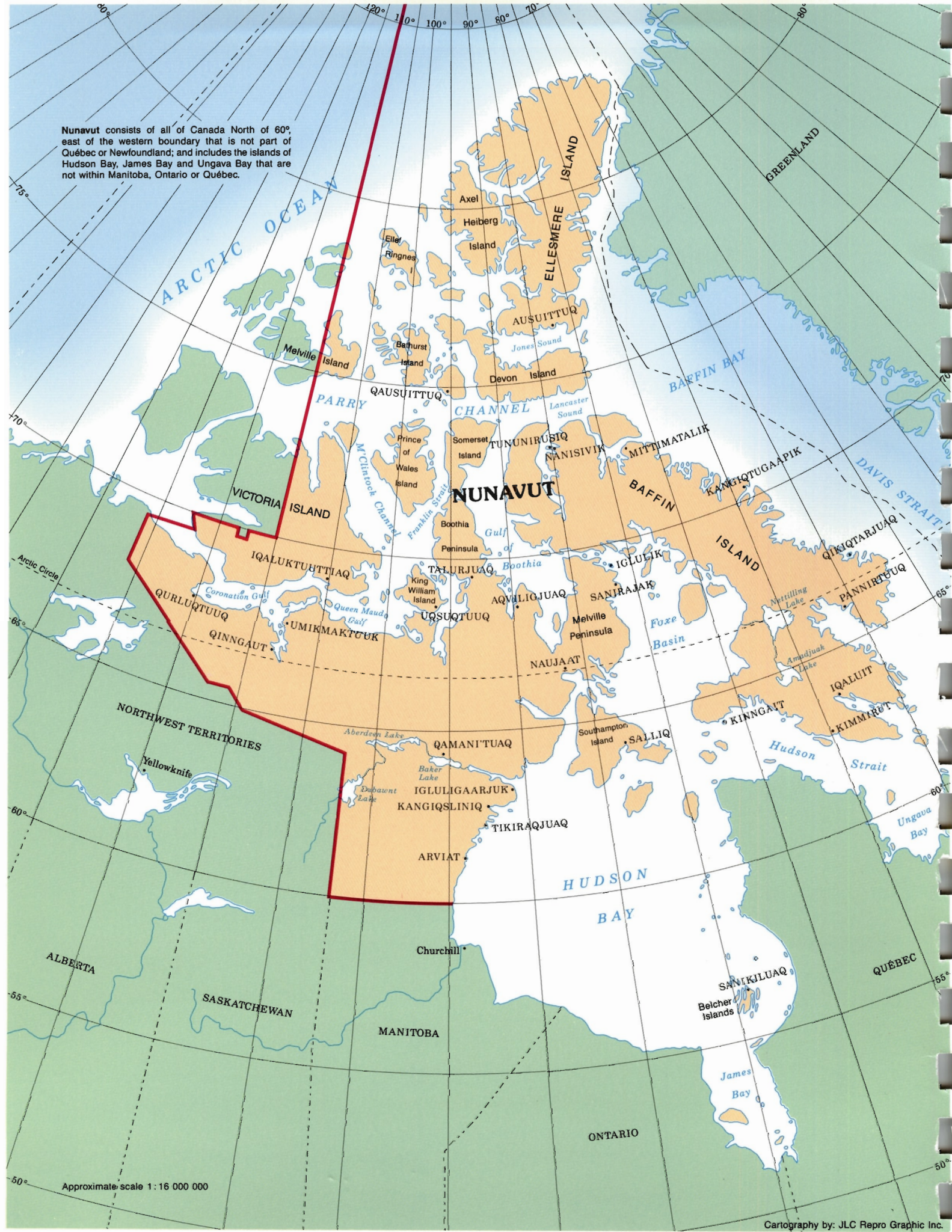




Nunavut Implementation Commission

Nunavut consists of all of Canada North of 60° east of the western boundary that is not part of Québec or Newfoundland; and includes the islands of Hudson Bay, James Bay and Ungava Bay that are not within Manitoba, Ontario or Québec.

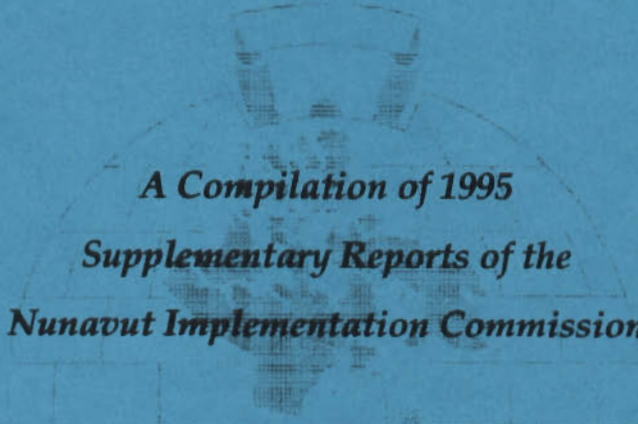


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Cartography by: JLC Repro Graphic Inc.

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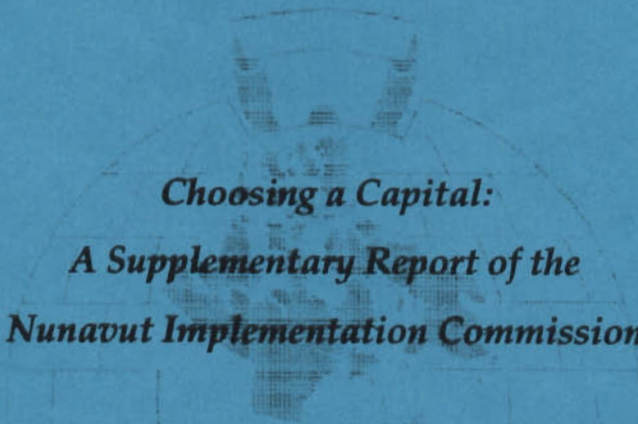


*A Compilation of 1995
Supplementary Reports of the
Nunavut Implementation Commission*

June 30, 1996

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*Choosing a Capital:
A Supplementary Report of the
Nunavut Implementation Commission*

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Nunavut Hivumukpalianikhaagut Katimayit
Nunavut Implementation Commission
Commission d'établissement du Nunavut

June 30, 1995

The Hon. Ron Irwin,
Minister,
Department of Indian Affairs and
Northern Development,
Ottawa, Ontario

The Hon. Nellie Cournoyea,
Government Leader,
Government of the Northwest Territories,
Yellowknife, NWT

Mr. Jose Kusugak,
President,
Nunavut Tunngavik Incorporated,
Iqaluit, NWT

Dear Mr. Irwin, Ms. Cournoyea, and Mr. Kusugak,

On behalf of the Nunavut Implementation Commission (NIC), I am writing to you further to my letter of May 24, 1995. You will recall that the Commission letter of that date was written in association with the public release of the NIC report entitled **"Footprints in New Snow"**. In its letter, the Commission undertook to supply you with a supplementary report offering

" ... further analysis and advice with respect to the comparative advantages of Cambridge Bay, Iqaluit and Rankin Inlet as capital of Nunavut based on a detailed examination of objective factors, particularly, set up and operational costs, and compatibility with overall decentralization of government operations. The Commission will submit this report to the three parties by June 30, 1995."

The supplementary report accompanying this letter of transmittal, entitled **"Choosing a Capital"**, is in fulfilment of the Commission's undertaking to you in this respect.

While you and your officials will, no doubt, wish to review the contents of the report in depth, the Commission would like to emphasize two things about the report in particular.

The first thing to be emphasized is that the Commission went about developing the report with a view to identifying and evaluating relevant, objective, and quantifiable comparisons among the three design models for the organization of the Nunavut Government set out in "Footprints in New Snow".

The second thing to be emphasized is the overall results of the analysis provided by the report; these are set out in the concluding words of the report:

"Overall Results

It is possible to tabulate the conclusions discussed above in the following way:

Factor	Best Model
Decentralization	Iqaluit Model
Demographic and Related Social Impacts	Iqaluit Model
Costs	Iqaluit Model*
Infrastructure Considerations	Equal results
Geographic Position	Equal results
Regional Support	Equal results**
Climate	Equal results

* One time costs associated with Iqaluit are somewhat lower than for Cambridge Bay and Rankin Inlet. Operating costs for Cambridge Bay are somewhat higher than for the other two communities.

** An equal level of regional support for each of the three potential capital locations is, due to the larger population of the Baffin region, likely to translate into a higher level of popular result for Iqaluit on a Nunavut-wide basis.


Considering all the factors, it is apparent that the three design models, with their alternate capital locations, are equal in more respects than not. It is also apparent that, insofar as differences do emerge, the factors of decentralization, demographic and related social impacts, and costs, give Iqaluit the best overall results."

On the basis of these overall results, the Commission has concluded that, while the Iqaluit Model emerges as best in several important respects, many factors place Cambridge, Iqaluit and Rankin Inlet on an equivalent footing. Accordingly, the choice of capital should be properly understood as fundamentally a matter of political choice, not technical merit. The Nunavut Act acknowledges this reality, and reserves the choice of capital to the federal Cabinet.

Commissioners would welcome meeting with you, at your earliest convenience, to discuss the report and other issues relevant to the creation of the Nunavut Government.

I look forward to hearing from you.

Sincerely,



John Amagoalik,
Chairperson

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- Appendix 2: Appendix 14 from "Footprints in New Snow"
- Appendix 3: Charts Depicting the Expansion Capabilities of Cambridge Bay, Iqaluit and Rankin Inlet in Relation to Population Influx Levels

PART I: INTRODUCTION

Under section 58 of the **Nunavut Act**, the mandate of the Commission is to advise on

"58...(d) the process for determining the location of the seat of government of Nunavut...."

In pursuit of that mandate, the Nunavut Implementation Commission (the NIC) made a number of recommendations with respect to selection of a capital in its comprehensive report, "**Footprints in New Snow**" (Recommendations #9-1 to #9-6). These recommendations can be summarized as follows:

- * each of the regions in Nunavut should be equipped with facilities allowing the Nunavut Legislative Assembly to sit in each region on a regular basis;
- * selection of the capital for Nunavut should be made in the context of overall efforts to create a highly decentralized Nunavut government;
- * selection of the capital should be based on a number of objective factors;
- * selection of the capital should be confined to Cambridge Bay, Iqaluit or Rankin Inlet;
- * the federal Cabinet, exercising its statutory discretion under the **Nunavut Act**, should select the capital at its first opportunity of reviewing Nunavut issues; and,
- * no plebiscite should be held in Nunavut to guide the selection of capital.

In response to its report, "**Footprints in New Snow**", the NIC received some early indications from the Government of Canada, the Government of the Northwest Territories (the GNWT), and Nunavut Tunngavik Incorporated (NTI) that they would welcome further advice from the NIC on the matter of Nunavut's capital. These early indications were followed up by a letter on May 4, 1995, from Mr. Ken Wyman, Associate Director, Northern Affairs Program, Department of Indian Affairs and Northern Development (DIAND), to Mr. Simon Awa, Executive Director of NIC. Mr. Wyman's letter, written on behalf of the Government of Canada, the GNWT and NTI ("the parties"), made the following point:

" In narrowing options for the selection of the capital of Nunavut, the Commission recommends criteria to be used in the selection process. The parties feel it is important for the Commission to provide additional clarification on the criteria and some relevant weighting to aid in the process of analysis."

The NIC responded to this letter in correspondence to the three parties dated May 24, 1995. In its letter of that date, the NIC undertook to complete two supplementary reports in support of the comprehensive report, "**Footprints in New Snow**". In relation to the matter of Nunavut's capital, the NIC committed itself to prepare a supplementary report that would offer

"... further analysis and advice with respect to the comparative advantages of Cambridge Bay, Iqaluit and Rankin Inlet as capital of Nunavut based on a detailed examination of objective factors, particularly, set up and operational costs, and compatibility with overall decentralization of government operations. The Commission will submit this report to the three parties by June 30, 1995."

This supplementary report is in fulfilment of the Commission's undertaking as set out in its letter of May 24, 1995. The correspondence of May 4 and May 24, 1995, is attached as **Appendix 1**.

PART II: FACTORS

Section 1. Identification of Factors

In Recommendation #9-3 of its comprehensive report, **"Footprints in New Snow"**, the NIC advised as follows:

"9.3 The NIC recommends that the selection of capital for Nunavut be based on the following factors:

1. existing infrastructure, services and amenities;
2. potential for additional infrastructure, services and amenities;
3. existing and potential transportation links within Nunavut and outside Nunavut;
4. cost of living in the community;
5. position/accessibility within the overall circumpolar region;
6. attitude of the population of the community, taking into account its social, cultural and economic priorities;
7. the extent of regional support; and
8. climate."

Application of these factors, particularly the first four, resulted in Recommendation #9-4 of **"Footprints in New Snow"**, namely, the recommendation that the selection of the capital be confined to Cambridge Bay, Iqaluit or Rankin Inlet.

Application of the factors listed in Recommendation #9-4 of the **"Footprints in New Snow"** report has been key to reducing the number of suitable candidate communities to a workable number and has allowed the NIC to concentrate on three distinct models of organizational design for the Nunavut Government: one based on Cambridge Bay as capital; one based on Iqaluit as capital; and, one based on Rankin Inlet as capital. Application of the factors has been less helpful in allowing the NIC to develop meaningful, quantifiable comparisons as to the relative advantages and disadvantages associated with the Cambridge Bay, Iqaluit and Rankin Inlet Models.

Development of meaningful, quantifiable comparisons as to the relative advantages and disadvantages of the three models has required the NIC to look at two considerations which, while not

explicitly set out in Recommendation #9-4 of "**Footprints in New Snow**", run right through that report. As indicated in the NIC's letter to the Government of Canada, the GNWT and NTI dated May 24, 1995, these considerations are

- * compatibility with overall decentralization of government operations, and
- * set up and operational costs of the Nunavut Government.

Accordingly, in developing this supplementary report, the NIC has devoted a great deal of attention to these two considerations, as well as attempted to offer some comments on factors previously identified in Recommendation #9-4 of the "**Footprints in New Snow**" report.

Section 2. Decentralization

Subsection (i). Introduction

There are a number of compelling reasons to adopt a decentralized approach to the design of the Nunavut Government. They include the following:

- * to make government as close to the public as possible;
- * to distribute public sector employment opportunities and other economic benefits as widely as possible;
- * to recognize regional and community identities and allegiances within Nunavut;
- * to acknowledge variations in the severity of unemployment and other economic problems among communities in Nunavut;
- * to minimize adverse social impacts that might accompany excessive growth in any particular community; and,
- * to encourage a healthy and visible private sector dimension to regional and community economies.

These reasons favour a high degree of decentralization. Other factors impose practical limits on how far decentralization can be taken. Among such limiting factors are the following:

- * the need to maintain organizational coherence (the Nunavut Government cannot function coherently if "atomized" into an infinite number of tiny parts);
- * the need to realize economies of scale in the setting up and operation of the Nunavut Government;
- * the need to acknowledge significant variations in construction and living costs; and,
- * the reality that certain major facilities serving a large proportion of the Nunavut population are already in place (e.g. the Baffin Correctional Centre).

For both organizational and financial reasons, these limiting factors have to be built into any effort to bring about a decentralized public administration in Nunavut.

As identified in "**Footprints in New Snow**", there are a number of techniques that can be employed, individually and in combination, to bring about a greater degree of decentralization. These include:

- * the location of some headquarters functions of the Government in communities throughout the regions;
- * the location of various semi-autonomous boards, agencies, commissions and corporations in communities throughout the regions;
- * the location of some territorial and regional facilities, both existing and as required in future years, in communities throughout the regions;
- * the establishment of both regional offices and auxiliary regional offices in each administrative region of Nunavut;
- * the further decentralization of some headquarters positions to regional offices and auxiliary regional offices; and,
- * the stipulation that the community that is selected to be the capital should not continue to be a regional centre as well; regional offices currently located in that community should move out to other communities in that region.

In Chapter 5 of "**Footprints in New Snow**", the NIC used these techniques to flesh out three models for the organization of the Nunavut Government based on the possibility of the capital being situated in Cambridge Bay, Iqaluit or Rankin Inlet. Each of these decentralized models is "regionalized", insofar as each contemplates a re-ordering of the current regional operations of the territorial government as well as the placement of departmental headquarters in the capital of Nunavut. The possibilities for re-ordering current regional operations in the future is influenced to a considerable extent by the current degree of concentration of employment positions in regional centres; in this regard, the Baffin Region stands out from the other two regions with respect to its heavy concentration of existing employment positions in the regional centre of Iqaluit.

Subsection (ii). Comparisons

In "**Footprints in New Snow**", the NIC provided some comparisons concerning various features and impacts of the three design models. Most of these comparisons were illustrated through a series of bar charts set out in Appendix 14 of that report. While these comparisons were illustrated in Appendix 14, the NIC did not make explicit extrapolations from Appendix 14 about which of the three design models would best serve specific decentralization objectives. For the purpose of providing as many meaningful, quantifiable comparisons as possible concerning the decentralization advantages and disadvantages of the three models, the NIC has carried out the following:

- * an analysis of the comparisons that flow from the information set out in Appendix 14 (paragraphs (a) to (l) below); and,
- * a presentation of additional decentralization comparisons among the three models which, while not set out in Appendix 14, provide useful insight into the comparative advantages and disadvantages of the three models (paragraph (m) below).

It should be noted that the comparisons set out in the following subsection do not take into account population increases in the private sector that would result from the creation of new Nunavut Government jobs. Price Waterhouse Management Consultants estimated a multiplier of 0.4 to be reasonable in calculating the number of additional federal government and private sector jobs resulting from new Nunavut Government jobs. There is no reason to suppose that factoring in this multiplier would change the comparative decentralization advantages and disadvantages of the three candidate communities for capital.

Appendix 14 of "**Footprints in New Snow**" is appended to this supplementary report as **Appendix 2**.

(a) Net Change in Number of Territorial Government FTEs
(page A-14.4)

Background

In 1991, the Baffin Region population was 53% (11,385) of the population of Nunavut, the Keewatin 27% (5,834), and the Kitikmeot 20% (4,325). A proportional regional distribution of FTEs would result in the Baffin Region getting 318, the Keewatin Region 162, and the Kitikmeot Region 120.

Cambridge Bay as Capital

If Cambridge Bay were to be chosen as the capital, there would be an increase of 404 FTEs in the Kitikmeot Region, of which 255 would be located in Cambridge Bay. FTEs in Coppermine would increase by 97 and in Gjoa Haven by 52.

The effect of this model upon the Keewatin Region would be a gain of 41 FTEs. In the case of the current regional centre, Rankin Inlet, it would mean a loss of 3 FTEs. Baker Lake would gain 17 FTEs and Arviat 27.

The effect of this model upon the Baffin Region would be a gain of 155 FTEs. In the case of the current regional centre, Iqaluit, it would mean an increase of 2.5 FTEs. Cape Dorset would gain 8, Igloolik 66.5, Pangnirtung 41, and Pond Inlet 37 FTEs.

Iqaluit as Capital

If Iqaluit were to be chosen as the capital, there would be an increase of 416.5 FTEs in the Baffin Region, of which 99 would be located in Iqaluit. FTEs in Cape Dorset would increase by 67, Igloolik by 93.5, Pangnirtung by 80, and Pond Inlet by 77.

The effect of this model upon the Kitikmeot Region would be a gain of 67 FTEs. In the case of the current regional centre, Cambridge Bay, there would be an increase of 29 FTEs. Coppermine would gain 33 FTEs and Gjoa Haven 5.

The effect of this model upon the Keewatin Region would be a gain of 116.5 FTEs. In the case of the current regional centre, Rankin Inlet, it would mean an increase of 33.5 FTEs. Baker Lake would gain 28 FTEs and Arviat 55.

Rankin Inlet as Capital

If Rankin Inlet were to be chosen as the capital, there would be an increase of 391 FTEs in the Keewatin Region, of which 216 would be located in Rankin Inlet. FTEs in Baker Lake would

increase by 99 and Arviat by 76.

The effect of this model upon the Kitikmeot Region would be a gain of 51 FTEs. In the case of the current regional centre, Cambridge Bay, it would mean an increase of 15 FTEs. Coppermine would gain 36 FTEs. Unlike in the Cambridge Bay and Iqaluit Models, Gjoa Haven would not gain any FTEs.

The effect of this model upon the Baffin Region would be a gain of 158 FTEs. In the case of the current regional centre, Iqaluit, it would mean an increase of 2.5 FTEs. Igloolik would gain 61.5 FTEs, Pangnirtung 41, and Pond Inlet 53. Unlike in the Cambridge Bay and Iqaluit Models, Cape Dorset would not gain any FTEs.

Discussion

If Cambridge Bay were chosen as the capital, there would be an increase of 404 FTEs in the Kitikmeot Region, 155 FTEs in the Baffin Region, and 41 FTEs in the Keewatin Region. The current regional centre of Iqaluit would gain 2.5 FTEs, while the regional centre of Rankin Inlet would lose 3 FTEs.

If Iqaluit were chosen as the capital, there would be an increase of 416.5 FTEs in the Baffin Region, 67 FTEs in the Kitikmeot Region, and 116.5 in the Keewatin Region. The current regional centres of Cambridge Bay and Rankin Inlet would gain 29 and 33.5 FTEs, respectively.

If Rankin Inlet were chosen as the capital, there would be an increase of 391 FTEs in the Keewatin Region, 51 FTEs in the Kitikmeot Region, and 158 in the Baffin Region. The current regional centres of Cambridge Bay and Iqaluit would gain 2.5 and 15 FTEs respectively. In this model, neither Gjoa Haven nor Cape Dorset would gain any FTEs.

Specific Comparisons

Examination of page A-14.4 reveals an obvious difference: the bar chart for the Iqaluit Model is much "flatter" than for the other two models. This would appear to indicate that the Iqaluit Model is more effective at avoiding a concentration of new FTEs in one community. A number of quantitative comparisons can be made to test this assessment.

Decentralization Comparison #1

Largest number of new FTEs in a single community:

Cambridge Bay Model	252	(CB)
Iqaluit Model	99	(Iq)
Rankin Inlet Model	216	(RI)

With an objective of minimizing the number of FTEs to be located in any single community, the Iqaluit Model is best.

Decentralization Comparison #2

Difference between regional centre gaining the most FTEs and regional centre gaining the fewest (losing the most):

Cambridge Bay Model	258	(CB 255/RI -3)
Iqaluit Model	70	(Iq 99/CB 29)
Rankin Inlet Model	213.5	(RI 216/Iq 2.5)

With an objective of minimizing the gap in FTE gains (losses) among regional centres, the Iqaluit Model is best.

Decentralization Comparison #3

Difference between region gaining the most FTEs and region gaining the fewest:

Cambridge Bay Model	363	(Kt 404/Kw 41)
Iqaluit Model	349.5	(Bf 416.5/Kt 67)
Rankin Inlet	340	(Kw 391/Kt 51)

With an objective of minimizing the difference between the region gaining the most FTEs and the region gaining the fewest, the Rankin Inlet Model is best.

Decentralization Comparison #4

Number of FTEs located outside capital and (new) regional centres:

Cambridge Bay Model	248.5	(excl. CB, Coppermine, Iq, RI)
Iqaluit Model	345	(excl. CB, Iq, Igloolik, RI)
Rankin Inlet Model	267.5	(excl. CB, Iq, RI, Baker Lake)

With an objective of maximizing FTEs outside the capital and regional centres, the Iqaluit Model is best.

