training and educational programs and resources to address the gap between sectoral needs and existing training resources;
- Funding required for programs, and potential funding sources;

- Steps required to put in place the necessary programs to address the gaps;
- A management and governance structure to coordinate implementation of strategic training recommendations.

NBDC's goal is a five-year plan that will serve as a resource to help training organizations obtain funding to deliver required training, ensuring that all interested Nunavummiut will be able to access the training they need to set up and use broadband applications.

## 2 Introduction

This Section provides an overview of the telecommunications environment in Nunavut, and re-traces the planning steps leading to the development of this document. It summarizes the work of the Nunavut Broadband Task Force (NBTF) and its successor, the Nunavut Broadband Development Corporation (NBDC), and concludes with a synopsis of the NBDC's strategic plan.

### 2.1 *The Telecommunications Environment in Nunavut*

Geography and culture have both contributed to making Nunavut Canada's pioneer in the development of telecommunications services and applications.

While Nunavut has a relatively small population of 27,000 people in 25 communities, it occupies one fifth of Canada's landmass. The vast geography of this territory has made it impossible to develop the basic infrastructure commonplace in the south: there are no highways, no power or phone lines, no fibre optic networks and no microwave relays linking communities. Goods are flown or barged into isolated Arctic settlements, and all telecommunications are provided by satellite. These geographic and infrastructure challenges translate into a cost of living for Nunavut residents that is up to three times as high as that of southern Canada.

But Inuit are among the world's great adaptors. Living in the world's harshest climate, they have successfully integrated rifles, snowmobiles, high frequency radios, television, GPS systems and computers into Inuit life in ways that are supportive of traditional values.

The potential of information and communications technologies (ICT) to contribute to the contemporary north has now been widely recognized and eagerly awaited as the next "breakthrough" technology, a modern tool that can eliminate many of the communication challenges faced in the Territory. The bottleneck, until now, has been access to sufficient bandwidth. But recent developments suggest that Nunavummiut will soon have access to levels of service comparable to those taken for granted in the South.

#### 2.1.1 **Brief history of infrastructure development**

Telecommunications arrived in the Inuit north in 1972 with the launch of the Anik A-1 satellite. In 1973, the CBC began delivering its complete southern television service to all regions of Canada, including the north, with the goal of extending full CBC radio and television services to all rural and remote communities with populations of over 500 people.

The federal Department of Communications (DOC) launched a program to test satellite applications in 1978, using Anik B to explore the potential application of technology to enable production and distribution of programming in the Arctic. The program funded ITC's "Inukshuk", a ground breaking project that integrated

training, community participation and technology to create the North's first Aboriginal television service. Inukshuk led to the creation of the Inuit Broadcasting Corporation (IBC), and of Television Northern Canada, a full service northern TV network.

In 1994 the groundbreaking *Connecting the North* conference used television, telephone, teleconferencing, videoconferencing and fax equipment to create a virtual meeting that linked 27 communities in the Northwest and Yukon Territories, Northern Quebec, Labrador, Ontario and Australia. For three days, hundreds of community participants – leaders, teachers, students, businesspeople, politicians, homemakers and others - explored the potential uses and challenges related to extending the information highway into Canada's most remote regions. The conference yielded a number of recommendations, many of which helped shape the evolving vision of Nunavut.

In that same year, the Nunavut Implementation Commission (NIC) was created to provide recommendations on governance structures for the new territory. One of the key principles underlying the design of the new government was decentralization: the devolution of territorial institutions, departments and positions to smaller communities throughout the territory. "*Footprints in New Snow*", the government's main planning document, recognized the critical importance of low cost, high speed telecommunications services in achieving that vision.

The NIC outlined a vision for providing access to people beyond government, recommending the creation of a Community Teleservice Centre in each community for public access by piggybacking a public access site onto the government infrastructure. These sites would be used by Inuit organizations, private businesses, and individuals.

NIC's recommendations on a decentralized model of government were adopted: its recommendations calling for the creation of Community Teleservice Centres were not.

In 1996 the Government of the Northwest Territories (GNWT) signed an agreement with Ardicom for the deployment of a Digital Communications Network (DCN) throughout the territory. This network provided connectivity for government and private sector uses as set out by the GNWT. The cost of access for the private sector, however, was felt by many to be prohibitive. In 1999, upon creation of Nunavut, the Ardicom agreement was split into two and extended to the new territory.

It is important to note that schools and Nunavut Arctic College began electronic communication in the early 1990s, using messaging software ideally suited to asynchronous communication. E-mails were stored on a local community server; e-mail data would automatically exchange late at night when phone rates and voice traffic were low. Substandard telephone networks were not a major impediment, as the software re-sent interrupted data. This simple but effective network later benefited from the DCN, and is still evolving as it meets basic

educational and business communications needs for both schools and Nunavut Arctic College.

While many of the recommendations generated by *Connecting the North* and the NIC remain unfulfilled, they represented a vision for Nunavut and gave shape to the territory's evolving telecommunications infrastructure. The needs, and the opportunities, have never been greater, and in recent years Nunavut has taken a number of critical steps towards a new stage in the development of telecommunications capacity.

### **2.1.2 Nunavut's telecommunications infrastructure**

As of March 2004, Internet Service Providers (ISPs) are providing dial-up services in 14 of 25 communities.