(b) Percentage Increase in the Number of Territorial Government FTEs (page A-14.5)

Cambridge Bay as Capital

If Cambridge Bay were to be chosen as the capital, there would be a 67.3% increase of FTEs in the Kitikmeot Region. A 116% increase would be experienced in the current regional centre of Cambridge Bay. Coppermine would experience a 62% increase and Gjoa Haven a 59% increase.

The effect of this model upon the Keewatin Region would be a 6.8% increase of FTEs. The current regional centre, Rankin Inlet, would have a 0.5% loss of FTEs. Baker Lake would experience an 11% increase and Arviat an 18% increase.

The effect of this model upon the Baffin region would be a 25.8% increase of FTEs. In the case of the current regional centre, Iqaluit, it would mean a 0.4% increase of FTEs. Cape Dorset would experience a 6% increase, Igloolik a 59% increase, Pangnirtung a 30% increase, and Pond Inlet a 30% increase.

Iqaluit as Capital

If Iqaluit were to be chosen as the capital, there would be a 69.4% increase of FTEs in the Baffin Region. A 12% increase would be experienced in the current regional centre of Iqaluit. Cape Dorset would experience a 54% increase, Igloolik an 82% increase, Pangnirtung a 59% increase, and Pond Inlet a 63% increase.

The effect of this model upon the Kitikmeot Region would be a 11.6% increase of FTEs. The current regional centre, Cambridge Bay, would have a 12% increase of FTEs. Coppermine would experience a 21% increase and Gjoa Haven a 6% increase.

The effect of this model upon the Keewatin Region would be a 19.4% increase of FTEs. The current regional centre, Rankin Inlet, would have a 10% increase of FTEs. Baker Lake would experience an 19% increase and Arviat a 37% increase.

Rankin Inlet as Capital

If Rankin Inlet were to be chosen as the capital, there would be a 65.5% increase of FTEs in the Keewatin Region. A 65% increase of FTEs would be experienced in the current regional centre of Rankin Inlet. Baker Lake would experience a 66% increase and Arviat a 52% increase.

The effect of this model upon the Kitikmeot region would be a 8.5% increase of FTEs. The current regional centre, Cambridge Bay, would have a 7% increase of FTEs. Coppermine would experience a 23% increase. Gjoa Haven, unlike in the Cambridge Bay and Iqaluit Models, would not experience any percentage increase.

The effect of this model upon the Baffin Region would be a 26.3% increase of FTEs. The current regional centre, Iqaluit, would have a 0.4% increase of FTEs. Igloolik would experience an 54% increase, Pangnirtung a 30% increase, and Pond Inlet a 44% increase of FTEs. Cape Dorset, unlike in the Cambridge Bay and Iqaluit Models, would not experience any percentage increase.

Discussion

If Cambridge Bay were chosen as the capital, there would be a 67.3% increase of FTEs in the Kitikmeot Region. A 116% increase of FTEs would be experienced in the current regional centre of Cambridge Bay. The Baffin Region would experience a 25.4% increase in FTEs, with the current regional centre of Iqaluit experiencing a 0.4% increase. The Keewatin Region would experience a 7.8% increase in FTEs, with the current regional centre of Rankin Inlet experiencing a 0.5% loss.

If Iqaluit were chosen as the capital, there would be a 69.4% increase in FTEs in the Baffin Region. A 12% increase would be experienced in the current regional centre of Iqaluit. The Kitikmeot Region would experience an increase of 11.6% in FTEs, with the current regional centre of Cambridge Bay experiencing a 12% increase. The Keewatin Region would experience a 19.4% increase in FTEs, with the current regional centre of Rankin Inlet experiencing a 10% increase.

If Rankin Inlet were chosen as the capital, there would be a 65.5% increase in FTEs in the Keewatin Region. A 65% increase in FTEs would be experienced in the current regional centre of Rankin Inlet. The Baffin Region would experience a 26.3% increase of FTEs, with a 0.4% increase being experienced in the current regional centre of Iqaluit. The Kitikmeot Region would experience a 8.5% increase in FTEs, with a 7% increase being experienced in the current regional centre of Cambridge Bay. In this model, neither Gjoa Haven nor Cape Dorset would experience any percentage increase in FTEs.

Specific Comparisons

Examination of page A-14.5 suggests wider swings in percentage increases in territorial government FTEs with respect to the Cambridge Bay Model than with respect to the other two models. Closer analysis reveals the following quantitative comparisons.

Decentralization Comparison #5

Largest percentage increase in the number of FTEs for any single community:

Cambridge Bay Model	116%	(CB)
Iqaluit Model	82%	(Igloolik)
Rankin Inlet Model	66%	(Baker Lake)

With an objective of minimizing the largest increase in the number of FTEs for any single community, the Rankin Inlet Model is best.

Decentralization Comparison #6

Spread in percentage increases in FTEs among three existing regional centres (Cambridge Bay, Iqaluit, Rankin Inlet):

Cambridge Bay Model	116%
Iqaluit Model	2%
Rankin Inlet Model	65%

With an objective of minimizing the spread in percentage increases in FTEs among the three existing regional centres, the Iqaluit Model is best.

Decentralization Comparison #7

Average percentage increase in FTEs in the capital and regional centres:

Cambridge Bay Model	44%	(CB, Iq, RI, Coppermine)
Iqaluit Model	29%	(CB, Iq, RI, Igloolik)
Rankin Inlet Model	34%	(CB, Iq, RI, Baker Lake)

With an objective of minimizing the average percentage increase in the capital and regional centres, the Iqaluit Model is best.

(c) **Estimated Population Growth (page A-14.6)**

Underlying Assumptions

The addition of 600 FTEs in Nunavut would result in an influx of 1,031 additional people (see pp. A-11.1, A-12.1 and A-13.1).

The percentage of FTEs recruited from the community in which positions are located is assumed to be 25%, regardless of the choice of capital. Twenty five percent of the new FTEs would come from other communities within Nunavut, and the remaining 50% would come from outside Nunavut (see p. A-17.3).

Calculation of the population influx to Nunavut is based on initial recruitment figures and the following facts and assumptions (see pp. A-17.3 and A-17.4):

- * the average household size (including married and single persons) for Nunavut Government headquarters FTEs is based on the 1991 Census of Canada; household size is assumed to be 4.2 for Nunavut hires and 2.7 for non-Nunavut hires (Canadian average);
- * the 6288 current GNWT employees include 549 known couples;
- * it is assumed that 0.4 additional private sector and federal government jobs will be created for every new Nunavut Government position;
- * the demographic impacts for private sector and federal government staff would be the same as for the Nunavut Government staff; the extent to which people in these positions have spouses also employed with the Nunavut Government has not been taken into account;
- * spouses of the Nunavut Government who fill new jobs in the federal and private sectors are assumed to be included in local hire percentages; and,
- * the impact of the influx in population (due to new headquarters and other positions) on the number of headquarters FTEs is assumed to be non-consequential.

Cambridge Bay as Model

If Cambridge Bay were to be chosen as the capital, the overall population would grow by 1080 people, of whom 682 would be located in the current regional centre of Cambridge Bay. The populations of Coppermine and Gjoa Haven would increase by 259 and 139 people, respectively.

The effect of this model upon the Baffin Region would be to increase the population by 415 people, of whom 7 would reside in the current regional centre of Iqaluit. Cape Dorset would grow by 21 people, Igloolik by 178 people, Pangnirtung by 110 people, and Pond Inlet by 99 people.

The effect of this model upon the Keewatin Region would be to increase its population by 117 people; no increase in the population of the current regional centre of Rankin Inlet is expected (there would be a loss of 3 FTEs). The populations of Baker Lake and Arviat would increase by 45 and 72 people, respectively.

Iqaluit as Capital

If Iqaluit were to be chosen as the capital, the population in the Baffin Region would increase by 1114 people, of whom 265 would be located in the current regional centre of Iqaluit. Cape Dorset would grow by 179 people, Igloolik by 250 people, Pangnirtung by 214 people and Pond Inlet by 206 people.

The effects of this model upon the Kitikmeot Region would be to increase the population by 179 people, of whom 78 would reside in the current regional centre of Cambridge Bay. The populations of Coppermine and Gjoa Haven would increase by 88 and 13 people respectively.

The effect of this model upon the Keewatin Region would be to increase the population by 312 people, of whom 90 people would reside in the current regional centre of Rankin Inlet. The populations of Baker Lake and Arviat would grow by 75 and 147 people respectively.

Rankin Inlet as Capital

If Rankin Inlet were to be chosen as the capital, the population in the Keewatin Region would increase by 1045 people, of whom 577 would be located in the current regional centre of Rankin Inlet. The populations of Baker Lake and Arviat would grow by 265 and 203 people, respectively.

The effects of this model upon the Kitikmeot Region would be to increase the population by 136 people, of whom 40 would reside in the current regional centre of Cambridge Bay. The population of Coppermine would increase by 96 people. No population growth would be experienced in Gjoa Haven.

The effect of this model upon the Baffin Region would be to increase the population by 423 people, of whom 7 people would reside in the current regional centre of Iqaluit. Igloolik

would grow by 164 people, Pangnirtung by 110 people and Pond Inlet by 142 people. No population growth would be experienced in Cape Dorset.

Discussion

If Cambridge Bay were chosen as the capital, the population in the Kitikmeot Region would grow by 1080 people, the population of the Baffin Region by 415, and the population of the Keewatin Region by 117. Of the regional totals, the current regional centres of Cambridge Bay and Iqaluit would increase by 682 and 7 people, respectively, while Rankin Inlet would experience no population increase (3 FTE loss).

If Iqaluit were chosen as the capital, the population of the Baffin region would increase by 1114 people, the population of the Kitikmeot Region by 179 people, and the population of the Keewatin Region by 312 people. Of the regional totals, the current regional centres of Iqaluit, Cambridge Bay and Rankin Inlet would increase by 265, 179 and 90 people, respectively.

If Rankin Inlet were chosen as the capital, the population in the Keewatin Region would increase by 1045 people, the population of the Kitikmeot Region by 136, and the population of the Baffin Region by 423 people. Of the regional totals, the current regional centres of Rankin Inlet, Cambridge Bay and Iqaluit would grow by 577, 40 and 7 people, respectively. In this model, neither Gjoa Haven nor Cape Dorset would experience any increase in population.

Specific Comparisons

Examination of page A-14.6 reveals a much flatter bar chart for Iqaluit than for the other two candidate communities for capital. More detailed examination provides the following quantitative results:

Decentralization Comparison #8

Largest population growth in a single community:

Cambridge Bay Model	682	(CB)
Iqaluit Model	265	(Iq)
Rankin Inlet	577	(RI)

With an objective of avoiding excessive growth in a single community, the Iqaluit Model is best.

Decentralization Comparison #9

Difference between the regional centre gaining the most population and the regional centre gaining the least:

Cambridge Bay Model	685	(CB 682/RI -3)
Iqaluit Model	177	(Iq 265/CB 78)
Rankin Inlet Model	570	(RI 577/Iq 7)

With an objective of minimizing the differences in population increases among the regional centres, the Iqaluit Model is best.

Decentralization Comparison #10

Difference between the region gaining the most population and the region gaining the least:

Cambridge Bay Model	963	(Kt 1080/Kw 117)
Iqaluit Model	935	(Bf 1114/Kt 179)
Rankin Inlet Model	909	(Kw 1045/Kt 136)

With an objective of minimizing the difference between the region gaining the most population and the region gaining the least, the Rankin Inlet Model is best.

Decentralization Comparison #11

Population growth outside the capital and (new) regional centres:

Cambridge Bay Model	664	(excl. CB, Coppermine, Iq, RI)
Iqaluit Model	922	(excl. CB, Iq, Igloolik, RI)
Rankin Inlet Model	722	(excl. CB, Iq, RI, Baker Lake)

With an objective of maximizing population growth outside the capital and (new) regional centres, the Iqaluit Model is best.

(d) **Estimated Population Growth Expressed in Percentage Terms**
(page A-14.7)

Cambridge Bay

If Cambridge Bay were chosen as the capital, the Kitikmeot Region population would grow by 22%, with 48% growth being experienced in the current regional centre of Cambridge Bay. Coppermine and Gjoa Haven would experience 20% and 14% population increases, respectively.

The effect of this model upon the Baffin Region would be 3% population growth, with the current regional centre of Iqaluit experiencing 0.4% growth. Cape Dorset would grow by 2%, Igloolik by 15%, Pangnirtung by 8% and Pond Inlet by 8%.

The effect of this model upon the Keewatin Region would be population growth of 2%, with the current regional centre of Rankin Inlet experiencing no growth (loss of 3 FTEs). Baker Lake and Arviat would grow by 3% and 4%, respectively.

Iqaluit

If Iqaluit were chosen as the capital, the Baffin Region population would grow by 8%, with 6% growth being experienced by the current regional centre of Iqaluit. Cape Dorset would grow by 15%, Igloolik by 21%, Pangnirtung by 15% and Pond Inlet by 17%.

The effect of this model upon the Kitikmeot Region would be 4% population growth, with the current regional centre of Cambridge Bay experiencing 5% growth. Coppermine and Gjoa Haven would grow by 7% and 1%, respectively.

The effect of this model upon the Keewatin Region would be population growth of 4%, with the current regional centre of Rankin Inlet experiencing 4% growth. Baker Lake and Arviat would grow by 5% and 9%, respectively.

Rankin Inlet

If Rankin Inlet were chosen as the capital, the Keewatin Region population would grow by 14%, with 26% growth being experienced by the current regional centre of Rankin Inlet. Baker Lake and Arviat would grow by 18% and 12%, respectively.

The effect of this model upon the Kitikmeot Region would be 3% population growth, with the current regional centre of Cambridge Bay experiencing 3% growth. Coppermine would grow by 7%,

while Gjoa Haven would experience no population growth.

The effect of this model upon the Baffin Region would be population growth of 3%, with the current regional centre of Iqaluit experiencing 0.4% growth. Igloolik would grow by 14%, Pangnirtung by 8%, and Pond Inlet by 12%, while Cape Dorset would experience no population growth.

A-14.7 Discussion

If Cambridge Bay were chosen as the capital, the population in the Kitikmeot Region would grow by 22%, the population of the Baffin Region by 3%, and the population of the Keewatin Region by 2%. Of the regional totals, the current regional centre of Cambridge Bay would grow by 48%, a little growth would be experienced in Iqaluit (0.4%), and Rankin Inlet would register a small loss (-0.5%).

If Iqaluit were chosen as the capital, the population of the Baffin Region would increase by 8%, the population of the Kitikmeot Region by 4%, and the population of the Keewatin Region by 4%. Of the regional totals, the populations of the current regional centres of Iqaluit, Cambridge Bay and Rankin Inlet would increase by 6%, 5% and 4%, respectively.

If Rankin Inlet were chosen as the capital, the population in the Keewatin Region would increase by 14%, the population of the Kitikmeot Region by 3%, and the population of the Baffin Region by 3%. Of the regional totals, the current regional centres of Rankin Inlet, Cambridge Bay and Iqaluit would grow by 26%, 3%, and 0.4%, respectively. In this model, neither Gjoa Haven nor Cape Dorset would experience an increase in population.

Specific Comparisons

Examination of the bar charts shows the flattest results for the Iqaluit Model, followed by the Rankin Inlet Model, and then the Cambridge Bay Model. Closer examination permits the following quantitative comparisons:

Decentralization Comparison #12

Largest percentage population increase in a single community:

Cambridge Bay Model	48%	(Cambridge Bay)
Iqaluit Model	21%	(Igloolik)
Rankin Inlet Model	26%	(Rankin Inlet)

With an objective of minimizing the percentage population increase in a single community, the Iqaluit Model is best.

Decentralization Comparison #13

Average percentage increase in the population growth of the capital and regional centres:

Cambridge Bay Model	14.5%	(CB, Coppermine, Iq, RI)
Iqaluit Model	9.0%	(CB, Iq, Igloolik, RI)
Rankin Inlet Model	12.0%	(CB, Iq, RI, Baker Lake)

With the objective of minimizing average percentage increase in the population growth of the capital and regional centres, the Iqaluit Model is best.

(e) Percentage Population Growth by Region (page A-14.8)

Cambridge Bay

If Cambridge Bay were chosen as the capital, the population in the Kitikmeot Region would increase by 22%, the population of the Baffin Region by 3%, and the population of the Keewatin Region by 2%.

Iqaluit

If Iqaluit were chosen as the capital, the population of the Baffin Region would increase by 8%, the population of the Kitikmeot Region by 4%, and the population of the Keewatin Region by 4%.

Rankin Inlet

If Rankin Inlet were chosen as the capital, the population in the Keewatin Region would increase by 14%, the population of the Kitikmeot Region by 3%, and the population of the Baffin Region by 3%.

Specific Comparisons

Decentralization Comparison #14

Largest percentage increase in population by region:

Cambridge Bay Model	22%	(Kt)
Iqaluit Model	8%	(Bf)
Rankin Inlet Model	14%	(Kw)

With an objective of minimizing the percentage population increase in any single region, the Iqaluit Model is best.

Decentralization Comparison #15

Percentage difference between the region with the largest increase in population and the region gaining the least:

Cambridge Bay Model	20%	(Kt 22%/Kw 2%)
Iqaluit Model	4%	(Bf 8%/Kt and Kw 4%)
Rankin Inlet Model	11%	(Kw 14%/Bf and Kt 3%)

With an objective of minimizing the percentage difference between the region with the largest increase in population and the region gaining the least, the Iqaluit Model is best.

(f) 1999 Population per Nunavut Government Employee, by Region
(page A-14.8)

Cambridge Bay as Capital

If Cambridge Bay were chosen as capital, there would be 7.7 people per Nunavut Government employee in the Kitikmeot Region, 10.4 in the Baffin Region, and 11.6 in the Keewatin Region.

Iqaluit as Capital

If Iqaluit were chosen as capital, there would be 11.5 people per Nunavut Government employee in the Kitikmeot Region, 9.1 in the Baffin Region, and 10.6 in the Keewatin Region.

Rankin Inlet as Capital

If Rankin Inlet were chosen as capital, there would be 11.8 people per Nunavut Government employee in the Kitikmeot Region, 10.3 in the Baffin Region, and 8.4 in the Keewatin Region.

Specific Comparisons

Initial examination of these bar charts does not reveal any obvious differences. Closer examination permits the following quantitative comparisons:

Decentralization Comparison #16

Smallest ratio of regional population to Nunavut Government employees:

Cambridge Bay Model	7.7	(Kt)
Iqaluit Model	9.1	(Bf)
Rankin Inlet Model	8.4	(Kw)

With the objective of maximizing the ratio of regional population to Nunavut Government employees, the Iqaluit Model is best.

Decentralization Comparison #17

Difference between the region with the smallest ratio of regional population to Nunavut Government employees and the region with the largest:

Cambridge Bay Model	3.9	(Kw 11.6/Kt 7.7)
Iqaluit Model	2.4	(Kt 11.5/Bf 9.1)
Rankin Inlet Model	3.4	(Kt 11.8/Kw 8.4)

With an objective of minimizing the differences among regions in the ratio of regional populations to Nunavut Government employees, the Iqaluit Model is best.

**(g) Percentage Estimated Population Growth by Regional Centre
(page A-14.9)**

Cambridge Bay as Capital

Cambridge Bay, if chosen as the capital, would experience 49% growth in population, while the current regional centres of Iqaluit (2.5 FTE gain) and Rankin Inlet (3 FTE loss) would experience little population change.

Iqaluit as Capital

Iqaluit, if chosen as the capital, would experience 6% growth in population, while the current regional centres of Cambridge Bay and Rankin Inlet would each experience 6% growth in population.

Rankin Inlet as Capital

Rankin Inlet, if chosen as capital, would experience 27% growth in population, while the current regional centres of Cambridge Bay and Iqaluit would experience 3% and 2% growth in population, respectively.

Specific Comparisons

Graphic differences are apparent in the relevant bar chart. The bar chart for the Iqaluit Model is markedly flatter than for the other two models. The following quantitative comparison can be made:

Decentralization Comparison #18

Percentage difference between the regional centre gaining the most population and regional centre gaining the least:

Cambridge Bay Model	49%	(CB 49%/RI 0%)
Iqaluit Model	2%	(Iq and CB 6%/RI 4%)
Rankin Inlet Model	25%	(RI 27%/Iq 2%)

With an objective of minimizing the percentage difference between the regional centre gaining the most population and the regional centre gaining the least, the Iqaluit Model is best.

(h) 1999 Population per Nunavut Government Employee, by Regional Centre (page A-14.9)

Cambridge Bay as Capital

Cambridge Bay, if chosen as the capital, would have 4.8 people per Nunavut Government employee, Iqaluit 6.2, and Rankin Inlet 7.6.

Iqaluit as Capital

Iqaluit, if chosen as the capital, would have 5.8 people per Nunavut Government employee, Cambridge Bay 7.0, and Rankin Inlet 7.0.

Rankin Inlet as Capital

Rankin Inlet, if chosen as the capital, would have 5.5 people per Nunavut Government employee, Cambridge Bay 7.3, and Iqaluit 6.2.

Specific Comparisons

Initial review of the relevant bar chart provides no obvious message. The following quantitative comparisons are possible:

Decentralization Comparison #19

Smallest ratio of regional centre population to Nunavut Government employees:

Cambridge Bay Model	4.8	(CB)
Iqaluit Model	5.8	(Iq)
Rankin Inlet Model	5.5	(RI)

With an objective of maximizing the ratio of regional centre population to Nunavut Government employees, the Iqaluit Model is best.

Decentralization Comparison #20

Difference between the regional centre with the smallest ratio of population to Nunavut Government employees and the regional centre with the largest:

Cambridge Bay Model	2.8	(RI 7.6/CB 4.8)
Iqaluit Model	1.2	(RI and CB 7.0/Iq 5.8)
Rankin Inlet Model	1.8	(CB 7.3/RI 5.5)

With an objective of minimizing the difference between the regional centre with the smallest population ratio to Nunavut Government employees and the regional centre with the largest, the Iqaluit Model is best.

(i) **Percentage Estimated Population Growth by 1999 Community Size**
(page A-14.10)

Underlying Assumption

It is assumed that small sized communities have less than 1000 people, medium sized communities have between 1001 and 2000 people, and large sized communities have more than 2000 people.

Cambridge Bay as Capital

If Cambridge Bay were chosen as capital, communities with less than 1000 people and communities with more than 2000 people would experience no population growth, while the medium sized communities would experience an average of 14% growth in population.

Iqaluit as Capital

If Iqaluit were chosen as capital, communities with less than 1000 people would experience no population growth, communities with 1001 to 2000 people would experience an average of 11% growth in population, and communities with more than 2000 people would experience an average of 5% growth in population.

Rankin Inlet as Capital

If Rankin Inlet were chosen as capital, communities with less than 1000 people would experience no population growth, communities with 1001 to 2000 people would experience an average of 9% growth in population, and communities with more than 2000 people would experience an average of 9% growth in population.

Specific Comparison

The most obvious difference among the three models in this bar chart is the concentration of all employment in medium sized communities in the Cambridge Bay Model; this is a function of Cambridge Bay being classified as a medium sized community. The following quantitative comparison can be made:

Decentralization Comparison #21

Growth in large sized communities (Iqaluit and Rankin Inlet):

Cambridge Bay Model	0%
Iqaluit Model	5%
Rankin Inlet Model	9%

With an objective of minimizing population growth in large sized communities, the Cambridge Bay Model is best.

(j) **Population per Nunavut Government Employee by 1999 Community Size (page A-14.10)**

Underlying Assumption

In total, there would be 9.4 residents for every direct Nunavut Government position (see pp. A-11.1, A-12.1 and A-13.1). Communities would be assumed to be small, medium or large based on population ranges identified above.