- Two ISPs are largely supported by Inuit Development Corporations. Polarnet serves 5 Kitikmeot communities; Sakku serves Rankin Inlet.
- Four ISPs operate independently. These are Nunanet in Iqaluit, Sanny Internet Services in Sanikiluaq, and two ISPs in Resolute Bay.
- Two ISPs are supported by hamlets: Baker Lake (which has a wireless service supported by RamTel), and Cape Dorset dial-up (operated by Northwestel).
- Service in Coral Harbour was initiated by a volunteer group and is operated by Northwestel.
- Northwestel recently launched dial-up service in Pond Inlet, and plans to continue rolling out dial-up services over the summer and fall of 2004 in Nunavut in communities currently not served by dial-up
- There are other dial-up initiatives and some high-speed initiatives that are not operational at the time of this report.

The chart on the next page illustrates the bandwidth available at the wholesale and retail level in each community.

**Bandwidth available in Nunavut communities**  
(NBDC Submission to Industry Canada: June 6, 2003)

Community	GN Ardicom DCN BW (wholesale)	RCMP - Ardicom DCN BW wholesale	Power Corporation SSI Micro BW (wholesale)	ISP - Last mile services for general public and private sector	Bandwidth available at retail level
Arctic Bay	64	64		Polarland/Arctic Data	128
Arviat	256	64	x		
Baker Lake	128	64	x	Hamlet/Ramtel	N/A
Cambridge Bay	512	64	x	PolarNet/SSI Micro	384/5*
Cape Dorset	64	64	x	Hamlet/Sympatico	
Chesterfield Inlet	64	64			
Clyde River	64	64			
Coral Harbour	64	64		Internet Society/Sympatico	64
Gjoa Haven	64	64		PolarNet/SSI Micro	384/5*
Grise Fiord	64	64			
Hall Beach	64	64			
Igloolik	64	64	x		
Iqaluit	1536	64	x	Nunanet/SSI Micro	512
				Sympatico	N/A
				ComGuard	N/A
Kimmirut	64	64			
Kugaaruk	64	64		PolarNet/SSI Micro	384/5*
Kugluktuk	128	64	x	PolarNet/SSI Micro	384/5*
Pangnirtung	128	64	x		
Pond Inlet	64	64	x		
Qikiqtarjuaq	64	64			
Rankin Inlet	512	64	x	Arctic Technologies/SSI Micro	384
Repulse Bay	64	64			
Resolute Bay	64	64		South Camp Inn	128/2
				Coop Hotel	128/2
Sanikiluaq	64	64		Sanny Internet Service/Arctic Data Systems	64
Taloyoak	64	64		PolarNet/SSI Micro	384/5*
Whale Cove	64	64			

In the fall of 2003, Northwestel launched high-speed DSL services in Iqaluit. As of March 2004, they have no plans to roll out high speed into any other communities in Nunavut.

Without financial support, even local dial-up service in the smaller Nunavut communities is not economically sustainable.

Some organizations and institutions have purchased direct connectivity through Ardicom or SSI Micro.

- The RCMP has access through the Ardicom DCN in all 25 Nunavut communities.
- GN offices in the ten decentralized communities have access through the Ardicom DCN.
- The Nunavut Power Corporation has access through SSI Micro in 10 communities.
- Schools, Nunavut Arctic College, Health Centres, Public Libraries and most of the CAP sites connect through the Government of Nunavut's Community Services Network provided by Ardicom in all 25 communities.

Northwestel provides telephone service into every Nunavut community, and has installed local dial-up service through Sympatico into three of the smaller communities. Thus all Nunavut communities are equipped with ground station equipment to run a conventional voice telephone network, as well as access to the current digital communications network.

The cost of upgrading community infrastructure to enable broadband communications will therefore be relatively small. The real costs, however, lie in the purchase and use of satellite time. In 2003 the Government of Nunavut spent \$3M per year on data transmission alone. Guaranteed bandwidth costs \$1,704 per month, in 64K increments. The Report of the Broadband Task Force estimated that an ADSL connection equivalent to one commonly available in the South would cost more than \$25,000 per month in Nunavut.

The cost of satellite access has represented an insurmountable barrier to the use of ICT for education and videoconferencing in government, NGOs and the private sector. Vast distances between communities have made satellite access least accessible in the region of Canada where it has the greatest potential for positive impacts.

This state of affairs led to the creation of the Nunavut Broadband Task Force in 2001.

## **2.2 Nunavut Broadband Task Force**

In 2001 the Minister of Sustainable Development, Government of Nunavut (GN) established the Nunavut Broadband Task Force, a multi-sectoral group mandated to review the challenges related to broadband access in Nunavut and

to provide recommendations. The Task Force was comprised of 13 representatives from the private sector and non-government organizations and agencies, and staffed by the Government of Nunavut.

Following a year of consultation and research, the Task Force submitted a report to the Cabinet of the GN in August 2002, and released it to the public a month later.

*Sivumuuqpallianiq, Moving Forward: Strengthening Our Self-Reliance in the Information Age* supported seven major principles that were to underlie the introduction of Broadband services in Nunavut. These were:

1. Support of Nunavut's Oral Culture
2. Provision of Universal, Affordable Access
3. Community input
4. Capacity building in the private sector
5. Access to Public Services
6. Promotion of Language and Culture
7. Ongoing innovation and advancement

The Report also made 26 recommendations to the Minister of Sustainable Development on how to best implement broadband networks in all Nunavut communities.

NBTF submitted an application to Industry Canada under the Broadband for Rural and Northern Development Pilot Program (BRAND) in October 2002. That application provided guidance and a conceptual framework to the work of the Task Force's successor, the Nunavut Broadband Development Corporation.

### ***2.3 The Nunavut Broadband Development Corporation***

In October 2002 a group of private individuals created the Nunavut Broadband Development Corporation (NBDC) as a successor to the Nunavut Broadband Task Force. The new organization represents community, NGO, private sector and citizen interests, and is independent of the Government of Nunavut. The overall purpose of the organization is to enable broadband services for use by Inuit and community organizations, NGOs, the private sector and citizens. The specific purposes of NBDC are summarized as follows:

- To encourage implementation of the Nunavut Broadband Task Force recommendations directly and through the governments of Canada and Nunavut;
- To establish partnerships with governments, private sector organizations and NGOs for the purpose of developing and implementing broadband services in Nunavut;

- To prepare and publish reports and metrics to regularly assess the gap between the communications services available in the south, and similar levels of service and their related costs in Nunavut.

### **2.3.1 Mandate and Membership**

The NBDC is a not-for-profit corporation, created to ensure that communities, companies, organizations and individuals not served by existing government networks can get connected to broadband at affordable prices. Their Mission Statement reads as follows:

*“The Nunavut Broadband Development Corporation aims to bring affordable, high speed access to the Internet (broadband) to Nunavummiut in all 25 Nunavut communities by supporting local businesses to deliver broadband and related services. Our focus is to bring broadband services to citizens, municipalities, Inuit organizations, businesses, and others not currently served by the Governments of Nunavut and Canada.”*

The Department of Sustainable Development (DSD) of the Government of Nunavut, and Nunavut Tunngavik Inc. (NTI) each appointed one member to sit on NBDC’s board in early 2004. These appointments were made at the request of the board members elected by the general membership.

The membership of more than 180 is made up of interested citizens, private sector companies, Inuit organizations, community organizations, and hamlets. The only requirement for membership is Nunavut residency: any Nunavut resident interested in broadband is welcome to become a member.

The board of directors elected at the 2003 Annual General Meeting represents all regions of Nunavut, and includes members from both large and small communities.

### **2.3.2 Activities and Outcomes**

The NBDC took on the challenge of carrying forward the work begun by the Broadband Task Force. The broad goal of the Development Corporation was to prepare a business plan for submission to Industry Canada’s Broadband Pilot Program. To that end, the NBDC:

- Conducted an extensive survey of businesses, organizations and individuals in Nunavut. They received 109 business survey responses, and a further 180 personal responses from Nunavummiut.
- Initiated a petition calling for support for the development of Broadband services. Distributed through health centres and community economic development offices, the petition gathered 391 signatures.
- Submitted a comprehensive business plan to Industry Canada's BRAND Program on June 6, 2003. The plan outlines Nunavut's need for broadband, drawing on extensive research conducted in the NBDC Needs Analysis.

- Received a contribution of \$3,884,850 from the Industry Canada BRAND program to extend broadband Internet service to unserved communities in Nunavut on November 6, 2003.
- Held a workshop in February 2004 to bring together potential broadband service providers to define roles and responsibilities in delivering broadband services, to test the technology, and to learn how to develop a marketing plan for community rollout of services.

NBDC is now working on securing an additional \$3.7 million to meet the full costs of installing the broadband infrastructure in all Nunavut communities.

### **2.3.3 NBDC's Business Plan for Broadband Implementation**

NBDC has prepared a comprehensive Business Plan based on the results of an extensive needs analysis conducted within the Territory. The plan reflects the anticipated demand for broadband, and outlines how adequate broadband infrastructure can be built at a reasonable cost.

The NBDC circulated an RFP for bid proposals from private business for connections both within communities and externally to satellite services. An independent Evaluation Committee evaluated the proposals received, and selected the satellite service provider who offered the lowest cost and most scalable technology, delivered through established regional partners. The winning bidder's costs were almost half those proposed by other bidders, resulting from the cost advantages of pooling and dynamic allocation of bandwidth capacity for all of Nunavut.

While initial government investment is required in Year 1 of the plan, local revenues based on aggregate demand from Inuit and community organizations, small businesses and the general public will sustain the project beginning in Year 2. Projections show a \$4M positive cash flow for local ISPs in Years 2 to 5, and a breakeven point in 10 years with no government revenue. Any government revenues would further reduce the breakeven period.

### 3 Training

This Section explores the importance of training for Nunavummiut as an essential component of the implementation of the NBDC's strategic plan. It provides a preliminary description of the range of training needs likely to be created by the introduction of broadband services, describes the role of NBDC in addressing those needs, and sets out a detailed process for defining the scope and scale of training required, and for the development of a comprehensive broadband training strategy.

#### ***3.1 The Need for Training to Supplement the Business Plan***

Comprehensive training has been a critical consideration in the launch of every technology-focused project in Nunavut for the last three decades. ITC's Inukshuk project demonstrated that Nunavummiut were able to adapt and master new technologies, and in fact to eventually create a national television network, because sufficient attention was paid to the need for training. Without training, opportunities go unrecognized, benefits go unachieved, and employment benefits go to southerners.

To support the introduction of broadband technologies and services, the Nunavut Broadband Development Corporation proposes to develop a comprehensive training plan, in conjunction with Nunavut training organizations such as the Nunavut Arctic College, Nunavut Implementation Training Committee, Nunavut Community Access Program, the Municipal Training Organization, and private sector training individuals and firms in Nunavut. This plan will also be developed in consultation with training and funding agencies such as Kakivak Association, Kivalliq Partners in Development, Kitikmeot Economic Development Commission, the Government of Nunavut Department of Education, and Human Resources Development Canada.