Cambridge Bay as Capital

If Cambridge Bay were chosen as capital, communities with less than 1000 people would have an average of 18.1 people per Nunavut Government employee, communities with 1001 to 2000 people would have an average of 9.8, and communities with more than 2000 people would have an average of 6.6.

Iqaluit as Capital

If Iqaluit were chosen as capital, communities with less than 1000 people would have an average of 18.1 people per Nunavut Government employee, communities with 1001 to 2000 people would have an average of 9.7, and communities with more than 2000 people would have an average of 6.1.

Rankin Inlet as Capital

If Rankin Inlet were chosen as capital, communities with less than 1000 people would have an average of 18.1 people per Nunavut Government employee, communities with 1001 to 2000 people would have an average of 10.2, and communities with more than 2000 people would have an average of 5.9.

Specific Comparison

The relevant bar chart reveals that, for all three models, the ratio of population to Nunavut Government employees would vary inversely to community size. Notwithstanding that common feature of all three models, the following quantitative comparison can be made:

Decentralization Comparison #22

Ratio of population of large sized communities (Iqaluit and Cambridge Bay) to Nunavut Government employees:

Cambridge Bay Model	6.6
Iqaluit Model	6.1
Rankin Inlet Model	5.9

With an objective of maximizing the ratio of population to Nunavut Government employees in large sized communities, the Cambridge Bay Model is best.

(k) Percentage Estimated Population Growth by Real Unemployment Rate (page A-14.11)

Underlying Assumptions

Twenty-nine percent of the total adult population of Nunavut were unemployed in 1994. The real unemployment rate for each of the three regions is: Baffin 26%; Kitikmeot 30%; and, Keewatin 34%. The real unemployment rate in the three regional centres is less than half that of the other communities (17% compared to 35%). It should also be noted that:

- * 33.4% of the population live in communities with "low real unemployment" (between 3% and 19%);
- * 31.3% of the population live in communities with "medium real unemployment" (between 20% and 39%); and,
- * 35.3% of the population live in communities with "high real unemployment" (between 40% and 47%).

Cambridge Bay as Capital

If Cambridge Bay were chosen as capital, communities with a less than 20% real unemployment rate would grow an average of 8%, communities with a 20% to 39% real unemployment rate would grow an average of 5%, and communities with a real unemployment rate of 40% or more would grow an average of 6%.

Iqaluit as Capital

If Iqaluit were chosen as capital, communities with a less than 20% real unemployment rate would grow an average of 5%, communities with a 20% to 39% real unemployment rate would grow an average of 10%, and communities with a real unemployment rate of 40% or more would grow an average of 4%.

Rankin Inlet as Capital

If Rankin Inlet were chosen as capital, communities with a less than 20% real unemployment rate would grow an average of 7%, communities with a 20% to 39% real unemployment rate would grow an average of 5%, and communities with a real unemployment rate of 40% or more would grow an average of 6%.

Specific Comparisons

In the relevant bar chart, the Iqaluit Model shows the largest percentage population growth in communities with a medium real unemployment rate, while the other two models show the smallest percentage population growth in such communities. The following quantitative comparisons are possible:

Decentralization Comparison #23

Percentage population growth in communities with the highest real unemployment rate:

Cambridge Bay Model	6%
Iqaluit Model	4%
Rankin Inlet Model	6%

With an objective of maximizing population growth in the communities with the highest unemployment rate, the Cambridge Bay and Rankin Inlet Models are best.

Decentralization Comparison #24

Percentage of population growth in communities with the lowest real unemployment rate:

Cambridge Bay Model	8%
Iqaluit Model	5%
Rankin Inlet Model	7%

With an objective of minimizing population growth in communities with the lowest real unemployment rate, the Iqaluit Model is best.

(1) 1999 Population per Nunavut Government Employee by Real
Unemployment Rate (page A-14.11)

Underlying Assumptions

Assumptions as to real unemployment rates are set out above.

Cambridge Bay as Capital

If Cambridge Bay were chosen as capital, communities with a less than 20% real unemployment rate would have an average of 6.3 people per Nunavut Government employee, communities with a 20% to 39% real unemployment rate would have an average of 14.6, and communities with a real unemployment rate of 40% or more would have an average of 13.4.

Iqaluit as Capital

If Iqaluit were chosen as capital, communities with a less than 20% real unemployment rate would have an average of 6.6 people per Nunavut Government employee, communities with a 20% to 39% real unemployment rate would have an average of 12.0, and communities with a real unemployment rate of 40% or more would have an average of 14.6.

Rankin Inlet as Capital

If Rankin Inlet were chosen as capital, communities with a less than 20% real unemployment rate would have an average of 6.4 people per Nunavut Government employee, communities with a 20% to 39% real unemployment rate would have an average of 14.5, and communities with a real unemployment rate of 40% or more would have an average of 13.2.

Specific Comparisons

The relevant bar graph reveals that the highest ratio of population to employees is, for the Iqaluit Model, in the communities with the highest real unemployment rate and, for the other two models, in the communities with a medium unemployment rate. The following quantitative comparisons can be made:

Decentralization Comparison #25

Ratio of population to Nunavut Government employee in communities with the highest real unemployment rate:

Cambridge Bay Model	13.4
Iqaluit Model	14.6
Rankin Inlet Model	13.2

With an objective of minimizing the ratio of population to Nunavut Government employees in the communities with the highest real unemployment rate, the Rankin Inlet Model is best.

Decentralization Comparison #26

Ratio of population to Nunavut Government employees in communities with the lowest real unemployment rate:

Cambridge Bay Model	6.3
Iqaluit Model	6.6
Rankin Inlet Model	6.4

With an objective of maximizing the ratio of population to Nunavut Government employees in communities with the lowest real unemployment rate, the Iqaluit Model is best.

(m) Additional Comparisons not referenced in Appendix 14

Underlying Assumptions

The following comparisons are based on a number of facts, proposals and forecasts, i.e.:

* 1991 regional breakdown of Nunavut population (21,544):

	No.	%
Kitikmeot	4,325	20%
Baffin	11,385	53%
Keewatin	5,834	27%

* 1994 regional breakdown of territorial government employment in Nunavut:

	No.	%
Kitikmeot	572	18.5%
Baffin	1672	54.0%
Keewatin	852	27.5%

* Proposed allocation of new territorial government employment by region:

	No.	%
Cambridge Bay Model		
Kitikmeot	404	67%
Baffin	155	29%
Keewatin	41	7%
Iqaluit Model		
Kitikmeot	67	11%
Baffin	416.5	69.5%
Keewatin	116.5	19.5%
Rankin Inlet Model		
Kitikmeot	51	8.5%
Baffin	158	26.5%
Keewatin	391	65.0%

* Forecast 1999 regional breakdown of Nunavut population:

	No.	%
Cambridge Bay Model		
Kitikmeot	5676	20.8%
Baffin	14170	52.1%
Keewatin	7342	27.1%
Iqaluit Model		
Kitikmeot	5103	18.7%
Baffin	14614	53.8%
Keewatin	7470	27.5%
Rankin Inlet Model		
Kitikmeot	5076	18.7%
Baffin	14175	52.1%
Keewatin	7937	29.2%

* Proposed 1999 regional breakdown of territorial government employment in Nunavut (adjustments not made for additional FTEs to accommodate natural increase in Nunavut population):

	No.	%
Cambridge Bay Model		
Kitikmeot	976	26.4%
Baffin	1827	49.4%
Keewatin	893	24.2%
Iqaluit Model		
Kitikmeot	639	17.3%
Baffin	2088.5	56.5%
Keewatin	968.5	26.2%
Rankin Inlet Model		
Kitikmeot	623	16.9%
Baffin	1830	49.5%
Keewatin	1243	33.6%

Specific Comparisons

Decentralization Comparison #27

Average percentage regional variation in proposed allocation of new territorial government employment from 1991 regional breakdown of Nunavut population:

Cambridge Bay Model	30.3%	(47%, 24%, 20%)
Iqaluit Model	11.0%	(9%, 16.5%, 7.5%)
Rankin Inlet Model	25.0%	(11.5%, 26.5%, 38%)

With an objective of minimizing the average percentage regional variation in proposed allocation of new territorial government employment from 1991 regional breakdown in Nunavut population, the Iqaluit Model is best.

Decentralization Comparison #28

Average percentage regional variation in proposed allocation of new territorial government employment from forecast 1999 regional breakdown of Nunavut population:

Cambridge Bay Model	29.8%	(46.2%, 23.1%, 20.1%)
Iqaluit Model	10.5%	(7.7%, 15.7%, 8%)
Rankin Inlet Model	23.9%	(10.2%, 25.6%, 35.8%)

With an objective of minimizing the percentage regional variation in allocation of new territorial government employment from existing regional breakdown of Nunavut population, the Iqaluit Model is best.

Decentralization Comparison #29

Average percentage variation in regional allocation of total territorial government employment (FTEs) from 1999 regional breakdown of Nunavut population:

Cambridge Bay Model	3.7%	(5.6%, 2.7%, 2.9%)
Iqaluit Model	1.8%	(1.4%, 2.7%, 1.3%)
Rankin Inlet Model	2.9%	(1.8%, 2.6%, 4.4%)

With an objective of minimizing the average percentage variation in regional allocation of total territorial government employment (FTEs) from 1999 regional breakdown of Nunavut population, the Iqaluit Model is best.

Subsection (iii). Conclusions

The comparisons made in the preceding subsection can be tabulated in the following way:

Decentralization Comparison		Best Model
Decentralization Comparison	#1	Iqaluit Model
Decentralization Comparison	#2	Iqaluit Model
Decentralization Comparison	#3	Rankin Inlet Model
Decentralization Comparison	#4	Iqaluit Model
Decentralization Comparison	#5	Rankin Inlet Model
Decentralization Comparison	#6	Iqaluit Model
Decentralization Comparison	#7	Iqaluit Model
Decentralization Comparison	#8	Iqaluit Model
Decentralization Comparison	#9	Iqaluit Model
Decentralization Comparison	#10	Rankin Inlet Model
Decentralization Comparison	#11	Iqaluit Model
Decentralization Comparison	#12	Iqaluit Model
Decentralization Comparison	#13	Iqaluit Model
Decentralization Comparison	#14	Iqaluit Model
Decentralization Comparison	#15	Iqaluit Model
Decentralization Comparison	#16	Iqaluit Model
Decentralization Comparison	#17	Iqaluit Model
Decentralization Comparison	#18	Iqaluit Model
Decentralization Comparison	#19	Iqaluit Model
Decentralization Comparison	#20	Iqaluit Model
Decentralization Comparison	#21	Cambridge Bay Model
Decentralization Comparison	#22	Cambridge Bay Model
Decentralization Comparison	#23	Cambridge Bay and Rankin Inlet Models
Decentralization Comparison	#24	Iqaluit Model
Decentralization Comparison	#25	Rankin Inlet Model
Decentralization Comparison	#26	Iqaluit Model
Decentralization Comparison	#27	Iqaluit Model
Decentralization Comparison	#28	Iqaluit Model
Decentralization Comparison	#29	Iqaluit Model

As evidenced in this tabulation, the Iqaluit Model is the best model with respect to 22 comparisons, the Rankin Inlet Model with respect to four comparisons, the Cambridge Bay Model with respect to two comparisons, and the Cambridge Bay and Rankin Inlet Models are tied as best model with respect to one comparison.

It would be a mistake to assume that these comparisons are of the same order of importance. At the same time, no obvious means exist to distinguish comparisons as to their relative importance. It could be argued that some of the comparisons made in the

previous subsection may of such limited importance as to justify their removal from a list of meaningful, quantifiable distinctions as to the relative decentralization advantages and disadvantages of the three candidate communities. It could also be argued that additional comparisons could be developed and applied to the candidate communities with a view to providing further ways of distinguishing and rating them. Whatever the merits of such arguments, Commissioners have reached two conclusions with respect to the decentralization comparisons:

1. the number and variety of decentralization comparisons that have been made are sufficient to draw objective conclusions; and,
2. on the basis of a large majority of comparisons, the Iqaluit Model is the best model for the purpose of bringing about a decentralized Nunavut Government.

Section 3. Demographic and Related Social Impacts

(i) Introduction

The creation of the Nunavut Government will have significant demographic and related social impacts on Nunavut. In all three design models for the Nunavut Government developed by the NIC, an influx of some 1,031 people is expected into Nunavut. The NIC's efforts to keep the design of the Nunavut Government simple, and to emphasise recruitment of new employees within Nunavut, have combined to make this projected influx much smaller than anticipated in earlier work done by The Coopers & Lybrand Consulting Group for the GNWT (1991) and DIAND (1992). Nonetheless, in light of a projected population for Nunavut in 1999 of just over 27,000, the arrival of more than 1,000 new residents from outside will have discernible impacts.

It is important to avoid presenting the influx of new residents as a problem in and of itself. The people of Nunavut are open and welcoming. Many people have come to Nunavut from other parts of Canada and other parts of the world. They have helped build the Nunavut of today and will play an active role in the building of the Nunavut of tomorrow. The contributions of newcomers to Nunavut --- their skills, their energies, their ideas --- are part of the fabric and dynamics of life in Nunavut. In a world made up of societies that are increasingly inter-connected and inter-dependent, the people of Nunavut do not seek to stand alone.

The influx of new residents into Nunavut is, however, potentially problematic in two circumstances: (1) if the total influx is so large or so sudden as to create an abrupt break in the social and cultural character of Nunavut, particularly with respect to the central place occupied by Inuit culture in Nunavut society; or, (2) if the influx of newcomers is manageable in a Nunavut-wide context, but is too large or too sudden from the perspective of localized impacts on specific communities. With respect to this second potential problem, it is important to remember that, from the perspective of a single community, all people from outside that community are newcomers. While newcomers from other communities in Nunavut can be expected to create fewer difficulties in being absorbed, adjustments are necessary in every case.

With respect to the first potential problem, the NIC is of the view that the total number of newcomers into Nunavut from outside Nunavut that was projected in "**Footprints in New Snow**" for all three organizational design options is a reasonable one. More specifically, the NIC believes that the influx of 1,031 newcomers into Nunavut to assist in the setting up and initial operation of the Nunavut Government does not constitute a threat to social stability and cultural continuity in Nunavut.

The importance of the second potential problem --- too big or too sudden demographic changes in specific communities --- has led the NIC to pursue an approach of favouring the maximum practicable decentralization of government activities within Nunavut. Such a policy has obvious advantages of reducing the likelihood of too much or too sudden demographic change occurring in one or more communities. In addition to reducing the likelihood of negative impacts in some communities, the approach has the advantage of allowing a more even distribution of employment opportunities across a range of communities, almost all of which face enormous difficulties of unemployment and underemployment.

While the three design models developed by the NIC for the Nunavut Government --- the Cambridge Bay Model, the Iqaluit Model and the Rankin Inlet Model --- are all animated by the objective of bringing about a maximum practicable level of decentralization, they vary considerably in the distribution of government employment across regions and communities. Not surprisingly, they entail divergent patterns of demographic and related social impacts.

Subsection (ii). Comparisons

In seeking to compare the demographic and related social impacts of the three models in a meaningful, quantitative way, it is worth pointing out that such impacts are most logically assessed in relative, not absolute terms --- for example, whether a community may be adversely affected by sudden population growth will depend much more on the proportion of newcomers to established residents, than on the actual number of newcomers in question.

In developing comparisons among the three design models concerning demographic and related social impacts, a number of information items are relevant, including the information summarized in the following table:

Community	Population (1991 Census)	% of Population Inuit (1991 Data Book)
Cape Dorset	961	93%
Igloolik	936	93%
Iqaluit	3,552	60%
Pangnirtung	1,135	94%
Pond Inlet	974	94%
Arviat	1,323	93%
Baker Lake	1,186	89%
Rankin Inlet	1,706	77%
Cambridge Bay	1,116	72%
Coppermine	1,059	92%
Gjoa Haven	783	96%

In developing comparisons among the three design models, it is helpful to remember a number of underlying assumptions made for demographic projections, financial calculations, and other purposes in "Footprints in New Snow":

- * the percentage of FTEs recruited from the community in which a position is located is assumed to be 25%; 25% of new FTEs will come from other communities within Nunavut, and the remaining 50% will come from outside Nunavut;
- * 50% of FTEs will be occupied by Inuit (it is assumed that this figure will apply to new FTEs as well as total FTEs within the Nunavut Government);
- * the average household size (including married and single persons) for Nunavut Government headquarters FTEs is assumed to be 4.2 for Nunavut hires and 2.7 for non-Nunavut hires; and,

- * 0.4 additional private sector and federal government jobs are assumed to be created for every Nunavut Government position, and the demographics for private sector and federal government staff will be the same as for new Nunavut Government staff.

In developing comparisons, it is also reasonable to make a couple of additional assumptions:

- * putting aside the impact of the creation of the Nunavut Government, the ratio of Inuit to non-Inuit in communities will remain constant between 1991 and 1999; and,
- * 50% of new population resulting from a community becoming capital will be non-Inuit.

The comparisons that follow constitute an attempt to identify meaningful, quantitative differences among the three design models as to their demographic and related social impacts. Four points should be noted about these comparisons.

First of all, the comparisons examine demographic and related social impacts on a community basis not on a regional one; this reflects the NIC's assessment that, while all of the design models present the possibility of too rapid growth in specific communities, none of the design models anticipate explosive population growth for an entire region.

Secondly, the comparisons are all expressed in percentage terms; this reflects the NIC's assessment that the social impacts of population growth are a function not so much of how many new people come to live in a community, but rather how many new people come to live in a community in comparison with the pre-existing population.

Thirdly, Impacts Comparisons #1 and #2 reproduce comparisons previously made in the section of this report dealing with decentralization (Decentralization Comparisons #12 and #13 from that previous section); repetition reflects the NIC's assessment that base-line comparisons as to overall population increases in specific communities are of central relevance from both the perspective of promoting a maximum degree of decentralization and the perspective of avoiding the negative social impacts associated with excessive population growth.

Finally, the comparisons provide insight into only those social impacts directly attributable to population change; they do not offer insight into more specific manifestations of negative social impact such as crime, substance abuse, family stress, increased pressure on the renewable resource base, etc. Available evidence does not make it possible, for the purposes of this

report, to forecast, with any degree of objective measurement, such specific manifestations of negative social impact.

Impacts Comparison #1

Largest percentage population increase in a single community:

Cambridge Bay Model	48%	(Cambridge Bay)
Iqaluit Model	21%	(Igloolik)
Rankin Inlet Model	26%	(Rankin Inlet Model)

With an objective of minimizing the percentage population increase in a single community, the Iqaluit Model is best.

Impacts Comparison #2

Average percentage increase in the population growth of the capital and regional centres:

Cambridge Bay Model	14.5%	(CB, Coppermine, Iq, RI)
Iqaluit Model	9.0%	(CB, Iq, Igloolik, RI)
Rankin Inlet Model	12.0%	(CB, Iq, RI, Baker Lake)

With an objective of minimizing the average percentage increase in the population growth of the capital and regional centres, the Iqaluit Model is best.

Impacts Comparison #3

Percentage of Inuit in the population of capital:

Cambridge Bay Model	65%	(Cambridge Bay as capital)
Iqaluit Model	59%	(Iqaluit as capital)
Rankin Inlet Model	71%	(Rankin Inlet as capital)

With an objective of maximizing the proportion of Inuit in the capital of Nunavut, the Rankin Inlet Model is best.

Impacts Comparison #4

Change in the percentage of Inuit in the population of the capital:

Cambridge Bay Model	-7%	(Cambridge Bay as capital)
Iqaluit Model	-1%	(Iqaluit as capital)
Rankin Inlet Model	-6%	(Rankin Inlet as capital)

With an objective of minimizing the change in the proportion of Inuit to non-Inuit in any community chosen as capital, the Iqaluit Model is best.

Impacts Comparison #5

Average percentage of Inuit in the population of the capital and regional centres:

Cambridge Bay Model	71.8%	(CB, Coppermine, Iq, RI)
Iqaluit Model	74.3%	(CB, Iq, Igloolik, RI)
Rankin Inlet Model	71.5%	(CB, Iq, RI, Baker Lake)

With an objective of maximizing the average percentage of Inuit in the population of the capital and regional centres, the Iqaluit Model is best.

Impacts Comparison #6

Percentage of outsiders in the population of the capital (75% of population growth resulting from creation of the Nunavut Government headquarters):

Cambridge Bay Model	25%	(Cambridge Bay as capital)
Iqaluit Model	4%	(Iqaluit as capital)
Rankin Inlet Model	16%	(Rankin Inlet as capital)

With the objective of minimizing the proportion of outsiders in the population of the capital, the Iqaluit Model is best. (It should be noted that, in the Iqaluit Model, Igloolik would experience a bigger impact in this respect than Iqaluit, with 13% of its 1999 population being made up of outsiders.)

Impacts Comparison #7

Percentage of outsiders arrivals in the population of the capital who come from outside Nunavut (50% of population growth):

Cambridge Bay Model	16.5%	(Cambridge Bay as capital)
Iqaluit Model	2.8%	(Iqaluit as capital)
Rankin Inlet Model	10.6%	(Rankin Inlet as capital)

With an objective of minimizing the percentage of outsiders in the population of the capital who come from outside Nunavut, the Iqaluit Model is best.

Subsection (iii). Conclusions

The comparisons set out in the preceding subsection can be tabulated in the following way:

Impacts Comparison	Best Model
Impacts Comparison #1	Iqaluit Model
Impacts Comparison #2	Iqaluit Model
Impacts Comparison #3	Rankin Inlet Model
Impacts Comparison #4	Iqaluit Model
Impacts Comparison #5	Iqaluit Model
Impacts Comparison #6	Iqaluit Model
Impacts Comparison #7	Iqaluit Model

In this tabulation, the Iqaluit Model is the best model with respect to six comparisons and the Rankin Inlet Model with respect to one. The Cambridge Bay Model does not emerge as the best model with respect to any of the comparisons.

As mentioned in the conclusions drawn in this report with respect to decentralization, it would be a mistake to assume that the comparisons made in this section are of equal weight. In particular, it could be argued that the one comparison that favours Rankin Inlet --- the proportion of Inuit in the population of the capital of Nunavut --- has particular significance in view of the role of the Nunavut Government in promoting the special place of Nunavut in Canada as the only province or territory with a majority of Inuit. It could also be argued that additional comparisons might be devised to shed further light on the comparative attractions of the three design models.

Such arguments notwithstanding, Commissioners have concluded that it is possible to rely on the comparisons made in this section to make material distinctions among the three design models. Commissioners have further concluded that, notwithstanding the advantage offered by the Rankin Inlet Model in projecting a higher proportion of Inuit in the population of the capital of Nunavut, the combined weight of other comparisons makes the Iqaluit Model the preferred one.

Section 4. Costs

Subsection (i). Introduction

The relevant costs associated with the choices for the capital of Nunavut are in two broad categories:

- * one time costs of the infrastructure necessary to establish the Nunavut Government; and,
- * ongoing costs associated with operations of the Nunavut Government in the capital.

A comparison of these two categories of costs for the three alternate capital locations is important in assessing the three government design models.

Subsection (ii). One Time Costs

The one time costs that have been considered for the purpose of this report are in relation to the following:

1. the new infrastructure necessary for the capital and recommended organizational structures;
2. the capital costs of the new infrastructure and the annual funding needed to operate and maintain such infrastructure;
3. the existing infrastructure that needs to be replaced or expanded earlier than necessary within a 20 year planning horizon due to the impact of establishing the Nunavut Government;
4. the incremental capital costs associated with the early expansion or replacement of existing infrastructure and the annual operation and maintenance costs associated with expansion; and,
5. the annual costs of leasing, operating and maintaining new staff housing and office space required to establish the Nunavut Government.

(a) Approach

A joint Technical Infrastructure Working Group (the Working Group), co-chaired by Public Works and Services Canada and the GNWT Department of Public Works and Services, was established early on in the life of the NIC to address matters related to infrastructure. The NIC requested that the Working Group undertake the work needed by the Commission with respect to infrastructure needs and costs associated with the capital being located in Iqaluit, Rankin Inlet or Cambridge Bay. As its part in this exercise, the GNWT has involved all of its program and service departments who share responsibility for planning and construction of territorial government infrastructure. The following cost calculations and comparisons flow from the detailed work supplied to the Commission by the GNWT.

(b) Net Increase in Positions in Nunavut

The infrastructure needs for each of the three capital location scenarios are based on the overall approach to government organizational design structure recommended by the Commission in its report, "**Footprints in New Snow**". Net increases in Nunavut Government positions in relation to specific communities under the three government design models developed by

the Commission are as follows:

REGION/ Community	Scenario 1 Iqaluit	Scenario 2 Rankin Inlet	Scenario 3 Cambridge Bay
BAFFIN			
Iqaluit	99	2.5	2.5
Pangnirtung	80	41	41
Pond Inlet	77	53	37
Cape Dorset	67	0	8
Igloolik	93.5	61.5	66.5
Sub-total Baffin	416.5	158	155
KEEWATIN			
Rankin Inlet	33.5	216	-3
Arviat	55	76	27
Baker Lake	28	99	17
Sub-total Keewatin	116.5	391	41
KITIKMEOT			
Cambridge Bay	29	15	255
Coppermine	33	36	97
Gjoa Haven	5	0	52
Sub-total Kitikmeot	67	51	404
TOTAL	600	600	600

(c) Assumptions

The cost calculations and comparisons that follow are based on a number of assumptions adopted by the NIC, namely:

1. the infrastructure needed to accommodate incremental growth due to establishment of the Nunavut Government is to be provided in accordance with GNWT capital works standards and criteria (this assumption flows from the principle that the scope and quality of programs and services of the Nunavut Government are to be the same as those of the GNWT);
2. a 20 year period, 1996/97 to 2015/16, is appropriate for the identification of incremental infrastructure required to establish the Government of Nunavut;
3. the average household size for each new Nunavut Government will be 3.45;

4. there will be a job multiplier of 0.4 (that is, 0.4 jobs in the federal government, municipal governments, and the private sector will be created for each new Nunavut Government position);
5. the average number of new Nunavut Government staff per new household will be 1.10;
6. 25% of new Nunavut Government employees will be hired from within the immediate community, 25% from other communities in Nunavut, and 50% from outside Nunavut;
7. calculations of community populations will follow from 1991 census results, with different annual population growth rates for each community (these range from 2.18 a year to 2.79 a year);
8. the housing mix for new Nunavut Government staff housing will be 5% single family housing, 50% multi-family/row housing, and 45% multi-family/apartment (low rise); and,
9. all staff housing will be leased by the Nunavut Government for its employees.

(d) Analysis and Conclusions

The following charts summarize the incremental capital and leasing costs associated with the establishment of the capital and the other governmental structures for the Commission's three design models, with their alternate capital locations. All costs are expressed in 1996 dollars and are adjusted to present value. It is important to emphasize that the costs shown in these charts cover incremental infrastructure needs for Nunavut over a 20 year planning period, 1996/97 to 2015/16.

NUNAVUT INCREMENTAL GROWTH IQALUIT as Capital Community: ALL	
INFRASTRUCTURE	COSTS
GN Office/Administrative	\$52,139,000
GN Workstations	\$11,618,000
GN Staff Housing	\$39,726,000
GN Staff Housing Furniture	\$ 7,875,000
Schools	\$12,388,000
Cultural Facilities	\$ 8,089,000
Health Facilities	\$ 7,230,000
Justice (Courts, Corrections)	\$ 4,831,000
Municipal Buildings /Roads	\$ 2,420,000
Recreational Facilities	\$ 782,000
Water Systems	\$ 6,713,000
Sewage Systems	\$ 2,281,000
Solid Waste Disposal	\$ 421,000
Vehicles	\$ 1,429,000
Land Development	\$10,558,000
Air Transportation	\$ 5,158,000
Marine Transportation	\$ 0
Bulk Fuel Storage	\$ 7,119,000
Power Supply	\$ 7,233,000
TOTAL	\$188,010,000

Notes:

1. All costs are in \$1996 in present value.
2. Costs for Legislative Assembly Building are included in GN Office/Administrative.
3. Vehicles include GN vehicles, POL vehicles, and municipal fire trucks and gravel trucks.
4. Land Development costs are for GN, federal/municipal and private sector staff housing needs, GN institutional needs and private residential needs. O&M costs for land development are not included.

**NUNAVUT INCREMENTAL GROWTH
RANKIN INLET as Capital
Community: ALL**

INFRASTRUCTURE	COSTS
GN Office/Administrative	\$51,645,000
GN Workstations	\$11,618,000
GN Staff Housing	\$45,761,000
GN Staff Housing Furniture	\$ 7,929,000
Schools	\$ 8,839,000
Cultural Facilities	\$ 8,050,000
Health Facilities	\$13,136,000
Justice (Courts, Corrections)	\$ 9,999,000
Municipal Buildings /Roads	\$ 2,570,000
Recreational Facilities	\$ 124,000
Water Systems	\$ 4,152,000
Sewage Systems	\$ 2,462,000
Solid Waste Disposal	\$ 600,000
Vehicles	\$ 1,449,000
Land Development	\$12,743,000
Air Transportation	\$ 5,780,000
Marine Transportation	\$ 597,000
Bulk Fuel Storage	\$ 7,670,000
Power Supply	\$ 8,642,000
TOTAL	\$203,766,000

Notes:

1. All costs are in \$1996 in present value.
2. Costs for Legislative Assembly Building are included in GN Office/Administrative.
3. Vehicles include GN vehicles, POL vehicles, and municipal fire trucks and gravel trucks.
4. Land Development costs are for GN, federal/municipal and private sector staff housing needs, GN institutional needs and private residential needs. O&M costs for land development are not included.

**NUNAVUT INCREMENTAL GROWTH
CAMBRIDGE BAY as Capital
Community: ALL**

INFRASTRUCTURE	COSTS
GN Office/Administrative	\$52,839,000
GN Workstations	\$11,673,000
GN Staff Housing	\$37,841,000
GN Staff Housing Furniture	\$ 8,049,000
Schools	\$13,553,000
Cultural Facilities	\$ 8,298,000
Health Facilities	\$12,463,000
Justice (Courts, Corrections)	\$10,923,000
Municipal Buildings /Roads	\$ 4,169,000
Recreational Facilities	\$ 81,000
Water Systems	\$ 2,984,000
Sewage Systems	\$ 2,819,000
Solid Waste Disposal	\$ 466,000
Vehicles	\$ 1,441,000
Land Development	\$ 7,108,000
Air Transportation	\$ 7,730,000
Marine Transportation	\$ 685,000
Bulk Fuel Storage	\$ 6,532,000
Power Supply	\$ 6,352,000
TOTAL	\$196,006,000

Notes:

1. All costs are in \$1996 in present value.
2. Costs for Legislative Assembly Building are included in GN Office/Administrative.
3. Vehicles include GN vehicles, POL vehicles, and municipal fire trucks and gravel trucks.
4. Land Development costs are for GN, federal/municipal, and private sector staff housing needs, GN institutional needs and private residential needs. O&M costs for land development are not included.

These charts indicate that, with respect to overall costs for infrastructure, the costs of the Iqaluit Model are somewhat lower than is the case with the Rankin Inlet or Cambridge Bay Model. The primary reason for Iqaluit's lower cost position is that Iqaluit already has a regional hospital, court facility, and corrections facility.

Cost differences between Rankin Inlet and Cambridge Bay reflect two things: historically higher costs for leasing in Keewatin; and, lower capital water development costs for Cambridge Bay as the result of its water and sewage system being based on truck delivery and pick-up, not pipes. Apart from these two things, infrastructure costs in the Cambridge Bay and Rankin Inlet options are basically the same.

Subsection (iii). Ongoing Operations And Capital Costs

Ongoing territorial government costs associated with operations in the capital of Nunavut are the second category of significant cost considerations in relation to the three design models.

(a) Comparisons

For the purpose of comparisons, the Commission identified the following cost indices for Iqaluit, Rankin Inlet, and Cambridge Bay:

1. Capital Costs:

1995 GNWT cost indices for capital projects

Iqaluit	1.25
Rankin Inlet	1.25
Cambridge Bay	1.30

2. Operations Costs

(a) Federal Isolated Post Living Allowance Differential (1993)

Iqaluit	155 - 160
Rankin Inlet	165 - 170
Cambridge Bay	185 - 190

(b) Family Weekly Food Cost (1991) (source: GNWT Bureau of Statistics)

Iqaluit	\$281
Rankin Inlet	\$257
Cambridge Bay	\$273

(c) GNWT Settlement Allowance (1995)

Iqaluit	\$5,100
Rankin Inlet	\$5,500
Cambridge Bay	\$6,000

(d) Price Indices based on Living Cost Differentials (Sources: GNWT 93-94 data & Price Waterhouse 1995 study)

Iqaluit	1.23
Rankin Inlet	1.23
Cambridge Bay	1.36

(e) Electrical Rates - Government (1995)

Iqaluit	\$0.3734/KWH
Rankin Inlet	\$0.4570/KWH
Cambridge Bay	\$0.4508/KWH

(f) Fuel Oil Rates - Government (1995)

Iqaluit	\$0.3667/Litre
Rankin Inlet	\$0.5700/Litre
Cambridge Bay	\$0.7100/Litre

(b) Observations and Conclusions

Overall, the operating costs for the Nunavut Government would be approximately the same for Iqaluit and Rankin Inlet, while Cambridge Bay costs would be between 5% and 15% higher, depending on cost indices. The significance of cost differences for the alternate capital options must be considered in the context of the incremental growth in the location of the capital. The decentralized approach to governmental design advocated by the Commission provides a net increase in Nunavut Government positions in a total of 11 communities in Nunavut. The net increase in Nunavut Government positions for all of the three design models is much smaller than would be the case for a highly centralized organizational structure. Of the 600 new positions contemplated for Nunavut, the net increases in the number of positions to be located in the capital range from 99 in the Iqaluit Model to 255 in the Cambridge Bay Model. The net increases in Nunavut Government positions for the ten communities other than the capital range from 511 in the Iqaluit Model to 345 in the Cambridge Bay Model. The wide distribution of transferred positions substantially reduces the cost impacts on the capital in each design model.

The costs of ongoing operations are approximately the same for Iqaluit and Rankin Inlet, and are about 10% higher on average for Cambridge Bay. A decentralized approach results in relatively modest growth in Nunavut Government positions in the capital with each design model and, therefore, the cost differences in ongoing operations in the capital would not be a significant factor in choosing between Iqaluit and Rankin Inlet. In relation to Cambridge Bay, the approximately 10% extra operating costs would be a factor, but it is important to remember that, in any event, the majority of new positions would be in communities other than the capital.

Section 5. Infrastructure Considerations

Subsection (i). Community Expansion Factors

(a) Introduction

The ability of a community physically to absorb up to 379 HQ FTEs (PYs in this section) and attendant spin off population growth is clearly of fundamental importance in selecting a capital location. Availability of land for new infrastructural development and housing; the capacity of existing government facilities to accommodate new Nunavut government employees; the capacity of community infrastructure and services to meet an influx of new employees and their families moving in --- these are important factors in determining the capital location.

At the request of the NIC in 1994, DIAND Technical Services of Public Works and Government Services Canada undertook a technical analysis of the capacity of four communities, Cambridge Bay, Igloolik, Iqaluit and Rankin Inlet, to handle the establishment of a headquarters for the Nunavut Government. (Since Igloolik is no longer a likely location, analysis of its capabilities for expansion has not been included in this summary.) Findings were outlined in a draft report dated, October 3, 1994, entitled **"Technical Analysis of Population Influx Scenarios in Four Nunavut Communities"**.

(b) **"Technical Analysis of Population Influx Scenarios in Four Nunavut Communities"**

As pointed out by its authors, the analysis contained in **"Technical Analysis of Population Influx Scenarios in Four Nunavut Communities"** (referred to in this section as the Report) was both hypothetical and preliminary in nature, and subject to review and verification of data of current facilities by the GNWT. Given uncertainties surrounding the decentralized design of the government and the numbers of employees required for headquarters functions in any of the four communities, the Report limited itself to analysing the technical and physical facilities and characteristics of the communities.

The Report projected natural population growth and related community infrastructure needs until the year 1999. The Report further projected the infrastructure implications of scenarios involving the influx of various numbers of new people into communities in association with the creation of Nunavut (while recognizing the likelihood of local hire, the Report did not assume any). For purposes of analysis, four things were factored into community profiles: total population increase; housing requirements; government infrastructure requirements; and,

community capability to absorb an influx of people. The Report did not attempt to forecast social and cultural impacts.

The overall conclusion of the Report was that none of the communities analyzed presented any abnormal obstacles to accommodating a Nunavut Government headquarters.

It should be pointed out that the Report made a number of assumptions, concerning such matters as average family size, that were different from assumptions used in the NIC report, "**Footprints in New Snow**". This variation in assumptions does not detract from the reliability of the Report's overall conclusion as to the ability of all relevant communities to expand to accommodate influxes of up to 500 new workers; the 500 number is far in excess of the maximum of 255 additional workers for any single community contemplated in "**Footprints in New Snow**".

(c) Population Analysis

A population analysis is essential in assessing overall demand for hard and soft community services and the demand for land. The Report determined that, in the calculation of total population impacts, the following factors must be included:

- * normal growth;
- * additional population growth created by federal government jobs;
- * additional population growth created by private sector expansion to serve the new population levels;
- * additional population growth to account for family members of federal and territorial public servants and of new private sector employees; and,
- * local hire.

(d) Local Hire

Local hire could reduce the need for housing and land and reduce the impact on community services. In examining local hire, the Report reviewed the Coopers and Lybrand studies of 1991 and 1992 and a 1985 study by Reid Crowthers and Partners Ltd. Estimates of local hire varied from 5-50% due to the type of skills needed and available in any community as well as the success of training programs. Due to uncertainty surrounding the issue, the Report deemed it best to assume a 100% influx.

(e) Federal Job Creation

The Report assumed a 0.1 multiplier effect for each new federal government employee as a result of Nunavut Government employment growth.

(f) Private Sector Job Creation

The Report assumed a 0.3 multiplier effect for job creation in the private sector as a result of government related employment growth.

(g) Family Increment

Population analysis in the Report extended to family members of employees of new Nunavut Government, federal government and private sector employees. The Report assumed that:

- * 25% of new employees would be single and without dependents;
- * 75% of the new employees would have spouses, children, and possibly non-working relatives;
- * the average Nunavut family would have 4.3 members, but this number could be higher for Inuit and lower for non-Inuit; and,
- * the number of children aged 0-19 would be 2.1 per family.

(h) Housing/Lot Requirements

Housing is the largest land use in a community and a major determinant of infrastructure costs.

Based on total family formation projections, the Report estimated requirements for housing units. The Report examined various housing scenarios, ranging from a "worst case" scenario of one unit required for each influx employee, to 1.8 new jobs per household.

The Report defined housing needs in terms of single family detached dwellings (SFDs), attached duplexes and row dwellings (ADRs), and apartment units (APTs). The Report presented three scenarios for meeting housing requirements: SFD mixes of 30%, 50%, and 70%; ADR mixes of 15%, 20%, and 20%; and, APT mixes of 15%, 30% and 50%. The ratios used were a function of several factors: residential land availability; funding available for site development and dwelling construction; local and consumer preferences; and, federal and territorial government housing policies.

Subsection (ii). Implications of Influx of Nunavut Government Jobs

The Report presented the implications of Nunavut Government jobs on the total influx of people. The implications of several scenarios were offered.

All the scenarios assumed certain constants: 10% federal employee growth; 30% private sector growth; no local hire; 75% of the employees married with families; and 4.3 members per family. The constants were factored against two population scenarios: 1.0 employee per family: and, 1.8 employees per family.

The Report examined a range of possible Nunavut Government influx scenarios for the three potential capital locations, based on influxes of one, 25, 50, 100, 250 and 500 new employees. The combined total Nunavut Government, federal government and private sector job influx growth was calculated to be a maximum of 715 jobs in the event of 500 Nunavut Government jobs. Total population influx ranged from 4.97 people to 2484.63 people (for 1.0 employee per family), and from 2.92 people through 1459.79 people (for 1.8 employee per family). These possible scenarios were then measured against a mix of housing requirements for SFDs, ADRs and APTs.

The minimum and maximum numbers of housing units per employee in the three different housing categories are set out below (for comparative purposes, the figure of 250 PYs is highlighted --- this figure is closest to the maximum number of 255 FTEs contemplated by the NIC for any community in any of its three design models):

SFD requirements ranged from:

- * a low of 1.00 to a high of 500.50 for 1.00 employee per family; and,
- * a low of 0.67 to a high of 333.67 for 1.80 employees per family.

In the 250 employee influx range, SFD requirements ranged from:

- * a low of 107.25 to a high of 250.25 for 1.00 employee per family; and,
- * a low of 71.50 to a high of 166.83 for 1.80 employees per family.

ADR requirements ranged from:

- * a low of 0.21 to a high of 143 for 1.00 employee per family; and,
- * a low of 0.14 to a high of 95.33 for 1.80 employees per family.

In the 250 employee influx range, ADR requirements ranged from:

- * a low of 56.30 to a high of 71.5 for 1.00 employee per family; and,
- * a low of 35.75 to a high of 47.67 for 1.80 employees per family.

APT requirements ranged from:

- * a low of 0.21 to a high of 357.50 for 1.00 employee per family; and,
- * a low of 0.14 to a high of 238.33 for 1.80 employees per family.

In the 250 employee influx range, APT requirements ranged from:

- * a low of 53.63 to a high of 178.75 for 1.00 employee per family; and
- * a low of 35.75 to a high of 119.17 for 1.80 employees per family.

Subsection (iii). Nunavut Government Facility Requirements

The Report stated that the type of Nunavut Government functions associated with the influx of employees will affect the range of possible facilities required (office space, special purpose storage, museums, etc.). This would be a factor in determining community expansion capability and community impact. The Report assumed that, initially, the focus for the Nunavut Government will be on its needs for conventional office space. Once more specific details are known about the government's operations, other needs could be further refined.

The Report assumed a job level breakdown based on **"Information on Nunavut and Baffin Region"**, a report prepared by the GNWT Department of Education, Culture and Employment, in April, 1994, namely:

Senior/Executive Administration	6.5%
Mid-Level Administration	15.1%
Officer	63.5%
Support	14.9%

(a) Building Upgrade Assumptions

Building categories in the Report came from a review of existing community services and analysis in the 1992 work of the Coopers and Lybrand Consulting Group.

Existing population based guidelines and standards (GNWT and federal government) were used to forecast thresholds for additional facilities. Site specific issues, such as travel distance for fire protection, were also considered.

(b) Office/Administrative Facilities

The Report assumed that small influxes of new staff into a community could be accommodated in a single office building, but when levels exceeded 100 PYs, office space requirements, combined with the scale of existing buildings, would dictate separate buildings, linked in a campus style. At the 250 PY level, individual building components might assume distinct functions.

(c) Educational Facilities

The Report relied on current GNWT guidelines for schools: preferred operating capacity should be at 85%; all new facility space should open at a 70% utilization rate; and, schools should not reach 100% utilization in under five years. Standard classrooms should house 22 students. Schools in the relevant communities had recently been upgraded. While 100% capacity would be required, the preferred operating factor to use was 85%. The Report took into account GNWT policy favouring use of private

homes for boarding students; where new construction would be required, student hostels/residences could be converted later on into residential units. Adult learning centres could be upgraded through the addition of classrooms and expanded facilities.

(d) Health Facilities

All communities have a health station, a health centre, or regional health centre, depending on size. Community size determines facility size. Medical libraries and research facilities could be incorporated into health facilities. Recently, Rankin Inlet has proposed construction of a Regional Multi-Level Health Care Facility and Iqaluit has proposed construction of a Regional Hospital. Both proposals are under review by the GNWT.

(e) Community/Recreation Facilities

The GNWT uses population based guidelines to determine thresholds for construction and upgradings of community halls, gymnasiums, arenas and other recreational activities. Facilities are based on community size and layout. Some of the recreational needs of young people could be served through the use of community facilities such as schools, and wider recreational needs could be taken into account when developing educational facilities.

(f) Municipal Facilities

The GNWT has population based guidelines to determine thresholds for construction and upgrading of fire halls, municipal offices, maintenance garages and parking garages. Such facilities are based on community size and layout. The Report states that municipal facilities should be reviewed to determine the need for expansion.

(g) Housing

A major limiting factor affecting housing is the availability of land; therefore, verification of the number of lots available is a first consideration. Design criteria should be based on CMHC guidelines for social and cooperative housing under the Maximum Unit Price Program.

(h) Social Services Buildings

The Report addressed facilities directly related to the Nunavut Government in its initial development phase. Day care facilities were included due to their potential impacts on education and training. Population influxes of more than 250 PYs require day care needs to be analyzed in conjunction with educational and recreational facilities.

(i) **Commercial**

The Report did not review commercial development. Potential commercial development scenarios would be reviewed after a review of completed community technical profiles.

Subsection (iv). Community Expansion Capability

The Report examined each community's capability to respond to population increases associated with projected Nunavut Government requirements. Specifically, the Report examined:

- * land availability;
- * existing capacities and expansion capability of community infrastructure and transportation systems;
- * space availability for Nunavut Government functions; and,
- * existing capability of, and further requirements for, community services.

The community data used in the Report were derived from the "**Community Technical Profiles**" prepared by the Nunavut Technical Working Group, September, 1994. Analysis of community expansion capability was undertaken after normal community growth had been taken into account.

(a) Cambridge Bay

The Report assumed the population of Cambridge Bay to be 1210 in 1994 and, with natural population growth, to be 1366 by 1999. At a maximum number of 500 Nunavut Government employees with 1.8 employees per household, the community would have a population of 2826 in 1999. At a maximum number of 250 Nunavut Government employees with 1.8 employees per household, the community would have a population of 2096 in 1999. The NIC Cambridge Bay Model contemplates the largest number of FTEs in any single Nunavut community in any model considered by the NIC: an increase of 255 FTEs in Cambridge Bay.

Land Availability (Cambridge Bay)

Cambridge Bay has drafted a land use plan and zoning by-law. The plan would accommodate all influx levels. The Report found no major development obstacles or cost anomalies. Granular supply was estimated at 20 years.

Municipal Services (Cambridge Bay)

The Report found that except for the need for additional water and sewage trucks (four for a 500 employee influx), there would be no problems with the expansion of water supply and sewage disposal. The water supply would have to be increased for population increases above 1500.

Energy (Cambridge Bay)

The Report found that, taking into account natural population growth, there would be a surplus in energy capacity for 1999. The Report estimated that Cambridge Bay could handle a population influx up to the 100 PY range. The NWTPC tank farm could absorb a 100% increase in capacity; it will be expanded to meet normal growth between 1995-99.