NBDC will conduct a training needs analysis to identify the specific training Nunavummiut need in order to use broadband effectively. This analysis will take into consideration the training needs associated with networking, hardware acquisition, installation and configuration, broadband application development, and language and cultural requirements.

The training strategy will also identify funding required for programs, and set out a plan to ensure Nunavummiut will be able to access the required training for broadband development.

The plan will serve as a resource to help training organizations obtain funding to deliver required training, ensuring that all interested Nunavummiut will be able to access the training they need to set up and use broadband applications.

Training will be an ongoing part of the development of broadband, as technologies evolve and more Nunavummiut use broadband applications to

achieve their economic, educational, social, language, and cultural goals.

### **3.2 Potential Areas of Training Need**

Enabling Nunavut to take advantage of the full spectrum of opportunities created by the introduction of broadband services will require training, education and support in a number of areas. Specific training needs will be contingent on the opportunities and delivery system in each community. There are at least three broad categories of general need:

1. Training associated directly with introduction and delivery of broadband services. Potential needs in this area include:
  - Technical training relating to the installation and maintenance of equipment and networks
  - Training associated with the creation and management of a successful small business in the broadband service industry.
2. Training associated with the development and use of applications made possible through the availability of broadband services. A partial list of potential needs in this area include training associated with:
  - Development and delivery of educational materials
  - Development of Inuktitut language support applications
  - Broadcasting, film-making and journalism training
  - Development of business support applications
  - Development of applications to enhance governance and NGO management and administration support
  - Web based marketing and promotion
3. General education and training programs intended to introduce and develop skills and knowledge in the area of ICT, as part of mainstream primary and secondary school curricula.

Given these broad areas of need, there are many groups of Nunavummiut who will benefit from access to training. A partial listing would include:

- Members of the general public interested in using computers/broadband connectivity for banking, shopping, research, personal communication, filing taxes, access to government information, and any other common online application;
- Students in primary, secondary and post secondary education programs;
- Students pursuing an independent course of studies;
- Community Access Program (CAP) workers;
- Teachers, facilitators, and trainers;
- Translators, interpreters, linguists, and other language professionals;

- Professionals in any area seeking access to a broader network of peers;
- Content producers (designers, video artists, web developers etc.) who need access to further training;
- Entrepreneurs seeking new markets, new suppliers, new techniques, and new skills;
- Government, NGO, and private sector employees seeking governance, management, administration and technical materials, Inuktitut applications, including best practices, models, templates, and training.

### ***3.3 NBDC's Proposed Role in Supporting Training for Broadband Services in Nunavut***

An important goal of the training strategy will be to establish responsibility for implementing and managing the study. The NBDC has neither the mandate nor the resources required to serve as the sole management and delivery agency for a multi-year, multi-sectoral training project as diverse and complex as this. The training will only succeed if all stakeholders take the lead in addressing training needs within their respective sectors.

In addition, the Corporation's membership and the training stakeholders both acknowledge that central coordination and communication will be required for effective implementation of the training plan, and to ensure ongoing communication between all stakeholders. The specific management and governance needs associated with the implementation of the training strategy will depend on the strategy itself. However, at this point, the NBDC is prepared to undertake three roles associated with this initiative.

#### **3.3.1 Planning**

With the approval of its board the NBDC may:

- Prepare a Request for Proposals and selection criteria for the preparation of a Nunavut Broadband Training Strategy;
- Receive, review, and analyze proposals responding to the RFP and award a contract;
- Oversee the Training Needs Study and the development of the Training Strategy, adjust plans, budgets and schedules as required, and provide staged approvals and project sign-off; and,
- Receive and disburse project funds.

#### **3.3.2 Advocacy**

Depending on the role defined for the NBDC in the Training Strategy, the NBDC may:

- Monitor legislation, regulations or programs that may impact on training to support broadband service and applications, and provide input on behalf of stakeholders and the sector;
- Maintain statistics on sectoral employment, education and training;
- Promote and support employment in the sector;
- Represent the sector's interests in discussions of training;
- Promote the uptake of Inuktitut applications;
- Act as a repository of information on programs, resources, institutions, and individuals delivering training to support broadband service and applications;
- Act as a repository on potential funding sources for training to support broadband service and applications, including government, foundation, private sector, and other; and,
- Seek to ensure that the needs of the sector are considered when academic institutions in Nunavut are establishing program plans and priorities.

### **3.3.3 Implementation and Monitoring**

Depending on the role defined for the NBDC in the Training Strategy, the NBDC may:

- Establish a coordinating body to monitor implementation and, when required, annual revision of the Training Strategy;
- Establish any policies, procedures and systems required for implementation of training initiatives;
- Facilitate the development of an annual multi-sectoral Training Plan to implement the recommendations of the Training Strategy;
- Encourage all partners in training design and delivery to adopt and publish employment and training targets to assist in monitoring the effectiveness of the Training Strategy;
- Assess Training Strategy outcomes and adjust, when required, to achieve strategic goals;
- Undertake other planning tasks and responsibilities, if recommended by the Training Strategy or mandated by its membership, provided sufficient resources are in place.

### **3.4 NBDC's Strategic Training Approach**

The broad range of training needs within the sector (as described in Section 3.2) makes it clear that the full range of potential benefits associated with the introduction of broadband services in Nunavut will not be met unless appropriate and effective training programs are in place. NBDC proposes to develop a comprehensive training strategy that will:

- Reflect real needs identified at the community level;
- Ensure that appropriate, effective training is available to specific individuals/employers involved with delivery of broadband-related services; and
- Promote general programs of training and education in Nunavut to further the development of the sector.