Communications (Cambridge Bay)

All Nunavut communities are served by the CBC. Telecommunications services are provided by NorthwestTel, with Cambridge Bay being served out of Yellowknife, and Iqaluit and Rankin Inlet being served out of Iqaluit. Iqaluit has state of the art equipment and telephone service. The Report stated that services such as video-conferencing and distance learning would be feasible with appropriate equipment.

Air Transportation (Cambridge Bay)

Cambridge Bay has a 1524 by 46 metre gravel airstrip that is technically adequate for all transportation needs scenarios. With a higher population it might be more cost effective to pave the strip and extend it to 1830 metres. The Report stated that the air terminal building and landing instruments should be upgraded as increased traffic warrants. The Report concluded that there are no major obstacles to expansion.

Marine Transportation (Cambridge Bay)

Cambridge Bay receives one NTCL barge visit a year. The Coast Guard wharf (43 by 9 metres) and marshalling areas are adequate for minor increases in traffic, but navigation aids and wharf and marshalling areas would have to be upgraded for significant increases in traffic. Storage facilities and pollution response equipment would be required. The Report concluded that there are no major obstacles to expansion.

Roads (Cambridge Bay)

The Report stated that an all weather road to Cambridge Bay (or any of the communities in Nunavut) from the South would not be feasible due to excessive costs.

Facilities (Cambridge Bay)

The Report found that existing office and housing space could not cover anything beyond normal community growth requirements. Municipal buildings would have to be upgraded after a 100 PY threshold was reached.

The Report concluded that there are no foreseeable obstacles to upgrading or constructing additional facilities to accommodate influxes of up to 500 Nunavut Government employees.

Community Services (Cambridge Bay)

Community social and education services are adequate for normal community growth with a limited spare capacity beyond current anticipated growth. Existing health and recreation capacity may be able to accommodate an influx of 25 Nunavut Government PYs. The Report concluded that there are no foreseeable obstacles to upgrading existing facilities to accommodate up to 500 Nunavut Government employees.

(b) Iqaluit

The Report assumed the population of Iqaluit to be 3844 in 1994 and, with natural population growth, to be 4330 by 1999. At a maximum number of 500 Nunavut Government employees with 1.8 employees per household, the community would have a population of 5790 in 1999.

Land Availability (Iqaluit)

A 1987 community plan provides for large scale expansion to accommodate normal community growth and an influx of people should Iqaluit become the capital. The Report found that Iqaluit should be able to handle a large population influx in the Apex Road subdivision, with other expansion areas available for commercial, community and institutional needs. Industrial development could be accommodated in the vicinity of the airport.

Municipal Services (Iqaluit)

The Report found a current need to upgrade the central water supply, treatment and distribution facilities, including water storage. There is also a need to upgrade sewage pumping stations and sewage treatment capacity. Provided these facilities are built, as identified in the five year capital plan, they could accommodate all influx scenarios. The Report concluded that there are no obstacles to upgrade these facilities.

The Report stated that additional compactor garbage trucks would be required for expansion (four trucks for 500 Nunavut Government employees). The Report found the two current solid waste disposal plants to be inadequate.

Energy (Iqaluit)

The Report found that there would be a current surplus in energy capacity which could be expected to meet lower population influx levels in 1999. Replacement of an older engine, as identified in the capital plan, could be sized to meet all new population influx levels. Expansion or addition of powerhouse space would not be needed for a population influx. The tank farm has space and a pad for a new fuel tank.

Communications (Iqaluit)

All Nunavut communities are served by the CBC. Telecommunications services are provided by NorthwTel, with Cambridge Bay being served out of Yellowknife, and Iqaluit and Rankin Inlet being served out of Iqaluit. Iqaluit has state of the art equipment and telephone service. The Report stated that services such as video-conferencing and distance learning would be feasible with appropriate equipment.

Air Transportation (Iqaluit)

Iqaluit has a paved 2743 by 60 metre airstrip, with facilities adequate for all scenarios.

Marine Transportation (Iqaluit)

Iqaluit receives five sea lift visits a year. There is a dredged channel, cleared beach, wood wharf, and marshalling area adequate for current sea lift. Significant increases in shipping would benefit from improvements to the channel and anchoring facilities and would require storage facility for pollution response equipment. The Report concluded that there are no major obstacles to expansion.

Roads (Iqaluit)

The Report stated that an all weather road to Iqaluit (or any of the communities in Nunavut) from the South would not be feasible due to excessive costs.

Facilities (Iqaluit)

The Report found that, due to its size and its significant GNWT infrastructure, Iqaluit could absorb up to 25 additional PYs without any significant upgrading of existing office/administrative space. Municipal buildings would not have to be upgraded until the 100 PY threshold was reached. Additional housing would be required to accommodate influxes of new Nunavut Government employees. Land availability is not a problem for the construction of additional facilities, although current development patterns might entail special approaches to

the planning and design of incremental facilities.

Community Services (Iqaluit)

The Report found community social and health services to be adequate for normal community growth. Education and recreational facilities could accommodate up to 50 Nunavut Government PYS without significant upgrading. The Report concluded that there are no foreseeable obstacles to the construction of additional capacity to existing community services to accommodate up to 500 new Nunavut Government employees.

(c) Rankin Inlet

The Report assumed the population of Rankin Inlet to be 1863 in 1994 and, with natural population growth, to be 2124 by 1999. At a maximum number of 500 Nunavut Government employees with 1.8 employees per household, the community would have a population of 3583 in 1999.

Land Availability (Rankin Inlet)

The Report found that a community plan and zoning bylaws have been drafted for Rankin Inlet which allocate sufficient land for all likely purposes, although some land remains to be serviced. Granular supply is projected for 20 years at the new Itivia site.

Municipal Services (Rankin Inlet)

The Report found expansion of the central water supply and sewage disposal to be ongoing in accordance with the five year capital plan. Once this work is complete, there will be adequate capacity for all expansion scenarios. The Report concluded that there are no obstacles to expansion of facilities should expansion be required.

The Report stated that additional compactor garbage trucks would be required for expansion (four trucks for 500 Nunavut Government employees). If the upgrade in the five year capital plan for solid wastes is completed, there will be adequate capacity for all Nunavut Government scenarios.

Energy (Rankin Inlet)

The Report found that current energy capacity is adequate and has some surplus capacity; with normal capital planning, it could meet normal population growth requirements. An influx of Nunavut Government employees would require new energy capacity. Required upgrading for tank farms would be straightforward.

Communications (Rankin Inlet)

All Nunavut communities are served by the CBC. Telecommunications services are provided by NorthwesTel, with Cambridge Bay being served out of Yellowknife, and Iqaluit and Rankin Inlet being served out of Iqaluit. Iqaluit has state of the art equipment and telephone service. The Report stated that services such as video-conferencing and distance learning would be feasible with appropriate equipment.

Air Transportation (Rankin Inlet)

Rankin Inlet has a paved 1829 by 46 metre airstrip and facilities adequate for all scenarios.

Marine Transportation (Rankin Inlet)

Rankin Inlet receives three NTCL barge and two ship sea lift visits a year. Upgrading of resupply facilities (wharf and terminal) began in 1994 and is due to be completed in 1998; this upgrading will be adequate to meet all growth scenarios. The Report concluded that there are no major obstacles to expansion.

Roads (Rankin Inlet)

The Report stated that an all weather road to Rankin Inlet (or any of the communities in Nunavut) from the South would not be feasible due to excessive costs.

Facilities (Rankin Inlet)

The Report found that existing office/administration and housing space are adequate to accommodate normal community growth with enough capacity to serve less than 25 additional Nunavut Government PYs. Municipal buildings would not have to be upgraded until the 50 PY threshold is reached. The Report concluded that there are no foreseeable obstacles to the construction of additional community facilities to meet influx levels up to 500 new Nunavut Government employees.

Community Services (Rankin Inlet)

The Report found community social, health and recreational facilities to be adequate for normal community growth with spare capacity adequate to meet influx levels of approximately 25 new Nunavut Government PYs. The newly completed training centre could accommodate an influx of up to 50 new Nunavut Government PYs. The Report concluded that there are no foreseeable obstacles to the construction of additional capacity to accommodate up to 500 new Nunavut Government employees.

Subsection (v). Discussion

The Technical Analysis Report concluded that Cambridge Bay, Iqaluit and Rankin Inlet all have the potential to absorb foreseeable population influxes. Existing GNWT plans can accommodate normal community growth, but may have to be revised to accommodate significant additional population growth. Adjustments in capital plans are required to allow for land, facility and infrastructure upgrades to accommodate population influxes. Sufficient lead times are required for planning and development of infrastructure. There appear to be no significant physical or environmental impacts associated with population influxes but, in some communities, a high influx level could more than double the population; this might be of some concern with respect to social, cultural, and economic impacts.

(a) Land Availability

The Report concluded that there is adequate land available in all the communities studied to accommodate land uses associated with influx levels. Except for low influx levels that can be accommodated by existing surpluses of serviced lands to 1999, expansion will require normal subdivision planning and surveying as well as normal grading and drainage. The Report did not note any extraordinary site limitations or land use conflicts.

Community planning and approvals will have to be undertaken. The Cambridge Bay and Rankin Inlet community plans identify new development areas for all land uses. In the Rankin Inlet plan, population influx levels have been specifically addressed and the Iqaluit plan is expected to do the same. The Iqaluit plan prepared in 1987 provides for population growth in keeping with the levels set out in the Report.

(b) Municipal Services

In Cambridge Bay, additional water and sewage trucks would be required. In Iqaluit and Rankin Inlet, additional water and sewage mains would be required.

The analysis provided in the Report assumed that the proposed GNWT five year capital plan will be fully implemented on schedule. The influx of people beyond normal population growth would necessitate expansion sooner than currently expected.

(c) Energy

All three communities have some surplus in current energy generation capacity and fuel storage capacity which may be adequate to accommodate low population influxes. No significant obstacles exist with respect to increasing capacity.

(d) Access

Air access for all three communities is currently adequate for all influx scenarios. The Cambridge Bay airstrip and terminal buildings and facilities might have to be upgraded for higher population levels.

Marine facilities at Cambridge Bay should be upgraded to accommodate higher population influx levels. Permanent docking facilities at Iqaluit are assumed to be uneconomical due to the high level of tides. Facilities contemplated in the five year plans of both Rankin Inlet and Iqaluit should be adequate for increased population levels. Additional storage space and pollution response equipment will be required for Cambridge Bay and Iqaluit.

The Report concluded that there are no major obstacles to the expansion of marine and air facilities and that an all weather road to any of the communities from the South is not economically feasible.

The Report concluded that none of the relevant communities has extra office and housing accommodation capacity beyond coping with normal population growth and up to 25 Nunavut Government PYs. Substantial construction of additional buildings will therefore be required.

The Report concluded that all the communities may be able to absorb influxes from under 50 up to 100 PYs before significant upgrading to municipal buildings is required.

The Report also concluded that any spare facility capacity transferred from the GNWT to the Nunavut Government will raise construction thresholds accordingly, enabling a better delineation of the differences between the communities.

(e) Community Services

The Report concluded that some existing community buildings have additional capacity beyond normal growth requirements to accommodate fewer than 25 Nunavut Government PYs. These exceptional cases (the Rankin Inlet training centre and Arctic College in Iqaluit) may raise spare capacity thresholds upward to between 25 and 50 Nunavut Government PYs. The Report also concluded that any spare capacity transferred from the GNWT to the Nunavut Government would raise construction thresholds.

Subsection (vi). Conclusions

All the communities could physically absorb small increments of people in addition to their natural growth rates, but larger population influxes would require some expansion. Generally, there are no significant obstacles to community expansion in any of the communities.

The Report contained several charts summarizing its findings (these charts are reproduced in **Appendix 3** of this report). The charts show two things: the capability of communities in 1999 to accommodate PYs in relation to natural population growth by 1999; and, the capability of communities to expand to accommodate population increases beyond natural population growth.

With respect to land availability, the charts indicate that all three communities could accommodate, more or less equally, small increases in population growth in the areas of housing, office and institutional space, and commercial and industrial use. All three communities could accommodate expansion to meet the needs of any of the population influx scenarios.

With respect to infrastructural development associated with water, sewage, solid waste disposal, roads, energy and communications, the charts indicate that all three communities could absorb, more or less equally, small increases in population without expansion. All three could accommodate expansion for any of the scenarios. Cambridge Bay would be a little more hard pressed to accommodate expansion in the areas of water, sewage and solid disposal than the other communities. In the field of communications, Cambridge Bay and Rankin Inlet are less developed than Iqaluit.

With respect to air transportation, the charts indicate that all three communities could equally absorb increases of population for any of the scenarios and are equally capable of expansion.

With respect to marine services, the charts indicate that Iqaluit and Rankin Inlet could equally absorb large influxes of population, and that both are equally capable of expansion. Cambridge Bay, although capable of expansion, would be a little more hard pressed to absorb significant increases in population without it.

With respect to facilities associated with office/administration, municipal and commercial buildings, and housing, the charts indicate all the communities are more or less equally capable of absorbing small increases in population without expansion, with Cambridge Bay being more slightly more capable in the area of municipal buildings. All three

communities are equally capable of expansion to meet any of the likely scenarios.

With respect to community services such as social services, education, and health and recreation, the charts indicate that all three communities could absorb, more or less equally, small increases in population, with Cambridge Bay being slightly more capable of doing so in the areas of health and recreation. All three communities are equally capable of expansion to meet any of the scenarios.

Of the three communities, only Cambridge Bay would require its airstrip to be paved, its terminal and landing instruments to be improved, and its marine wharf and marshalling area to be upgraded, for significant increases in traffic associated with larger population influxes. Storage facilities and pollution response equipment would also be required in Cambridge Bay. Shipping associated with Iqaluit would benefit from improved channel and anchoring facilities, storage facilities and pollution response equipment. There are no obstacles to installation of necessary infrastructure in the communities.

Although it is physically possible to connect Rankin Inlet to a land transportation network South of 60, an all weather road connecting it or any of the other communities would be cost prohibitive.

Iqaluit has the most up to date communications and telephone service of the three communities. Cambridge Bay is the only one of the three communities serviced by NorthwesterTel out of Yellowknife and not serviced by the CBC out of Iqaluit.

In Cambridge Bay, surplus energy capacity could accommodate 100 or more new PYs. In Iqaluit, the current energy surplus could accommodate low population influxes, but all influx scenarios could be met if the capital plan being contemplated is implemented. In Rankin Inlet, energy capacity would have to be upgraded to accommodate more than natural population growth.

In Cambridge Bay, except for the need for additional water and sewage trucks, there would be no problems in the expansion of the water supply and sewage disposal. The water supply would have to be increased for population increases above 1500. In Iqaluit, water supply, treatment and distribution plans contemplated in the five year capital could accommodate all influx scenarios, but the solid waste disposal plans would prove inadequate. In Rankin Inlet, the water and sewage system could accommodate all population influx scenarios if the five year capital plan were implemented. Iqaluit and Rankin Inlet would both need additional compactor garbage trucks.

Municipal buildings in Cambridge Bay and Iqaluit would both have to be upgraded for more than 100 new Nunavut Government PYs, while upgradings would be required in Rankin Inlet for more than 50 new PYs.

Community social and education services in Cambridge Bay would require expansion for population influx levels greater than 25 new PYs. Community social and health services in Iqaluit would require expansion for population influx levels greater than 50 new PYs. Community social, health and recreational services in Rankin Inlet would require upgrading for population influx levels greater than 25 new PYs, except for the training centre, which could absorb up to 50 new PYs.

Cambridge Bay, through natural growth, is forecast to have 1366 people in 1999. At a maximum of number of 250 Nunavut Government employees with 1.8 employees per household, the community would have a population of 2096 in 1999. This would mean an 153.4% increase in the overall population. (The NIC Cambridge Bay Model proposes a 255 Nunavut Government FTE (PY) increase in Cambridge Bay.)

Iqaluit, through natural growth, is forecast to have 4330 people in 1999. At a maximum number of 250 Nunavut Government employees with 1.8 persons per household, the community would have a population of 5060 in 1999. This would mean a 16.4% increase in the overall population. (The NIC Iqaluit Model proposes a 99 Nunavut Government FTE (PY) increase in Iqaluit.)

Rankin Inlet, through natural growth, is forecast to have 2124 people by 1999. At a maximum number of 250 Nunavut Government employees with 1.8 persons per household, the community would have a population of 2854 in 1999. This would mean a 74.4% increase in the overall population in 1999. (The NIC Rankin Inlet Model proposes a 216 Nunavut Government FTE (PY) increase in Rankin Inlet.)

In summary, land is available in all three communities for expansion. Cambridge Bay would be a little more hard pressed to accommodate expansion in the areas of water, sewage and solid waste disposal. Air transportation facilities in all three communities could absorb increases in population and could be expanded, but the facilities in Cambridge Bay might have to be upgraded. The marine transportation facilities in all three communities could accommodate expansion, but the facilities in Cambridge Bay would have to be upgraded. All three communities could accommodate small influxes of population in relation to municipal buildings and all three communities could accommodate expansion. All three communities could accommodate small population influxes in the areas of social services, health, education and recreation and all three communities could accommodate expansion. All three communities would require new

housing. A 250 PY increase, at 1.8 employees per household, would mean an population increase of 153.4% in Cambridge Bay, a 16.4% increase in Iqaluit, and a 74.4% increase in Rankin Inlet.

On the basis of the above facts and analysis, Commissioners have concluded that, with respect both to existing infrastructure and to capability of expansion of infrastructure, all three candidate communities for capital are equally well positioned; there are no compelling reasons to favour one community over the others in this respect.

Section 6. Geographic Position

Subsection (i). Introduction

The NIC's discussion paper of June, 1994, entitled **"Discussion Paper Concerning the Development of Principles to Govern the Design and Operation of the Nunavut Government"**, identified two factors concerning the geographic location of the capital and its position in relation to other regional centres in Nunavut and to major centres outside Nunavut:

- * existing and potential transportation links within Nunavut and outside Nunavut; and,
- * position/accessibility within the overall circumpolar world.

The location of the capital and its position is important for reasons of transportation and communication.

The discussion that is offered in the following subsection as to the comparative geographic advantages and disadvantages of the three candidate communities for capital draws, to some extent, on information supplied in the report, entitled **"Technical Analysis of Population Influx Scenarios in Four Nunavut Communities"**, prepared by DIAND Technical Services, Public Works and Government Services Canada, dated October 3, 1994.

Subsection (ii). Comparisons

(a) Transportation: Overview

Transportation linkages within Nunavut, and between Nunavut and places outside Nunavut, both in Canada and abroad, are of some importance in the selection of a capital location. Ease of access with other major centres is important to the smooth and efficient running of the Nunavut Government. Air and marine transportation are the only practical means of transporting people and freight over large distances to a widely dispersed population living in a difficult terrain and a cold climate.

Cambridge Bay, Iqaluit and Rankin Inlet all have facilities adequate to accommodate air traffic associated with large population influxes (the facilities in Cambridge Bay might have to be upgraded). Although air routings currently link the regional centres within Nunavut in an established pattern, routings can be easily changed, provided that appropriate servicing and landing facilities are available. All three airports have the capability to expand to meet demands.

All three communities have marine service facilities that are capable of handling population increases, although facilities in Cambridge Bay may require upgrading.

(b) Air Transportation

In relation to air transportation networks within Nunavut, Rankin Inlet occupies the most central location of the three candidate communities for capital. It is 730 miles from Rankin Inlet to Iqaluit, 707 miles to Yellowknife, and approximately 560 miles to Cambridge Bay. The distance from Cambridge Bay to Yellowknife is 529 miles and to Iqaluit approximately 1040 miles. Employing 1991 census data, Rankin Inlet, if chosen to be the capital, would be a central air hub serving a population of approximately 22,000 people within Nunavut. On a regional basis, Rankin Inlet would serve approximately 5,800 people in the Keewatin, Cambridge Bay would serve approximately 4,000 people in the Kitikmeot, and Iqaluit would serve approximately 11,000 people in the Baffin Region.

In relation to connections to major centres outside Nunavut, Cambridge Bay to Edmonton is 1154 miles (via Yellowknife), Rankin Inlet to Winnipeg is 914 miles, and Iqaluit to Ottawa is 1304 miles and to Montreal 1272 miles. Using modern jet aircraft, there is only about one hour's difference in flying time between any of the three communities and their southern counterparts.

In relation to Inuit populations outside Nunavut but within Canada, Cambridge Bay is closest to the Inuvialuit Settlement Region in the Beaufort Sea Region, and Iqaluit is closest to the

Nunavik Inuit in Northern Quebec and the Labrador Inuit in Newfoundland and Labrador. Iqaluit's location within the Baffin Region (pop. 11,000), and its proximity to Northern Quebec (pop. 7,800) and Northern Labrador (pop. 4,500), make it centrally located to some 23,300 people. Iqaluit is connected by regularly scheduled air service to the regional centre of Koudjouac in Northern Quebec, a distance of 383 miles. Cambridge Bay's location in the Kitikmeot (pop. 4,000), and its proximity to Inuvialuit (pop. 5,000), make it centrally located to connect some 9,000 people.

In relation to locations within the circumpolar world, Cambridge Bay is closest to Alaska (Inuit pop. 44,000), and Iqaluit is closest to Greenland (pop. 55,000, of which 47,000 are Inuit). There is no regularly scheduled air service between Cambridge Bay and Alaska. There is regularly scheduled seasonal air service between Iqaluit and Nuuk, Greenland, and regularly scheduled annual air charters between Grise Fiord and Qanaq, Greenland.

Air transportation services and airport closures can be affected by several factors, including, weather, runway conditions, and air traffic control technology. Airport closures must also be assessed from the standpoint of reasons for closure. For instance, an airport may be technically inoperable because of snow on the runway which may not be cleared until there are scheduled flights. According to Transport Canada neither Rankin Inlet nor Iqaluit in 1994 was closed in a way that affected scheduled flight service. The airport in Cambridge Bay was closed for three or four days in 1994 resulting in only one or two scheduled flight cancellations. Other flights were rescheduled for the following day.

(c) Marine Transportation

Marine services are affected by sea, ice and weather conditions and the off loading facilities and port facilities at cargo destinations. The **DIAND Technical Analysis Report** indicated that all three communities are capable of absorbing increased marine traffic and are also capable of expansion. Of the three communities, only Cambridge Bay would require upgrading of its wharf and marshalling area facilities. Iqaluit and Cambridge Bay would require an upgrade of storage facilities and pollution response equipment. Rankin Inlet is the closest to a major port, Churchill, Manitoba, approximately 300 miles south. Cambridge Bay is approximately 800 miles from a major port in Tuktoyatuk.

Regarding connecting ship transportation within Nunavut, only Iqaluit and Rankin Inlet could maintain regular seasonal connections. Connections with Cambridge Bay from either community would require transit of the Northwest Passage, an

unreasonable proposition for regularly scheduled marine service. Both Rankin Inlet and Iqaluit could maintain seasonal marine links with Northern Quebec, Northern Labrador and Greenland. Shipping eastward from Cambridge Bay to Greenland and eastern Canada would require transiting the Northwest Passage, as would shipping westward to the Beaufort Sea and Alaska from Iqaluit and Rankin Inlet. Ships from Cambridge Bay could more readily reach the Beaufort Sea and Alaska.

(d) **Land Transportation**

Cambridge Bay is approximately 750 miles from a connecting road, the Dempster Highway, which links Inuvik with Dawson City in the Yukon. It is closer to seasonal winter roads that connect the city of Yellowknife with mining operations in the western territory. Rankin Inlet is the closest community to a rail head at Churchill, Manitoba, 300 miles south. A 300 mile rail line from Churchill to Thompson, Manitoba, connects with roads to southern Canada. Rankin Inlet is connected to Arviat, 150 miles north of Churchill, Manitoba, by bombardier service in the winter.

(e) **Communications**

Telephone and broadcasting of radio and television signals are important links between the communities and the outside world. The communities of Iqaluit and Rankin Inlet receive telephone service from NorthwesTel out of Iqaluit, and Cambridge Bay out of Yellowknife. The CBC services all communities, with Rankin Inlet receiving CBC broadcast out of Iqaluit and Cambridge Bay receiving service out of Inuvik. Iqaluit has the most up to date telephone system in Nunavut. **Nunatsiaq News**, the only large weekly northern newspaper produced in both Inuktitut (syllabics) and English, is read mainly in the eastern portion of Nunavut.

The "**Footprints in New Snow**" report recommended that the Nunavut Government be a decentralized government. The NIC's June, 1994, Discussion Paper recommended that "full advantage should be taken of new and emerging technologies in order to facilitate the coherent operation of government departments and agencies that are distributed across the various regions and communities." Establishing a modern telecommunications infrastructure will allow for a more efficient and cost effective Nunavut Government. By processing information electronically, communication costs become transmission time-related, rather than distance-related. Accordingly, apart from initial infrastructural costs and perhaps servicing costs, there is no appreciable advantage or disadvantage to locating the capital in any particular region.

Subsection (iii). Conclusions

In relation to air transportation, there is little difference in flying time from the three communities to their southern Canadian supply points. No scheduled flights had to be cancelled in either Iqaluit or Rankin Inlet in 1994, and only one or two had to be cancelled in Cambridge Bay.

Viewing Nunavut as a whole, Rankin Inlet is the most centrally located of the three communities. Iqaluit is 730 miles to the east of Rankin Inlet, and Cambridge Bay is 560 miles to the northwest of Rankin Inlet. Geography notwithstanding, none of the three communities is more centrally located than the others in relation to providing services to all of Nunavut. Although Rankin Inlet could just as easily service the east Kitikmeot communities as does Cambridge Bay, it would be hard pressed to service the High Arctic communities of the Baffin. Likewise, Iqaluit would be hard pressed to service the Kitikmeot Region, and Cambridge Bay the Baffin Region.

On a regional basis, Iqaluit is in the best position to service the 11,000 people of the Baffin Region, approximately half the population of Nunavut. Rankin Inlet is best located to service the 5,600 people of the Keewatin, who make up some 30% of the population of Nunavut, and Cambridge Bay is best located to service the 4,000 people of the Kitikmeot, who make up some 20% of the population of Nunavut.

Looking at Nunavut's connections within Canada, Iqaluit is closest to the Inuit populations of Northern Quebec and Northern Labrador; together, these populations amount to 12,300. Cambridge Bay is furthest to the west, placing it closest to 5,000 Inuvialuit. Iqaluit is closest to Ottawa, at a distance of 1304 miles, and Cambridge Bay is closest to Yellowknife, at a distance of 527 miles.

Looking at Nunavut's connections outside Canada, Cambridge Bay is closest to 44,000 Alaskan Inuit. Iqaluit is closest to 55,000 Greenlanders, of whom 47,500 are Inuit.

None of the three communities has road access to the southern Canada, and none will likely have such access in the foreseeable future.

With respect to ship transportation, only Iqaluit and Rankin Inlet could have seasonal marine transportation links to Northern Quebec, Northern Labrador and Greenland. Rankin Inlet is closest to the port of Churchill, Manitoba. Ship transportation eastward from Cambridge Bay would require transiting the Northwest Passage, as would ship transportation westward from Iqaluit and Rankin Inlet. Ships from Cambridge Bay could more readily reach the Beaufort Sea and Alaska.

Regarding telecommunications, apart from initial infrastructural costs and perhaps servicing costs, there would be no appreciable advantage or disadvantage in locating the capital in any particular region.

It is possible to summarize this section of the report in the following way:

- * if centrality of location within Nunavut is a key consideration, then Rankin Inlet would make the best choice for capital;
- * if proximity to the largest number of Inuit in Canada (as well as in Nunavut) is a central consideration, then Iqaluit would make the best choice for capital;
- * if weather, as it relates to air transportation, is a central issue, then all communities are similarly positioned;
- * the probabilities of road access to the South, or of seasonal marine transportation linkages between regional centres, are too slim to make such considerations significant; and,
- * regarding telecommunications, apart from the initial infrastructural costs and perhaps servicing costs, there is no appreciable advantage or disadvantage in locating the capital in any particular region.

Based on these assessments, the NIC comes to the following conclusions:

1. no single consideration as to geographic position is of such primary significance as to warrant favouring one community as capital strictly on that basis; and,
2. no single community emerges as a clear favourite as to geographic position when a variety of considerations are examined.

Accordingly, the NIC concludes that considerations of geographic position do not equip any candidate community for capital with a preferred standing over the other two possibilities.

Section 7. Regional Support

The NIC, in its June, 1994, discussion paper entitled, **"Discussion Paper Concerning the Development of Principles to Govern the Design and Operation of the Nunavut Government"**, identified the extent of regional support as an element of consideration in the determination of the capital location.

The location of the capital of Nunavut has long been a hot topic of discussion, as evidenced by such things as the creation of capital support committees in Iqaluit and Rankin Inlet. For its part, the NIC has received more correspondence on the topic than any other issue: approximately 25 letters on the subject. In addition, the choice of capital was an important topic of discussion in each of the 26 communities in Nunavut visited by Commissioners in December, 1994, and January 1995. During those community visits, nine potential locations for capital were suggested: Arviat; Baker Lake; Cambridge Bay; Igloolik; Iqaluit; Nanisivik; Pond Inlet; Rankin Inlet; and, Taloyoak (of these nine communities, Baker Lake, Cambridge Bay, Gjoa Haven, Igloolik, Iqaluit and Rankin Inlet expressed a formal interest in being considered for choice as capital).

The range of views expressed to the NIC as to why the capital should or should not be placed in any particular location has been wide and divergent (for a summary of what was said about the choice of capital during the NIC community tours, see Appendix 9 of report, **"Footprints in New Snow"**). Most people have said that the capital should be located in one of the three main regional centres, citing population, infrastructure, weather and transportation as the main factors for doing so. People supporting communities other than the three main candidates have generally proposed their own communities or communities in their regions. People that did not want their home communities to become the capital, because of perceptions of negative impacts, often identified alternate communities within their own regions as possible capital locations.

Centrality of location was identified as an important consideration by people in the Keewatin who supported the capital being located in their region. It was also mentioned by some people in the Kitikmeot who did not want the capital to be too far away, and who feared that the smaller Kitikmeot population would not count for much against the larger regional populations of the Baffin and the Keewatin Regions.

In **"Footprints in New Snow"**, the NIC recommended that the capital location be limited to Cambridge Bay, Iqaluit and Rankin Inlet. The NIC further recommended that no plebiscite be conducted on the choice of capital because of the long-term

divisiveness that could be engendered by both the process and results.

Although "**Footprints in New Snow**" did not delve into the mechanics of a plebiscite, it should be pointed out that many difficult questions would need to be satisfactorily dealt with in order to stage a plebiscite, questions such as:

- * who would organize the plebiscite?
- * who would pay for the plebiscite?
- * who would decide the plebiscite question or questions?
- * would the plebiscite involve
 - each voter naming the location he or she most prefers ("filling in the blank(s)")?
 - each voter stating and ranking more than one preferred location?
 - each voter choosing among Cambridge Bay, Iqaluit and Rankin Inlet? all the communities interested in becoming capital? other combinations of locations?
- * what would be the minimum voting age in the plebiscite? --- the minimum voting age was 16 in the ratification vote of the Nunavut Agreement;
- * what would constitute a "clear" outcome to the plebiscite? a plurality of votes in favour of a particular location? a majority of 50% plus one? a majority reaching some higher threshold --- 60%? 66%?
- * in the event that the plebiscite results were not sufficiently clear, would there be a second plebiscite in the form of some kind of "run off"? what if the results of a second plebiscite were also unclear?
- * how long would a plebiscite take to organize and conduct, and how would the time taken up by a plebiscite process affect the ability of the Minister of DIAND to make a timely submission to the federal Cabinet on Nunavut issues in order to secure infrastructure, training, and other funding approvals?
- * would timing of a plebiscite be affected by NWT Legislative Assembly elections scheduled for this fall?

In the absence of a plebiscite or a carefully designed and administered opinion survey poll, it is impossible to offer very precise numerical assessments as to comparative levels of public

support; even with evidence in the form of a plebiscite or opinion survey, of course, some interpretive latitude might exist. From the NIC's perspective, it would appear, based on anecdotal rather than rigorous methodological analysis, that popular preferences at the moment roughly correspond with regional identities, that is, residents of the Kitikmeot Region tend to favour Cambridge Bay as capital, residents of the Baffin Region tend to favour Iqaluit as capital, and residents of the Keewatin Region, tend to favour Rankin Inlet as capital. Given that the Baffin Region constitutes approximately half of the total Nunavut population, it is realistic to suppose that more residents of Nunavut favour Iqaluit as capital than any other community.

Following from the above discussion, Commissioners conclude that:

1. Cambridge Bay, Iqaluit and Rankin Inlet all have discernible community and regional support for choice as capital and, accordingly, have significant support within the total population of Nunavut;
2. a decision to locate the capital in any particular region would likely be supported by the majority of residents in that region;
3. Commissioners continue to see major difficulties associated with any plebiscite on the capital, both with respect to the divisiveness of the process and the results of any plebiscite, and also with respect to the unanswered issues regarding plebiscite design, organization and timing; and,
4. anecdotal evidence suggests that, consistent with the size of the Baffin Region population within the total population of Nunavut, it is likely that more residents of Nunavut currently support Iqaluit as capital than any other community.

Section 8. Climate

Cambridge Bay, Iqaluit and Rankin Inlet are all situated in the Canadian Arctic, well above the tree-line, and all have a climate associated with the Canadian Arctic: long, cold winters involving the freeze up of adjacent inland and offshore waters; short growing seasons supporting tundra vegetation; and, low amounts of precipitation falling principally in the form of snow.

While all three candidate communities for capital share an Arctic climate, Iqaluit's climate is more modified by surrounding ocean areas than is the case with either Cambridge Bay or Rankin Inlet, and Rankin Inlet's climate is more modified by the large expanse of Hudson Bay than Cambridge Bay's climate by adjacent gulfs and straits. Accordingly, air temperatures in Iqaluit are cooler in the summer and milder in the winter than in Cambridge Bay, with Rankin Inlet occupying a middle position. Along with differences in ice clearing patterns, this results in Iqaluit have a longer open water season than either Cambridge Bay or Rankin Inlet, and Rankin Inlet having a longer open water season than Cambridge Bay. As is the case in the rest of North America east of the continental divide, precipitation levels increase from west to east. There is little difference in wind speeds. Because of their respective latitudes, Cambridge Bay has more daylight in the summer and less in the winter than Iqaluit or Rankin Inlet.

Some of these observations can be captured more precisely in the following table:

	Cambridge Bay	Iqaluit	Rankin Inlet
July temps. (degrees celsius)			
mean high	15.1	11.4	13.1
mean low	5.9	3.7	4.5
Jan. temps. (degrees celsius)			
mean high	-31.6	-21.5	-27.9
mean low	-37.9	-29.7	-35.2
Wind sp. (km/h)	21.8	16.7	24
Precipitation (cm/rain equivalent)	13.6	43.9	27.8
Break up (approx.)	mid July	early July	early July
Freeze up (approx.)	Sept/Oct.	early Dec.	late Oct.

Like people all over the world, the people of Nunavut like to talk about the weather, in particular, differences in weather patterns as experienced from place to place. Such differences lead to endless speculation as to whether a community's weather is "better" than that of another community. Speculation is fuelled, of course, by a general inability to agree on what might constitute "better" weather --- for example, do sharper seasonal swings in temperature make a climate more varied and invigorating or is a relatively "mild" climate preferable in all cases? How much precipitation is too much? How little is not enough? To what extent is the predictability of weather as important as its qualities? The list of questions can go on and on. Suffice it to say that there is a great deal of subjective opinion as to the relative attractions and horrors of various types of weather patterns and subjective opinion is, by definition, immune to objective, quantifiable analysis.

It is possible to conceive of a number of objective tests which could be used to distinguish the comparative climatic advantages and disadvantages of the three candidate communities for capital. Such tests can be used to investigate two concerns:

- * whether the climate of a community seeking to become capital is such that citizens of Nunavut would regularly be impeded from getting into, out of, or around the capital; and,
- * whether the climate of a community seeking to become capital is such as to impose significant economic burdens in the form of higher capital construction or operating costs in comparison with other communities also seeking to become capital; this could take the form of such things as higher heating bills due to colder temperatures, higher electrical bills because of darker winters, higher retail prices because of unreliability of re-supply from outside the community, lost staff time due to weather delays, etc.

With respect to the first concern, Section 5 of this report has indicated that the steady improvements in air navigation and transportation in the North have been such that residents of Cambridge Bay, Iqaluit and Rankin Inlet can all count on uninterrupted airline services; so few scheduled flights are cancelled in these communities as to remove inaccessibility due to weather as a relevant comparative factor.

The second concern as to weather --- additional costs associated with setting up and operating the headquarters functions of a capital in one community as opposed to another --- is of continuing relevance. Insofar, however, as different candidate communities for capital present variant profiles of installation and operating costs, these comparisons are best made in the context of overall financial analysis of the three

design models developed by the NIC. Such considerations have been taken into account in Section 4 of this report, and there is no obvious reason to make stand alone comparisons of a financial nature under the general rubric of "climate".

Given its thinking as to these two concerns, the NIC concludes that the only meaningful distinctions that can be drawn among the three candidate communities for capital with respect to climate are distinctions rooted in cost considerations and are best dealt with in Section 4 of this report. As a result, the NIC concludes that the factor of climate does not lend itself to an objective ranking of the three communities.

PART III: CONCLUSIONS

Part II of this report analyzes a number of factors concerning the comparative advantages and disadvantages of Cambridge Bay, Iqaluit and Rankin Inlet as capital of Nunavut. Part II analyzes the advantages and disadvantages of these communities in the context of the respective design models in which these communities would serve as capital (i.e., the Cambridge Bay Model, the Iqaluit Model and the Rankin Inlet Model). The conclusions flowing from the analysis offered in Part II can be summarized as follows:

Decentralization

The NIC has reached two conclusions with respect to decentralization comparisons among the Cambridge Bay Model, Iqaluit Model and the Rankin Inlet Model:

1. the number and variety of decentralization comparisons that have been made are sufficient to draw objective conclusions; and
2. on the basis of a large majority of comparisons, the Iqaluit Model is the best model for the purpose of bringing about a decentralized Nunavut Government.

Demographic and Related Social Impacts

The NIC concludes that it is possible to rely on objective impacts comparisons to make material distinctions among the three design model alternatives identified for the Nunavut Government. The NIC further concludes that the weight of comparisons gauging demographic and related social impacts favours the Iqaluit Model.

Costs/Finances

The NIC concludes that with respect to the capital and leasing costs for the infrastructure necessary to establish the headquarters in the capital and implement the associated decentralized organizational structure, the Iqaluit Model is the most cost effective, although there are not major cost differences among the three design models.

The ongoing cost of territorial government operations in the capital would be approximately the same for Rankin Inlet and Iqaluit and approximately 10% higher in Cambridge Bay.

Infrastructure Considerations

The NIC concludes that, with respect both to existing infrastructure and to capability of expansion of infrastructure, Cambridge Bay, Iqaluit and Rankin Inlet are equally well positioned; there are no compelling reasons to favour one community over the others in this respect.

Geographic Position

The NIC concludes the following in relation to the geographic positions of Cambridge Bay, Iqaluit and Rankin Inlet:

1. no single consideration as to geographic position is of such primary significance as to warrant favouring one community as capital strictly on that basis; and,
2. no single community emerges as a clear favourite as to geographic position when a variety of considerations are examined.

Accordingly, the NIC concludes that considerations of geographic position do not equip any candidate community for the capital with a preferred standing over the other two possibilities.

Regional Support

The NIC concludes that

1. Cambridge Bay, Iqaluit and Rankin Inlet all have discernible community and regional support for choice as capital and, accordingly, have significant support within the total population of Nunavut;
2. a decision to locate the capital in any particular region would likely be supported by the majority of residents of that region;
3. the NIC continues to see major difficulties associated with any plebiscite on the capital, both with respect to the divisiveness of the process and the results, and also with respect to the unanswered issues regarding plebiscite design, organization and timing; and,
4. anecdotal evidence suggests that, consistent with the size of the Baffin Region population within the total population of Nunavut, it is likely that more residents of Nunavut currently support Iqaluit as capital than any other community.

Climate

The NIC concludes that the only meaningful distinctions that can be drawn among the three candidate communities for capital with respect to climate are distinctions rooted in cost considerations and are best dealt with in Section 4 of this report. As a result, the NIC concludes that the factor of climate does not lend itself to an objective ranking of the three communities.

Overall Results

It is possible to tabulate the conclusions discussed above in the following way:

Factor	Best Model
Decentralization	Iqaluit Model
Demographic and Related Social Impacts	Iqaluit Model
Costs	Iqaluit Model*
Infrastructure Considerations	Equal results
Geographic Position	Equal results
Regional Support	Equal results**
Climate	Equal results

* One time costs associated with Iqaluit are somewhat lower than for Cambridge Bay and Rankin Inlet. Operating costs for Cambridge Bay are somewhat higher than for the other two communities.

** An equal level of regional support for each of three potential capital locations is, due to the larger population of the Baffin region, likely to translate into a higher level of popular support for Iqaluit on a Nunavut-wide basis.

Considering all the factors, it is apparent that the three design models, with their alternate capital locations, are equal in more respects than not. It is also apparent that, insofar as differences do emerge, the factors of decentralization, demographic and related social impacts, and costs, give Iqaluit the best overall results.

APPENDIX 1: Correspondence Concerning the Development of this
Supplementary Report



Your file Votre référence

Our file Notre référence

MAY - 4 1995

Mr. Simon Awa
Executive Director
Nunavut Implementation Commission
P.O. Box 1109
IQALUIT NT X0A 0H0

Dear Mr. Awa:

Follow Up to the Report from the NIC

On Thursday, April 20, 1995 officials from the Nunavut Tunngavik Incorporated, the Government of the Northwest Territories, and this department met in Ottawa to review "Footprints in New Snow". As follow up from these discussions, I have been requested by the parties to write to you to identify areas where additional advice is required to better assess the planning scenario developed by the Commission.

While the review covered the full report, and each of the parties may be developing its own position on the various issues, I would like to focus in on a number of key implementation activities where the Commission can be particularly helpful in providing further advice and which clearly fall within its mandate. The key implementation activities requiring the further advice of the Commission at this time are in the areas of administrative design, infrastructure development, selection of the capital, and training.

Administrative Design:

The Commission recommends that the centre selected as the capital of Nunavut should decentralize many of its existing regional functions. Can the Commission provide some insight into the implementation aspects of this recommendation, with particular attention to scheduling, human resource and cost implications?

.../2

The Commission provides a detailed breakdown of the proposed administrative design but defers on the matter of phase in and details on the transition period to 1999. As the period leading to 1999 is critical, can the Commission provide details on the transition period and provide some additional consideration or clarification on the recommended approach to phase in?

Infrastructure Development:

The Commission supports the participation of the private sector and the use of leasehold arrangements as the preferred approach to the construction and maintenance of facilities. The Commission has also indicated that it is looking at the financial implications of lease versus Crown construct.

Fundamental issues arise regarding planning horizons, cost impacts and investment strategies. It is understood that the NIC will be examining these questions further, including the question of lease and Crown construct. The parties consider this to be a vital area within the Commission's mandate which requires further work. PWGSC and GNWT-PWGS are prepared to lend their assistance to the NIC on the technical aspects of this work.

This should then allow the Commission to clarify in its view the timing and scheduling of construction, year-to-year impacts, requirements for specific facilities and resulting year-to-year financial implications. Again, PWGSC and GNWT-PWGS will lend their assistance to the NIC on the technical aspects of this work.

The Commission advocates the integration of information technology into the workplace and the development of an increased capability in the communities of Nunavut. Can the Commission advise on the impact this would have on the administrative structure with particular emphasis on the cost and benefits? It is also requested that the Commission advise on the information systems requirements of the Government and related transition implications, including the timing for the development of Government of Nunavut systems and the merits of Departmental/agency autonomy in this regard.

Selection of the Capital:

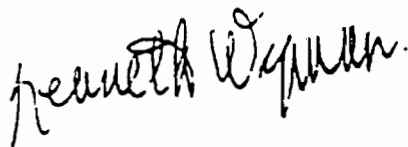
In narrowing options for the selection of the capital of Nunavut, the Commission recommends criteria to be used in the selection process. The parties feel it is important for the Commission to provide additional clarification on the criteria and some relevant weighting to aid in the process of analysis?

Training:

The Commission puts forward a range of training projects as the recommended approach to preparing Inuit for employment in the Nunavut Public Service. Can the Commission be more precise in relating its approach directly to the proposed administrative design with particular attention to senior management, technical and para-professional training, scheduling, coordination with claims implementation training, and identifying existing and new or modified program requirements.

I trust this provides you with some framework for future research and discussions. Officials from the parties would be pleased to meet with NIC staff to discuss these and related issues at an early date. I would suggest May 23rd or 24th, if practical, for this purpose.

Yours sincerely,



Kenneth Wyman
Associate Director
Northern Affairs Program

c.c.: Cindy Fair, GNWT
Alex Campbell, NTI

The first report will offer further analysis and advice with respect to the comparative advantages of Cambridge Bay, Iqaluit and Rankin Inlet as capital of Nunavut based on a detailed examination of objective factors, particularly, set up and operational costs, and compatibility with overall decentralization of government operations. The Commission will submit this report to the three parties by June 30, 1995.

The Commission further undertakes to supply a second report to the three parties. This second report will provide further analysis and advice on those topics, apart from the choice of capital (namely, administrative design, infrastructure, and training), broadly outlined in a letter from Ken Wyman, Nunavut Secretariat, DIAND, to Simon Awa, Executive Director, NIC, dated May 4, 1995. The Commission will submit this second report by early August, 1995.

I hope these undertakings are satisfactory to you and I welcome any comments that you may have with respect to them.

Given the high level of interest in Nunavut concerning these issues, especially the choice of capital, it is the Commission's intention to make this letter public on the occasion of the press conference planned for May 25 in association with release of the report, "**Footprints in New Snow**".