Several models for this kind of sectoral training study in Nunavut exist. They include:

- The Nunavut Implementation Training Study (1993)
- The Municipal Employees Training Needs Analysis (2002)
- The DEW Line Clean Up Training Needs Analysis (2003)

Each of these required the definition of training needs across a broad range of positions, and each yielded a comprehensive and effective framework to promote sectoral training.

The goals of the Broadband Training Strategy Project will be to:

- Identify specific positions that will be created directly as a result of the introduction of broadband services, and define the skills, knowledge and affective competencies associated with those positions;
- Determine the existing number of people in Nunavut with the required skills, knowledge and affective competencies, and establish the extent of the training gap;
- Prepare an inventory of existing training resources and programs to address that gap;
- Identify gaps in the training resources available, and establish a plan for addressing those gaps through development of new programs and materials where required, including provisions for Inuktitut language requirements;
- Identify federal, territorial, private sector, foundation and other potential funding agencies to support the development and implementation of this training plan;
- Build stakeholder consensus on strategies and plans for establishing a training and educational framework to support and promote effective delivery of broadband services;

- Support planning by educators, employment programs, training programs, funders, regulators, service providers and other stakeholders; and
- Provide an instrument for monitoring sectoral growth.

### 3.4.1 Planning Principles

The proposed Training Strategy is being developed to support the NBDC Business Plan submitted to Industry Canada on June 6, 2003. The Strategy will reflect and incorporate both the goals and the underlying principles of the Business Plan.

The following principles will provide guidance to the development of the Training Strategy.

1. The Training Strategy must reflect and support the overall goal of an ICT sector characterized by:
  - High levels of community participation;
  - Job creation;
  - Economic stimulation;
  - Inuktitut language development and promotion;
  - Production of local content;
  - Access to educational opportunities;
  - Access to all benefits of a strong ICT infrastructure and industry sector.
2. The Strategy will provide a framework within which multi-year and annual training plans are developed by stakeholder organizations.
3. The Strategy will seek to maximize the use of existing and proven training programs, institutions and materials where possible, building on the best practices within Nunavut and other relevant jurisdictions with similar initiatives.
4. The Strategy and subsequent training will reflect the fact that broadband services may be delivered at the community level through a range of different corporate models.
5. Although NBDC, as a not-for-profit corporation, is under no statutory obligation to establish targets for Inuit employment or participation in training, we are strongly committed to maximizing Inuit participation in and benefit from the expansion of broadband services. Our training strategy will reflect that commitment by:
  - Promoting the development of training plans and materials that are:
    - In the learner's first language, where possible;
    - Modular and delivered as close to a learner's home community as possible;
  - Ensuring that recruitment, certification or employment guidelines do not include unnecessary or irrelevant barriers to learners' progress;

- Employing proven, culturally effective training and learning approaches wherever possible;
  - Incorporating a “Training for Trainers” component into training programs to ensure maximum distribution of learning;
  - Using broadband tools wherever possible to support learning programs; and,
  - Using Inuktitut language supported applications wherever possible.
6. The Strategy will encourage measures to promote employment and training of women and disabled persons within the sector, and ensure that no unfair barriers exist to their participation in training initiatives.

### **3.4.2 Overview of the Planning Process**

The development of the Training Strategy will be carried out in five phases.

#### **Phase One: Detailed Work Planning**

- The NBDC will determine the precise scope and scale of the Training Strategy, then develop a detailed workplan, schedule, and budget. This will incorporate project management responsibilities, points of communication, points of approval, and protocols for review of draft and final materials. An initial meeting will be held to agree on project deliverables, schedule, detailed methodology, documents for review, and key interviews.

#### **Phase Two: Needs Definition and Analysis**

- NBDC will revisit the Nunavut Broadband Business Plan, and confirm assumptions about options for and models of local service delivery, in light of recent developments.
- For each model of service delivery, the NBDC will determine:
  - The organizational structure of the delivery mechanism (management, governance, technical);
  - Anticipated positions (title and number) within the delivery mechanism;
  - An analysis of the skills, knowledge, experience, education, certification, and language skills required for each of these positions;
  - An analysis of number of Nunavummiut with the required skills, knowledge and experience available for employment in these positions;

- If Inuit employment goals are set, a sub analysis of number of Inuit with required skills, knowledge and experience available for employment in these positions;
  - An estimate of annual intakes and anticipated turnover required to meet employment goals;
  - An outline of training strategies appropriate for addressing each category of identified training need. These will include institutional programs, apprenticeship programs, mentorships, other structured on-the-job training, distance education programs, self contained learning modules, self directed learning approaches, job placements, etc.
- Findings from this preliminary needs analysis will be submitted to the NBDC Board of Directors for review.

### **Phase Three: Research**

- NBDC will compile a list of training and educational programs available to meet the range of needs identified in needs analysis. These will include:
  - Secondary school courses currently being taught;
  - Applicable Arctic College programs;
  - Other Nunavut-based institutional programs;
  - Programs outside Nunavut;
  - Programs available through distance learning;
  - Programs and training materials available through private sector trainers and training firms;
  - Other teaching, training and learning resources.
- NBDC will identify and analyze comparable ICT sectoral training strategies used successfully in Nunavut, NWT or other regions, identifying lessons learned and best practices.
- NBDC will identify federal, territorial, Inuit, Aboriginal, private sector, foundation and any other potential sources of funding for training, and determine funding levels, history, criteria, etc.
- As part of the overall needs assessment process, NBDC will identify current training needs (management, operational, and governance) within NBDC itself.

### **Phase Four: Training Planning and Budgeting**

The initial three phases will provide input for the creation of a five-year training plan to support the overall goals of NBDC.

While details of the training plan will be contingent on the outcome of the initial project phases, the training plan will include at least the following elements:

- List, description and estimated number of positions likely to be required to meet the needs defined through prior research;
- Analysis of the anticipated need for training associated with filling those positions;
- Description of existing programs or training resources available to meet those needs;
- Definition of detailed learning objectives based on job descriptions and skills/knowledge analyses;
- Identification of needs, or categories of need, which cannot be met by existing programs or resources;
- Recommendations for new programs based on the identified gap in training programs and resources;
- Definition of long term and annual output objectives for both training and positions;
- Recommendations for training strategies addressing all potential areas of training need. Depending on the findings of the initial research phases, these may include:
  - Technical Training:
    - Orientation to broadband technology and applications;
    - Computer skills (to use all kinds of software);
    - Broadband installation and support (satellite and wireless systems);
    - Networking;
    - Product lines;
    - Inuktitut computer tools utilization and support;
    - Website development;
    - Servicing and maintenance;
    - Web utilization for research, sales, marketing, etc.;
  - Business Training:
    - Basic management skills (HR, business planning, financial management, supervision, marketing);
    - Sales;
    - Use of on-line services and applications in business;
    - Accessing funds for business development;
    - Basic business law;
    - Basic telecommunications law, regulations;
    - Governance principles;

- Sector-Specific Applications of the Technology:
  - Media production (media arts of all kinds – web sites, video, radio etc.);
  - Training applications;
  - Educational applications;
  - Designing training for distance delivery;
  - Training for Trainers;
  - Business training in contracting in the high tech sector;
  - Developing/expanding businesses on line;
  - Use of internet technology in the cultural sector;
  - Incorporating Inuktitut in broadband services;
  - Use of Internet technology in government/NGOs;
  - Use of Internet technology as a tool for community-based political and social development.

### **Phase Five: Governance and Management Plan**

The Training Strategy will incorporate recommendations for a management structure to coordinate the initial and annual preparation, implementation, management and evaluation of training plans and their implementation, to periodically review and adjust the five year plan, and to report as required to funders, member organizations, and the public at large.

It is anticipated that some of the responsibilities will be taken on by the NBDC itself. Others will be handled by individual service providers, Arctic College, Government Departments, or other stakeholders. As part of the planning process, however, recommendations on responsibility for each of the following program elements will be developed for discussion with potential partners in implementation:

- Design and establishment of the planning/administration structure and systems necessary to develop, implement, monitor and evaluate the five-year Training Strategy;
- Monitor legislation, regulations or programs that may impact on training to support broadband service and applications, and represent the sector's interests in policy discussions;
- Maintain resources on the sector, including:
  - Employment and training statistics;
  - Information on programs, resources, institutions, and individuals delivering training;
  - Information on potential funding sources for training to support broadband service and applications;
- Promote and support training for employment in the ICT sector;
- Promote and support the use of Inuktitut in the ICT sector;

- Seek to ensure that the needs of the sector are considered when academic institutions in Nunavut are establishing program plans and priorities;
- Establish any standards, policies, procedures and systems required for effective implementation of training initiatives;
- Facilitate the development of an annual multi-sectoral Training Plan to implement the recommendations of the Training Strategy;
- Assess Training Strategy outcomes and adjust, when required, to achieve strategic goals.

The Training Strategy will provide NBDC with corporate and structural options for undertaking this work, with an analysis of the costs and benefits of each option.

### **3.4.3 Anticipated Outcomes and Benefits to Nunavut**

The NBDC Business Plan details a number of immediate benefits anticipated as a result of deployment of a broadband infrastructure. These include:

1. Strengthening local, regional and territorial employment in government, NGOs and the private sector by increasing the number of trained, work-ready people in the labour pool;
2. Promoting career development through enhanced access to education and training for employees;
3. Strengthening northern business through expansion of markets into the south and internationally, access to better prices on goods, materials and services;
4. Enhancing the quality of service, management, administration and governance activities across Nunavut;
5. Enhancing the opportunities to use Inuktitut as the working language within the ICT sector;
6. Promoting and enhancing Inuit culture by distribution of broadcast and film products, enhanced communication between elders, translators, and cultural workers, and the opportunity for communication in media uniquely appropriate for Nunavut's oral culture;
7. Providing better access for all Nunavummiut to government and private sector programs and services.

These and other anticipated outcomes are explored in greater detail in the Business Plan. By supporting the Plan, the Training Strategy will contribute to the achievement of these objectives. But the Training Strategy will, in and of itself, create added benefit by:

- Creating a network of informed stakeholders who combine both training and subject matter expertise;
- Developing an effective, replicable model for sectoral training development, delivery and coordination, utilizing broadband services and applications;

- Providing accurate, up to date sectoral data on employment and training to planners and policymakers in government, businesses and NGOs;
- Supporting other key government program goals and policy initiatives, including the Inuit pre-employment training and employment goals of the Governments of Nunavut and Canada.

## **4 Language and Cultural Considerations**

This section emphasizes the importance and implications of integrating appropriate language and cultural considerations into all aspects of training, including the vision of inclusion, applications and technical considerations.