Yours sincerely,



John Amagcalik
Chairperson
Nunavut Implementation Commission

cc - Jack Anawak, MP

APPENDIX 2: Appendix A-14 from "Footprints in New Snow"

Appendix A-14

Comparison of the Distribution and Demographic Impacts of the Three Decentralized Design Models

Introduction

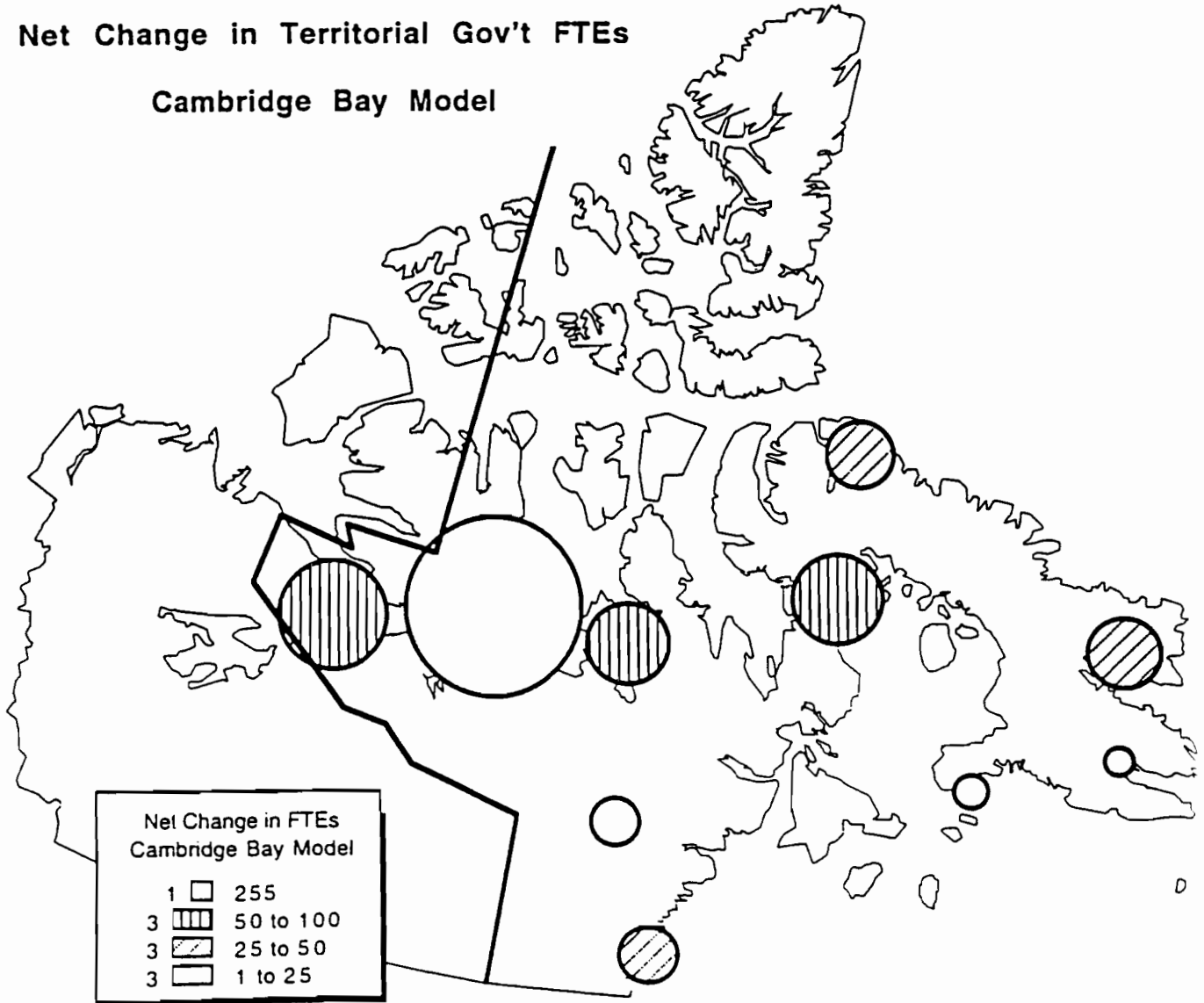
This appendix presents comparative data for the three decentralized models—the first with Cambridge Bay as capital, the second with Iqaluit as capital, and the third with Rankin Inlet as capital.

Pages A-14.1 to A-14.3 present maps which show which communities would experience increased employment with each of the models, and

pages A-14.4 and A-14.5 show the same data in chart form. Pages A-14.6 and A-14.7 detail the estimated population growth which would result from each of the three models. Pages A-14.8 to A-14.11 detail the estimated population growth and the ratio of residents per Government of Nunavut employee which would result from each of the three models by region; by the three regional centres; by the communities grouped by their projected populations as of April 1, 1999; and, by the communities grouped by their current levels of 'real unemployment'.

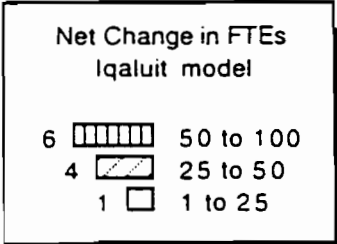
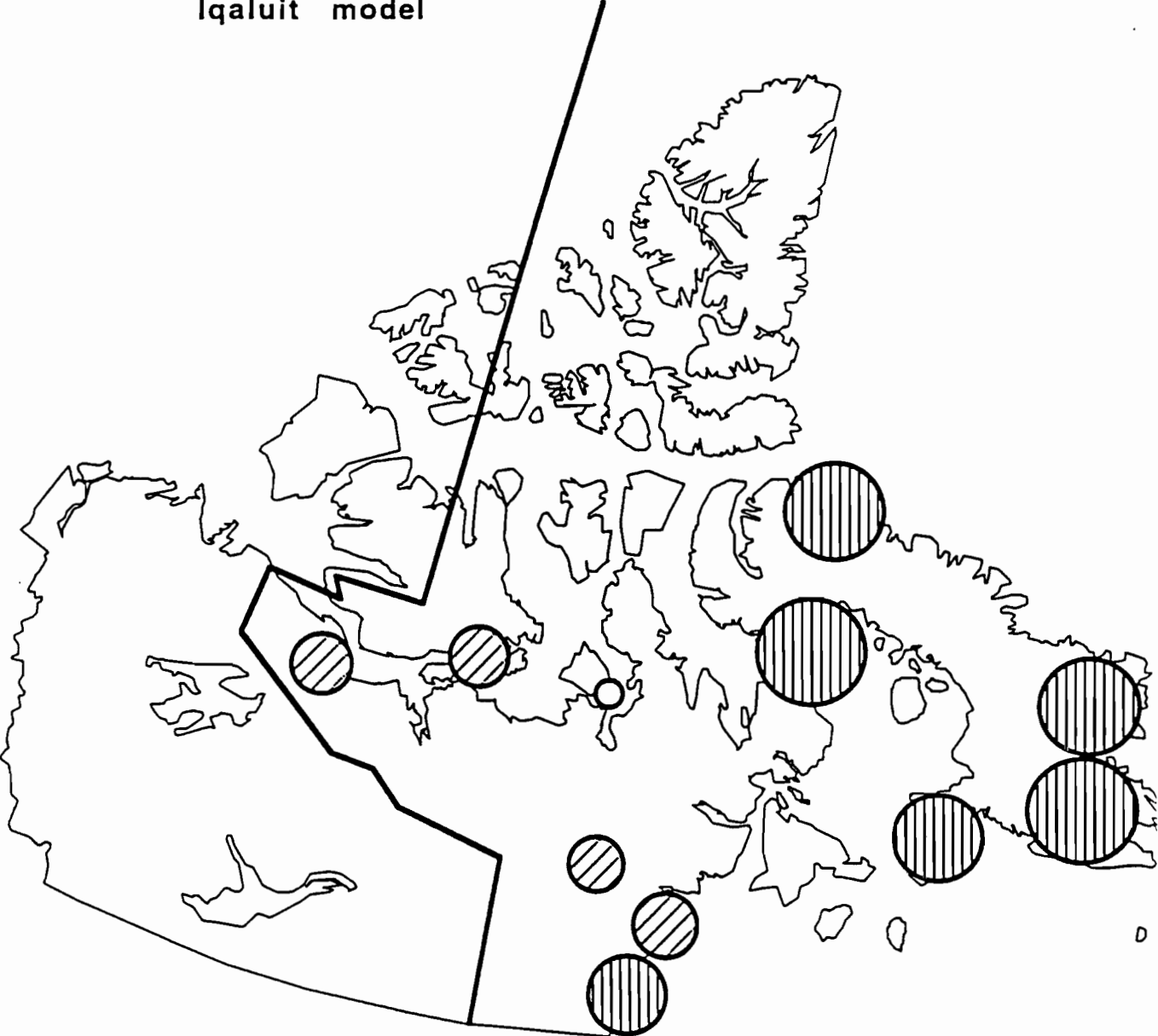
Net Change in Territorial Gov't FTEs

Cambridge Bay Model



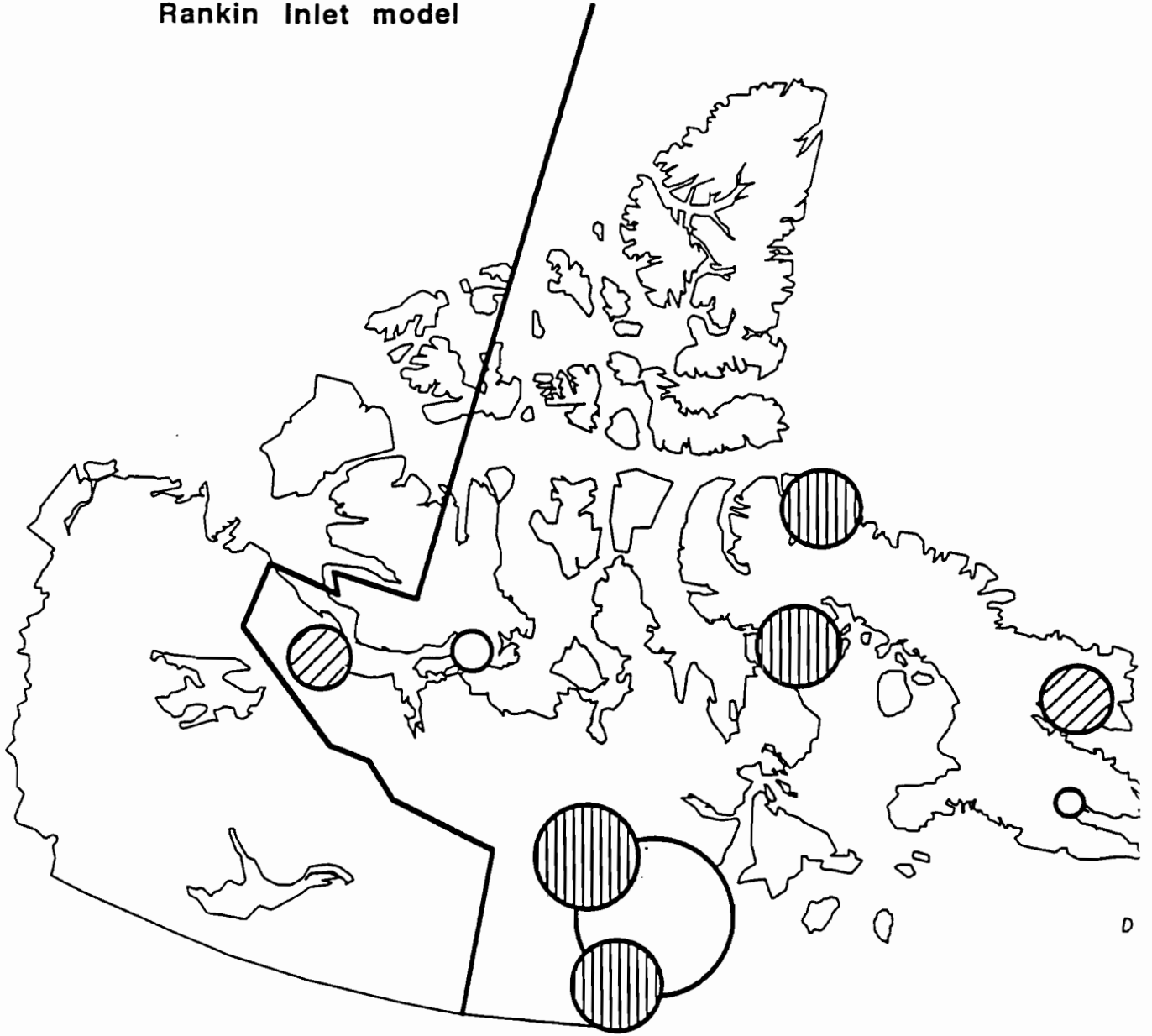
Net Change in Territorial Gov't FTEs

Iqaluit model



Net Change in Territorial Gov't FTEs

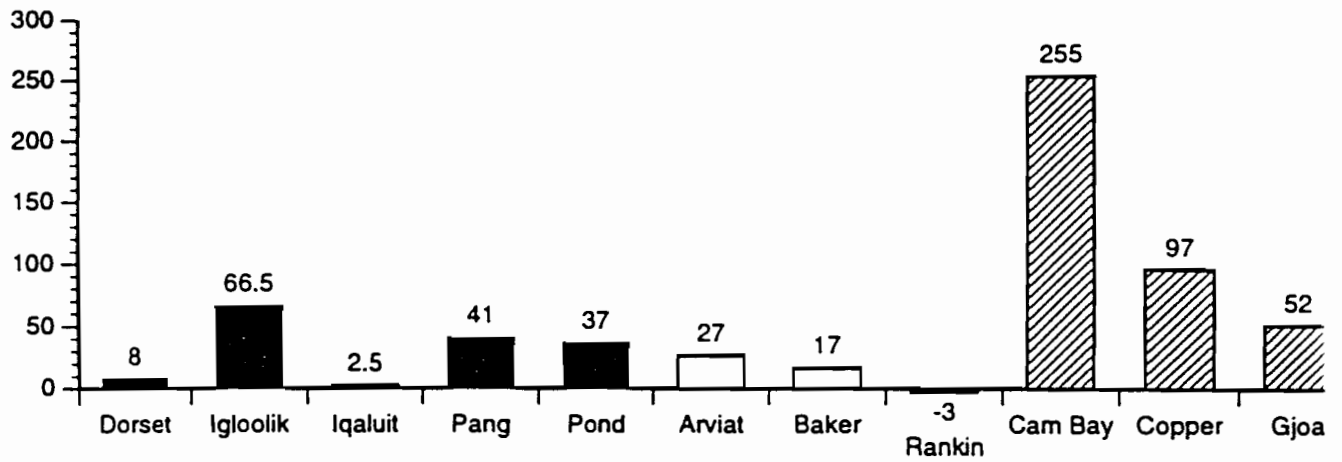
Rankin Inlet model



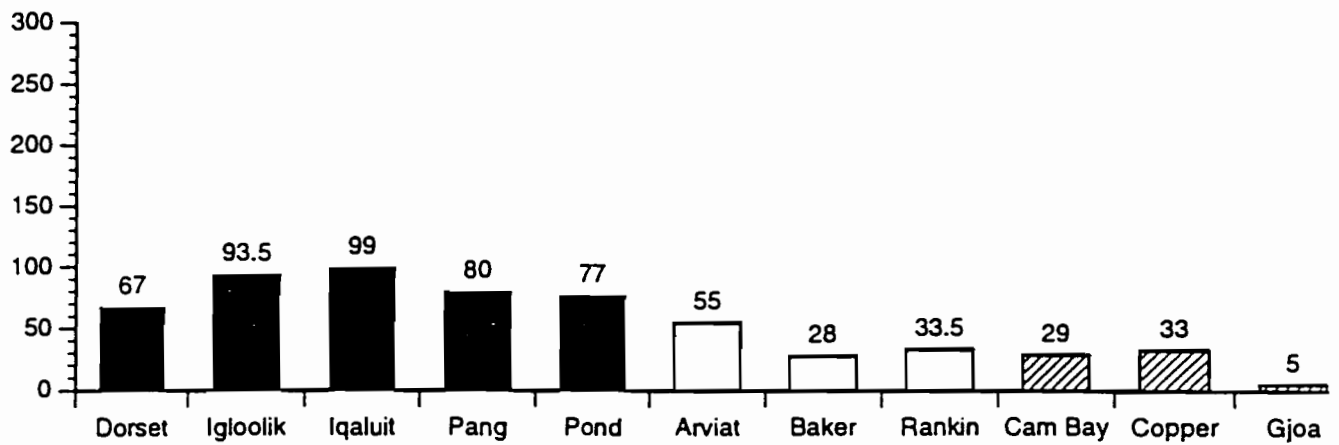
Net Change in FTEs	
Rankin Inlet model	
1	□ 216
4	▨ 50 to 100
2	▧ 25 to 50
2	□ 1 to 25

07

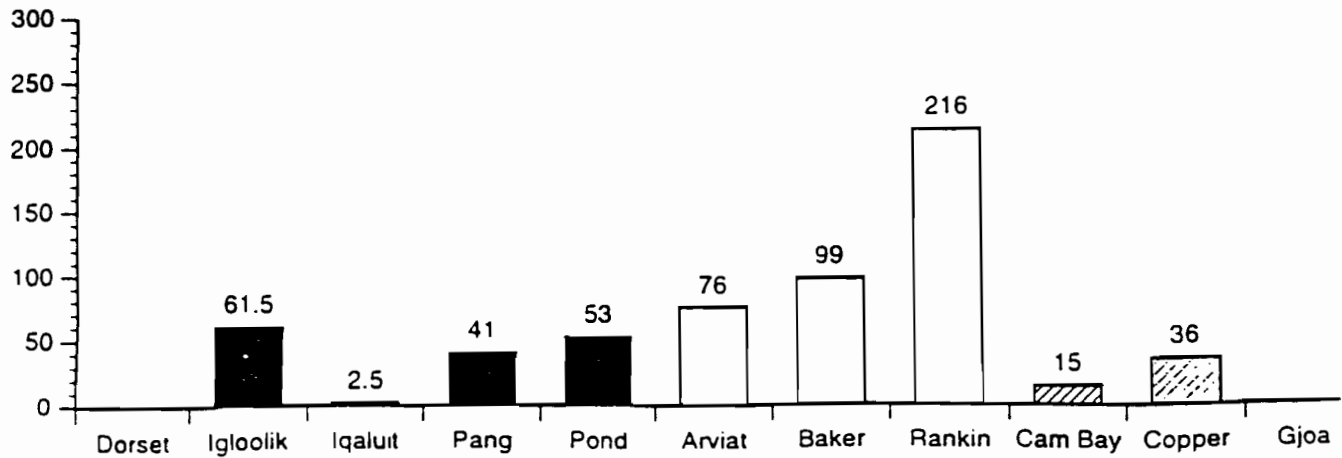
Net Change in the Number of Territorial Gov't FTEs with the Cambridge Bay Model



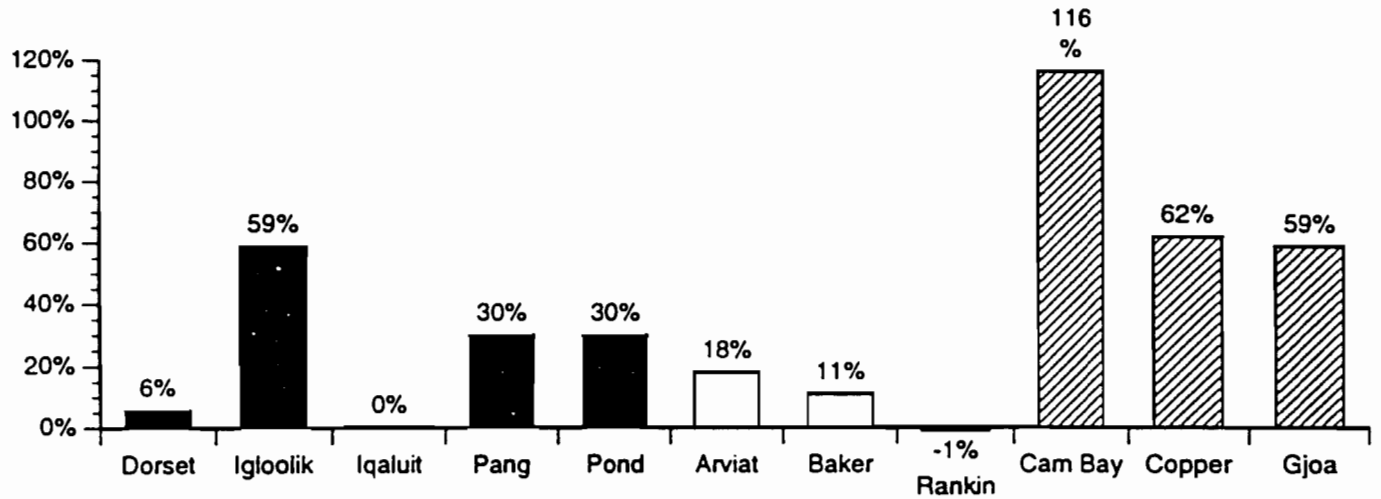
Net Change in the Number of Territorial Gov't FTEs with the Iqaluit Model



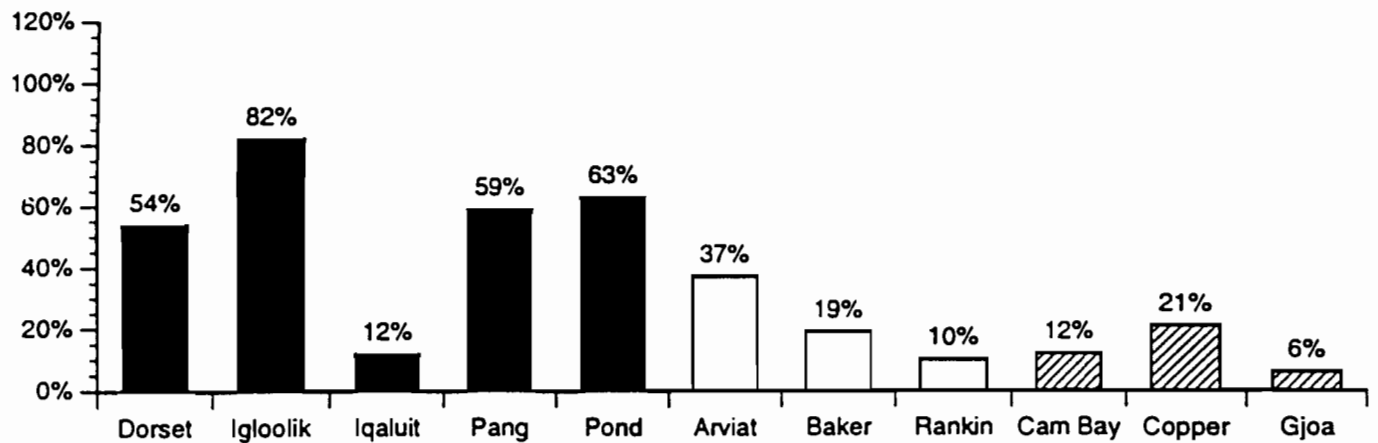
Net Change in the Number of Territorial Gov't FTEs with the Rankin Inlet Model



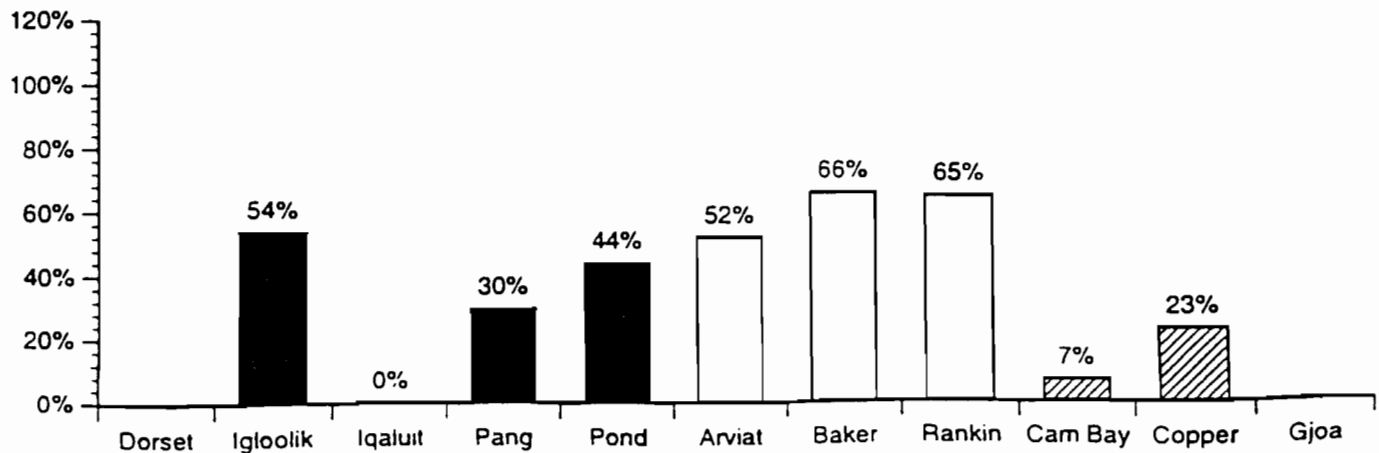
% Increase in the Number of Territorial Gov't FTEs with the Cambridge Bay Model