### **4.1 The Need for ICT to Support Language and Culture**

Many past ICT initiatives have focused on the capacity of new technologies to provide northerners with greater access to Southern information resources and, by implication, to the acculturating influence of the Qallunaat world. By contrast, the NBDC Business Plan and Training Strategy intends to integrate Inuit Qaujimaqatuqanginnut with all ICT training and activities, and use the indigenous culture of Nunavut as the directing principle behind the technology – a reversal of the usual state of affairs. This commitment reflects and supports the Nunavut Government’s officially stated goal of having I.Q. as the foundation of “all we do” (Bathurst Mandate, Government of Nunavut, 2000).

Realizing the potential of ICT as a tool for preservation and promotion of Inuktitut and of Inuit culture is one of the core goals of both the Business Plan and the Training Strategy, and must be considered and reflected at each stage of planning and implementation.

### **4.2 Applications to support culture.**

Broadband facilitates the use of applications that support oral and visual communication – those that rely more on visuals and sound, and less on text. Such applications are ideally suited for use in Nunavut, a territory built on the oral-visual culture of the Inuit. The Training Strategy will emphasize both *teaching* people how to use oral-visual applications, and *using* oral-visual applications in delivering training both in person and by distance. This emphasis on the centrality of Nunavut’s tradition of oral communication goes far beyond literacy; it will shape and inform every aspect of broadband use in the territory.

### **4.3 Syllabic Unicode issues**

Inuktitut syllabics are now part of the Unicode Canadian Aboriginal Syllabics character set. Many applications support Unicode, but not all. In order to ensure that Inuktitut syllabics are fully supported in the introduction of ICT Nunavut, training will emphasize the use and development of applications that can utilize Unicode, and provide learners with opportunities to use the tools that exist, as well as those that will develop over time. As Inuktitut syllabic tools evolve, they will be made available to training institutions and members of the public.

## 5 Partnerships

### 5.1 Content development

A broad variety of post-secondary, professional development, and skills upgrading programs are available in Nunavut. Multi-year programs such as Law, Nursing and Teaching are delivered through Nunavut Arctic College (NAC) and affiliated universities. Professional development and skills upgrading are delivered through community learning centres, or on an as-needed basis under various local organizations.

Distance Learning content, especially in the area of Information and Communications Technologies (ICT), is widely available from a large number of sources world wide, but is often not appropriate for delivery in Nunavut. Effective training in any context must reflect the learner's language, culture and learning style; development of Nunavut-specific training materials to support both broadband services and wider use of its applications will therefore be an area of tremendous importance and potential.

**Education Nunavut** is in the process of developing the K – 12 curriculum. It is expected that Information and Communications Technologies will be built into the curriculum. At the high school level, most Career and Technology (CTS) courses will benefit from improved telecommunications.

Encouraging precedents exist for the development of home-grown Nunavut content. Under the **GrassRoots Program**, teachers have facilitated as students developed collaborative Web projects. Under the **Computers for Schools** program, high school students refurbish donated computers for use in schools and libraries. Within the school workshop, students acquire technical skills, and are given the choice of writing the A+ certification exam. In 2003, students began the process of developing a skills database, to be made available on CD or via the Web. Refurbished computers provide a cost effective method of expanding other ICT programs within the school as well.

For two years, Education Nunavut has also experimented with a high speed CA\*Net4 link in Iqaluit. As a partner in MusicGrid, funded by Canarie, students in Iqaluit participate in virtual musical performances for and with students from partner schools across Canada.

**Arctic College** has undertaken a number of distance delivery programs, including their award-winning collaboration with ATII in 1993 on Management Training: their success, however, has been limited by network and bandwidth restrictions.

#### Potential Formal Partner(s):

- Department of Education and Nunavut Arctic College;

**Potential Informal Partner(s):**

- Organizations and individuals developing community and organization specific content;
- Private sector training developers;
- Community Access Program training developers.

**5.2 Delivery**

Content delivery in Nunavut is probably most frequently achieved by physically assembling interested parties (“face to face”) with an expert instructor. Although the favoured approach, this method is cost prohibitive and not efficient for “just in time” learning.

For those with computer and network access, limited bandwidth is itself a barrier. Distance learning is limited to little more than e-mail exchanges.

Experienced educators emphasized that local resources and content are important, but the ideal model when offering and increasing the number of programs, especially with several courses, is to use a central “expert” with local facilitators. Point to point videoconferencing is the tool suggested for success of this model. The use of videoconferencing and other communications applications was also identified as being useful for “just in time” learning and collaboration.

**Potential Partner(s):**

- Department of Education and Nunavut Arctic College
- Private sector and NGO training organizations in Nunavut

**5.3 Funding**

Organizations polled recognized the need to identify and increase funds for ICT training and activities. Currently few organizations are able to afford increased bandwidth, acquire appropriate technology, and then train individuals to use the technology. Each however recognized their goals could be met, to an extent, through partnership with other organizations. Respondents felt access and use of communications technologies should be built into core operating budgets.

There are several potential sources of support for the design, delivery, evaluation and coordination of ICT and related training.

A number of Federal Departments provide funds for training and development in Aboriginal communities and regions. Human Resources Development Canada (HRDC) is the principal provider of such funding. Through its Aboriginal Human Resources Development Agreements, HRDC are flowed through a network of

Inuit organizations mandated to support economic and business development, and training. These include Kakivak Association (Qikiqtaani Region), Kivalliq Partners in Development (Kivalliq Region) and Kitikmeot Development Corporation (Kitikmeot Region) are important funders of training for Inuit. Others programs of potential interest include the INAC Community Economic Development Program, NTI's Nunavut Sivummut Program, and various Government of Nunavut funding programs to support small business.

The Nunavut Implementation Training Committee (NITC) administers a \$13.M fund created to support training within land claims-related Inuit organizations and institutions of public government within Nunavut.

The Broadband Training Strategy will incorporate an analysis of these potential sources, as well as other federal, territorial, Land Claims, foundation and private sector sources.

**Potential Partner(s):**

- Department of Education and Nunavut Arctic College.
- Human Resources Development Canada
- Indian and Northern Affairs Canada
- Department of Canadian Heritage
- Department of Economic Development, GN
- Department of Education, GN
- Department of Culture, Language, Elders and Youth, GN
- Kakivak Association
- Kivalliq Partners in Development
- Kitikmeot Development Corporation
- Nunavut Implementation Training Committee

**5.4 Coordination**

No single organization in Nunavut is in a position to fundraise for, design, deliver and coordinate training to support use of broadband access and applications. Given the scope and scale of need, the common goals shared by users, and the limited budgets available for training and education, the preferred route to advancing broadband rollout and use of related information and communications technologies is to pool resources and expertise. One respondent from Arctic College envisions Nunavut as “one learning community or environment”. The majority of respondents also felt strongly that technologies should be common, and interoperable.

Each organization identified some unique needs, but resoundingly endorsed the assumption of the “Broadband Training Coordinator” by NBDC. A number of organizations identified existing assets available, in the form of labour market studies and internal skills inventories: virtually all indicated their interest in supporting the development of the Training Strategy, and in working as partners on its eventual implementation.

## **6 Next Steps**

This Section outlines, assigns and provides a tentative schedule for the steps required to implement the process described in this discussion paper.

### **6.1 Schedule**

Initial training plan overview document:	March 31, 2004
Issue RFP to conduct the plan:	April 15, 2004
5-year training plan research starts:	May 30, 2004
Interim Report on research findings	Sept. 15, 2004
Completion of draft plan for review:	November 30, 2004
Completion of approved training plan:	February 28, 2005

### **6.2 Budget**

Approximately \$100,000 has been budgeted for the development of the training plan. An RFP will be developed and issued, inviting qualified firms and individuals to submit proposals to undertake the work.

## 7 Appendices

### 7.1 Nunavut Broadband Business Plan Submission: Executive Summary

### 7.2 Contacts

#### 7.2.1 Interview Respondents

- Brown, Jason Director, Customized Training, NAC
- Campbell, Malcolm IT Coordinator, Qikiqtani School Operations
- Cowan, Cindy Director, Academic Studies, Trades & Community Programs, NAC
- Hicks, Louise A/Chief Executive Officer, Kivalliq Partners in Development
- Horn, Murray Director, Corporate Services, Education Nunavut
- Illaszewicz, George Supervisor of Schools, Kitikmeot School Operations
- Kusugak, Lorne Chief Executive Officer, Nunavut Implementation Training Committee
- Ludlow, Anita Coordinator, Health Sciences Programs, NAC
- Macleod, Brian Executive Director, Kakivak Association
- Minnis, William Manager, Information Technology Services, NAC
- Smith, David Nunavut Broadband Development Corporation
- Spence-Vinge, Bonnie Executive Director, Kivalliq School Operations
- Suluk, Joy Director, Adult Education, Education Nunavut
- Thomas, Lorraine Nunavut Broadband Development Corporation

#### 7.2.2 Document Prepared By:

- Neil Burgess, owls-head.ca Consulting
- Terry Rudden, Aarluk Consulting Inc.

### 7.3 Key Reference Documents

#### Background documents on this initiative include:

- Report of the Nunavut Broadband Task Force (Inuktitut) at <http://www.nunavut-broadband.ca/bbinuk.pdf>
- Report of the Nunavut Broadband Task Force (English) at [http://www.nunavut-broadband.ca/broadband\\_e.pdf](http://www.nunavut-broadband.ca/broadband_e.pdf)
- Homepage of the Nunavut Broadband Development Corporation at <http://www.nunavut-broadband.ca/>
- Bylaws of the NBDC at [http://www.nunavut-broadband.ca/Bylaw\\_Number\\_2-031104.pdf](http://www.nunavut-broadband.ca/Bylaw_Number_2-031104.pdf)
- NBDC Business Plan, at <http://www.e-serve.com/NBDC/NBDC-BusinessPlan-030606/NBDC-BusinessPlan-030612.pdf>
- Executive Summary of the NBDC Business Plan, at <http://www.e-serve.com/NBDC/NBDC-BusinessPlan-030606/NBDC-ExecutiveSummary-030612.pdf>

#### Online resources relating to language include:

- An introduction to Unicode Canadian Aboriginal Syllabics, at: <http://www.wats.ca/resources/unifiedcanadianaboriginalsyllabics/36>
- A profile of the Aboriginal Languages Initiative of the Department of Canadian Heritage, at [http://www.pch.gc.ca/progs/pa-app/progs/ila-ali/index\\_e.cfm](http://www.pch.gc.ca/progs/pa-app/progs/ila-ali/index_e.cfm)
- A directory of online Federal resources relating to Aboriginal languages in Canada, at: <http://culturecanada.gc.ca/chdt/interface/interface2.nsf/engdocBasic/9.3.html>
- Fonts, keyboard drivers and utilities: <http://www.multedata.ca/downloads.htm>
- Living Dictionary: <http://www.livingdictionary.com/>