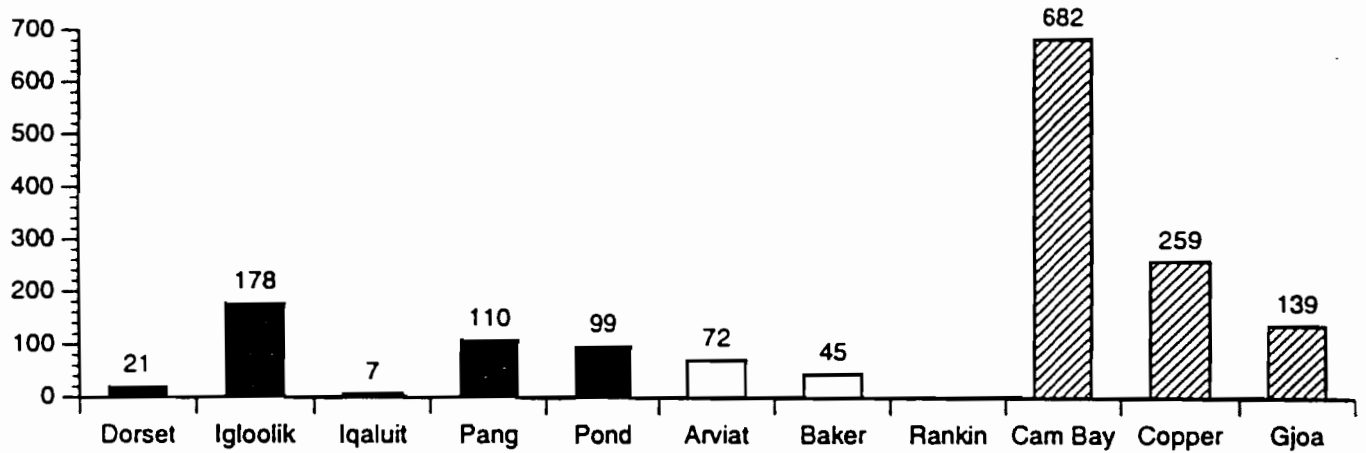
% Increase in the Number of Territorial Gov't FTEs with the Iqaluit Model



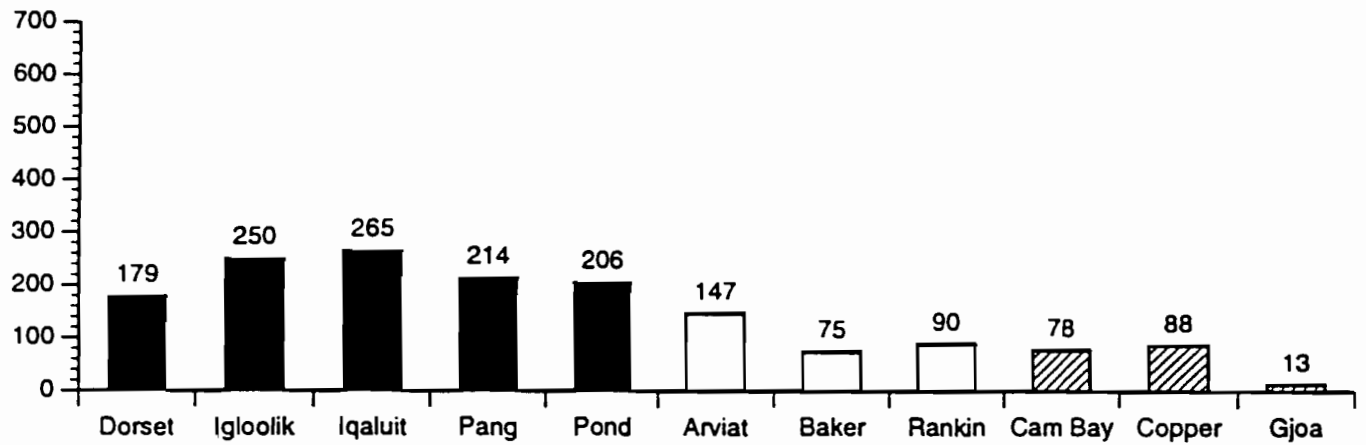
% Increase in the Number of Territorial Gov't FTEs with the Rankin Inlet Model



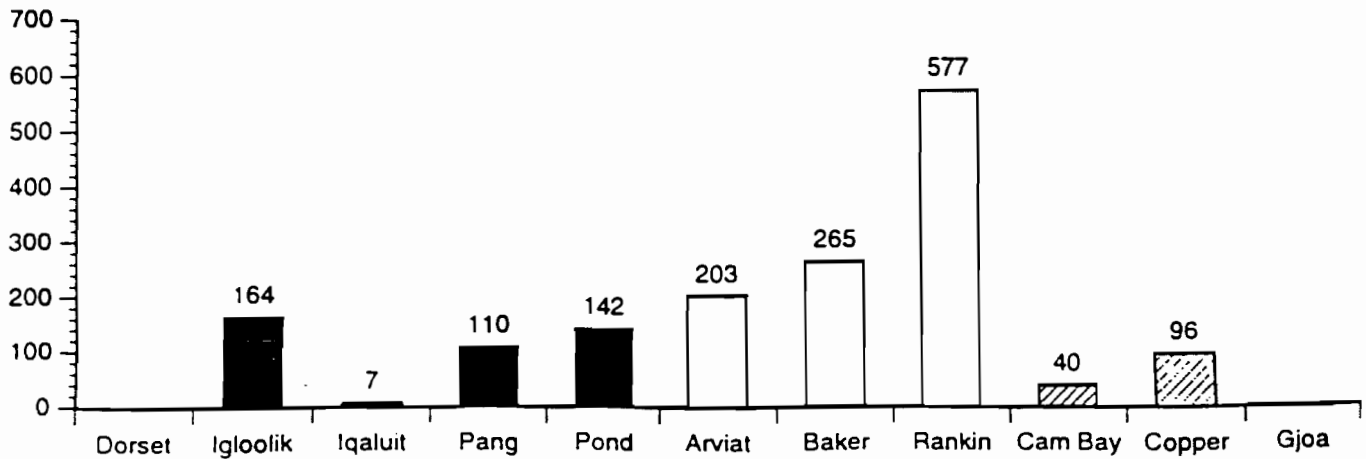
Estimated Population Growth with the Cambridge Bay Model



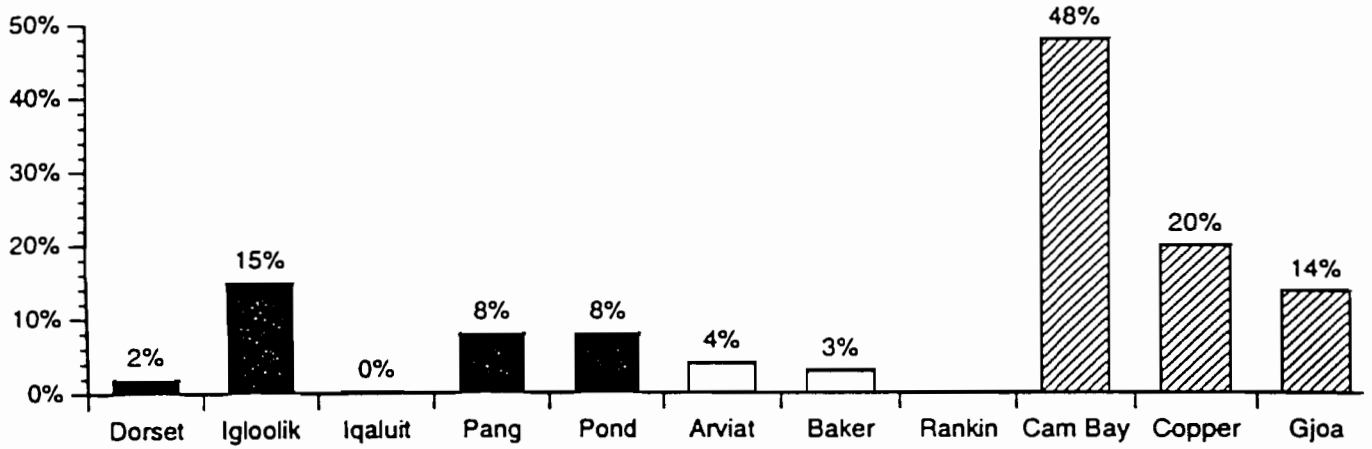
Estimated Population Growth with the Iqaluit Model



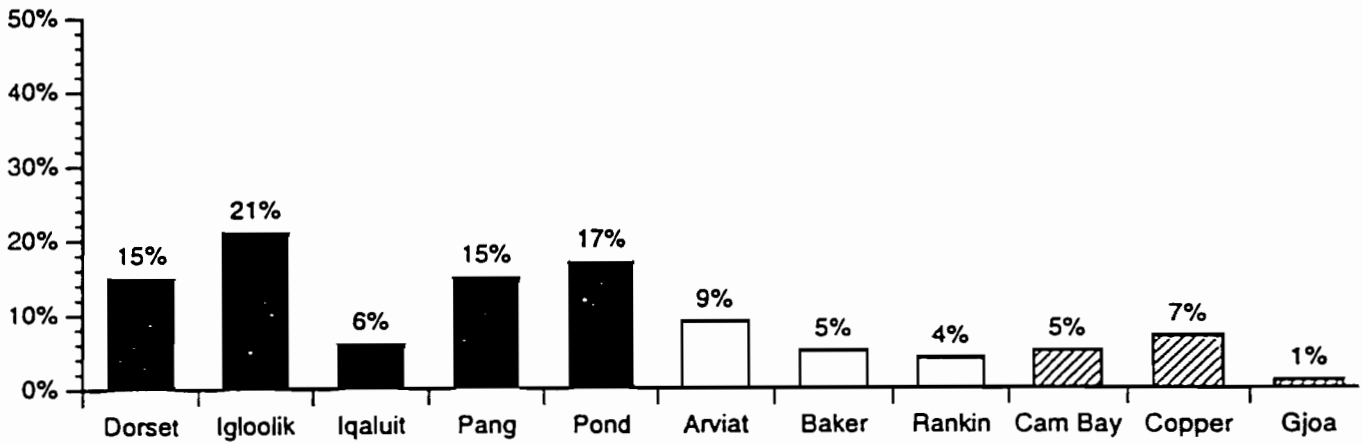
Estimated Population Growth with the Rankin Inlet Model



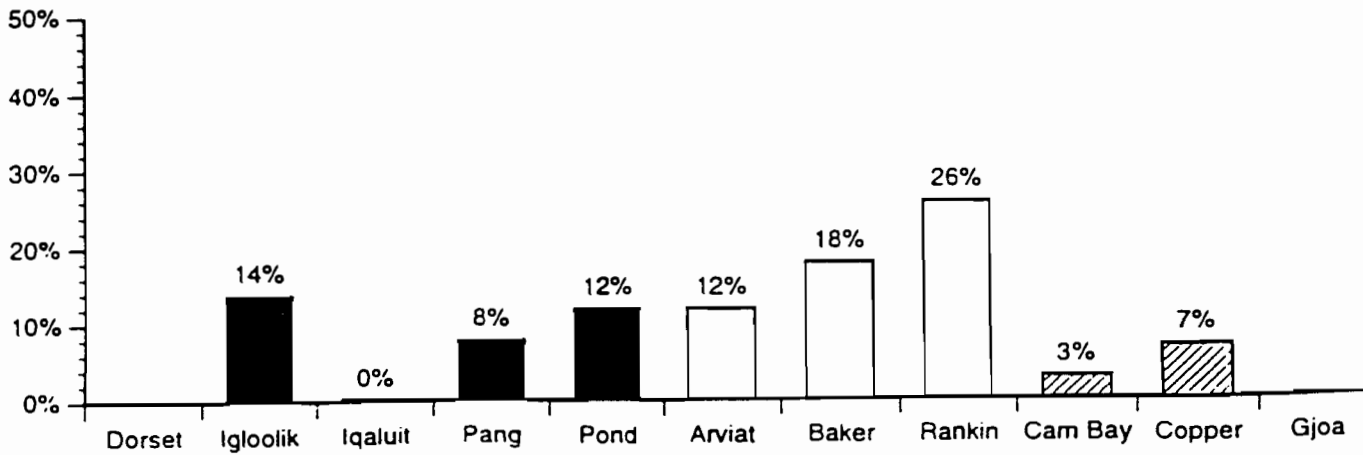
% Estimated Population Growth with the Cambridge Bay Model



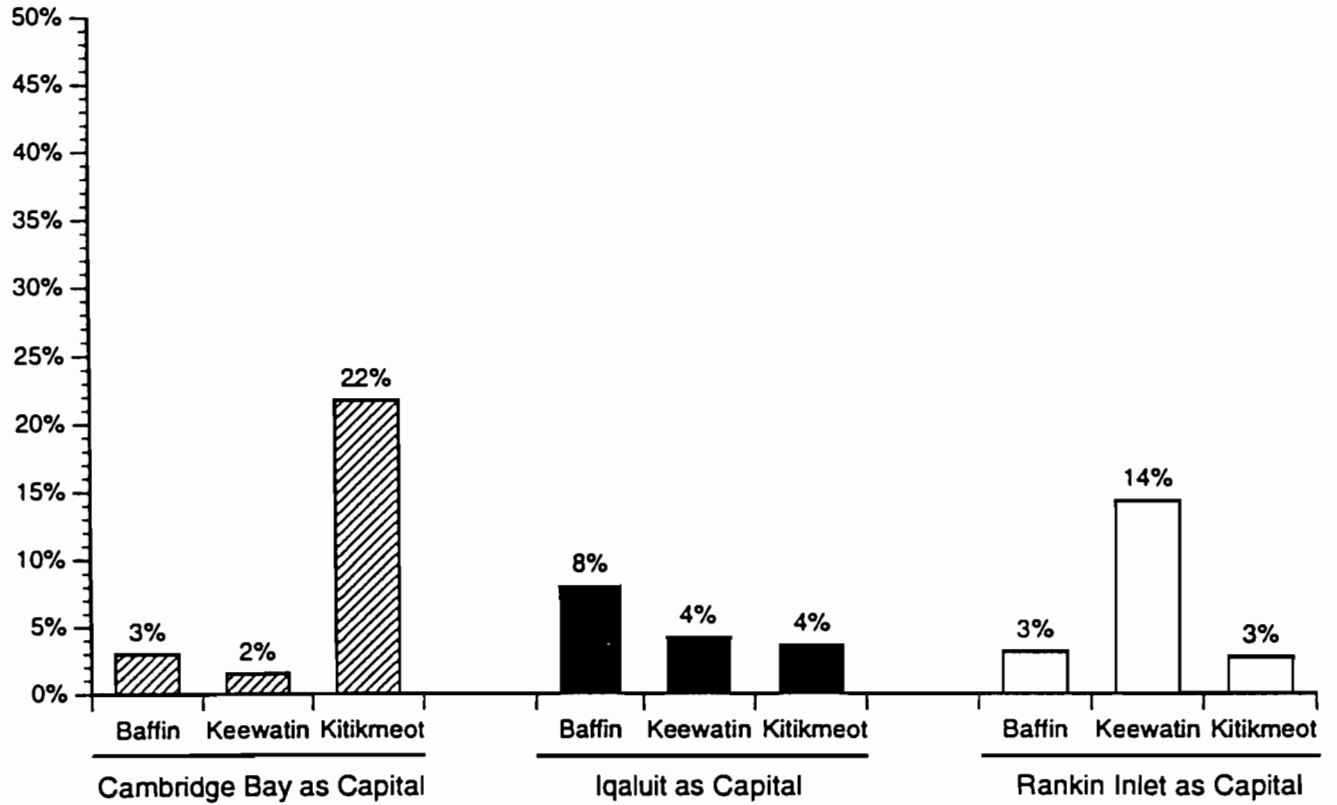
% Estimated Population Growth with the Iqaluit Model



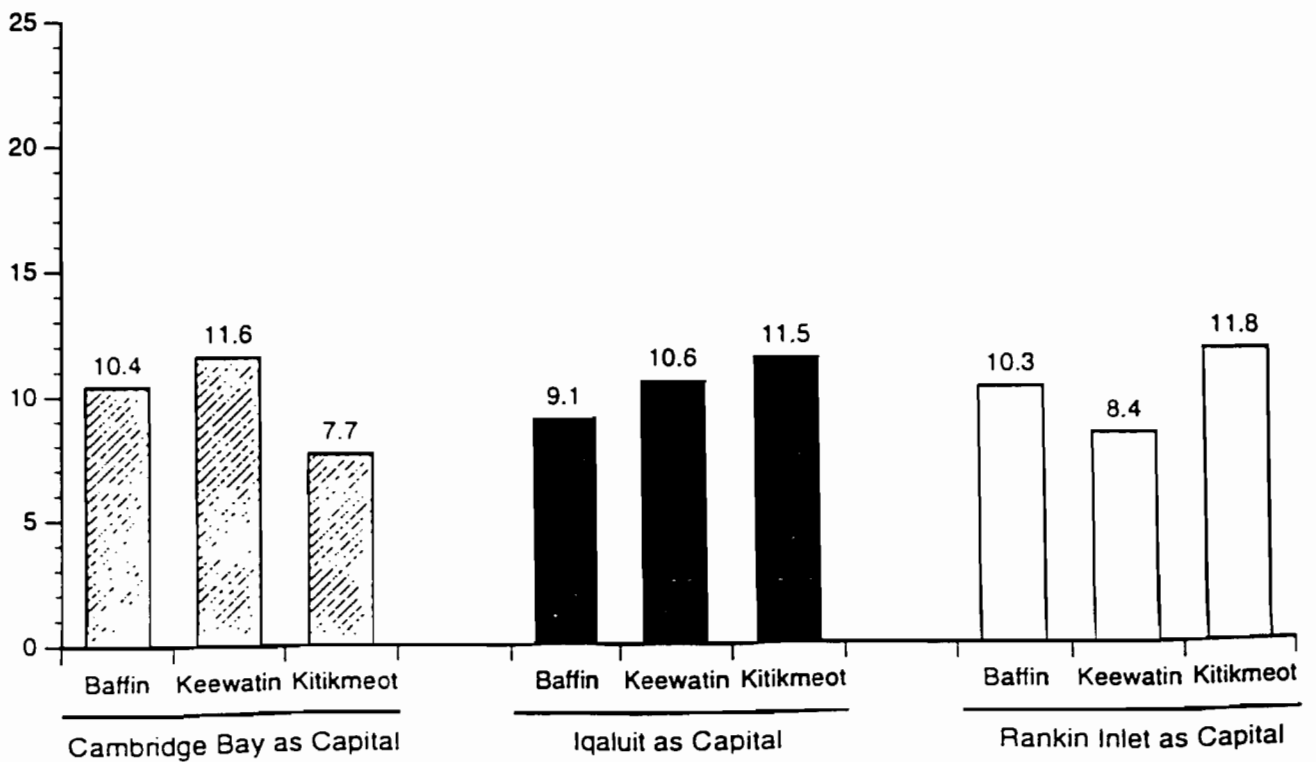
% Estimated Population Growth with the Rankin Inlet Model



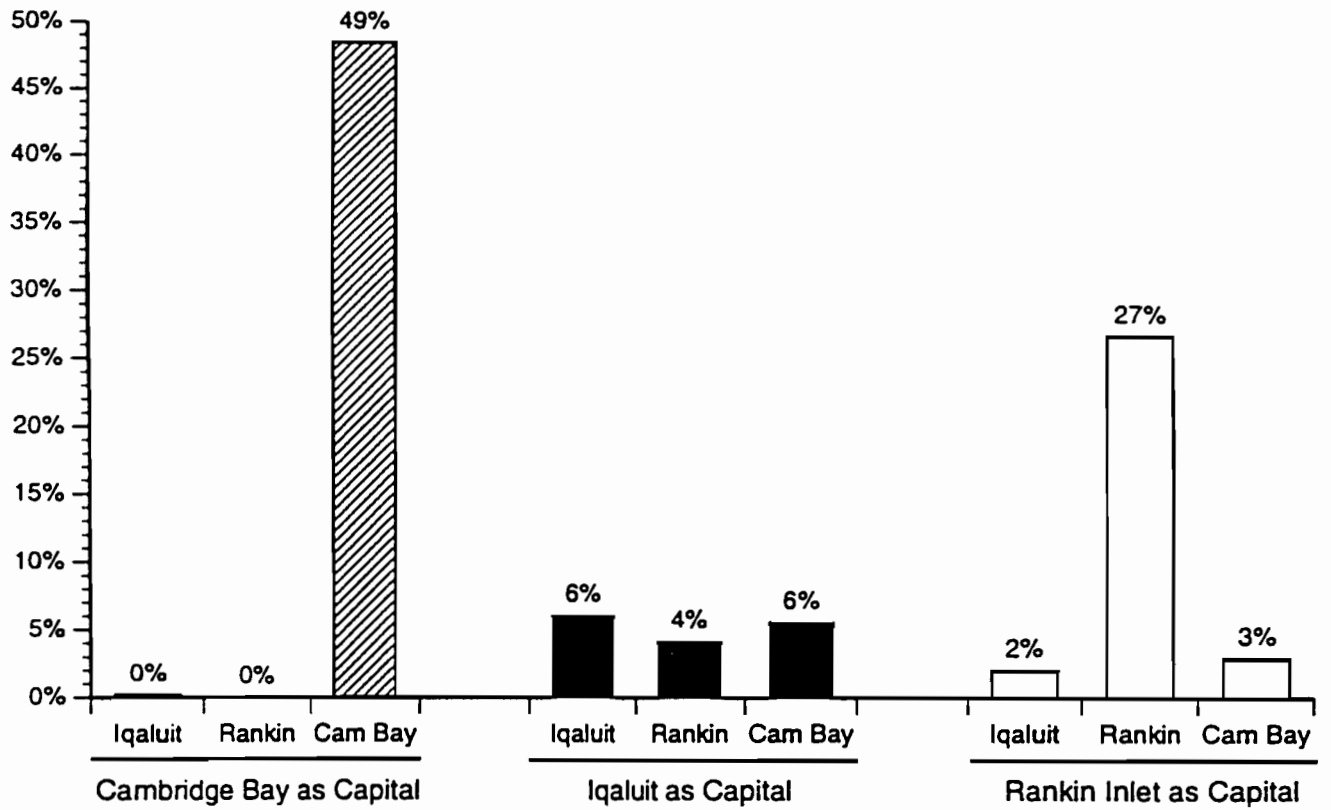
% Estimated Population Growth, by Region



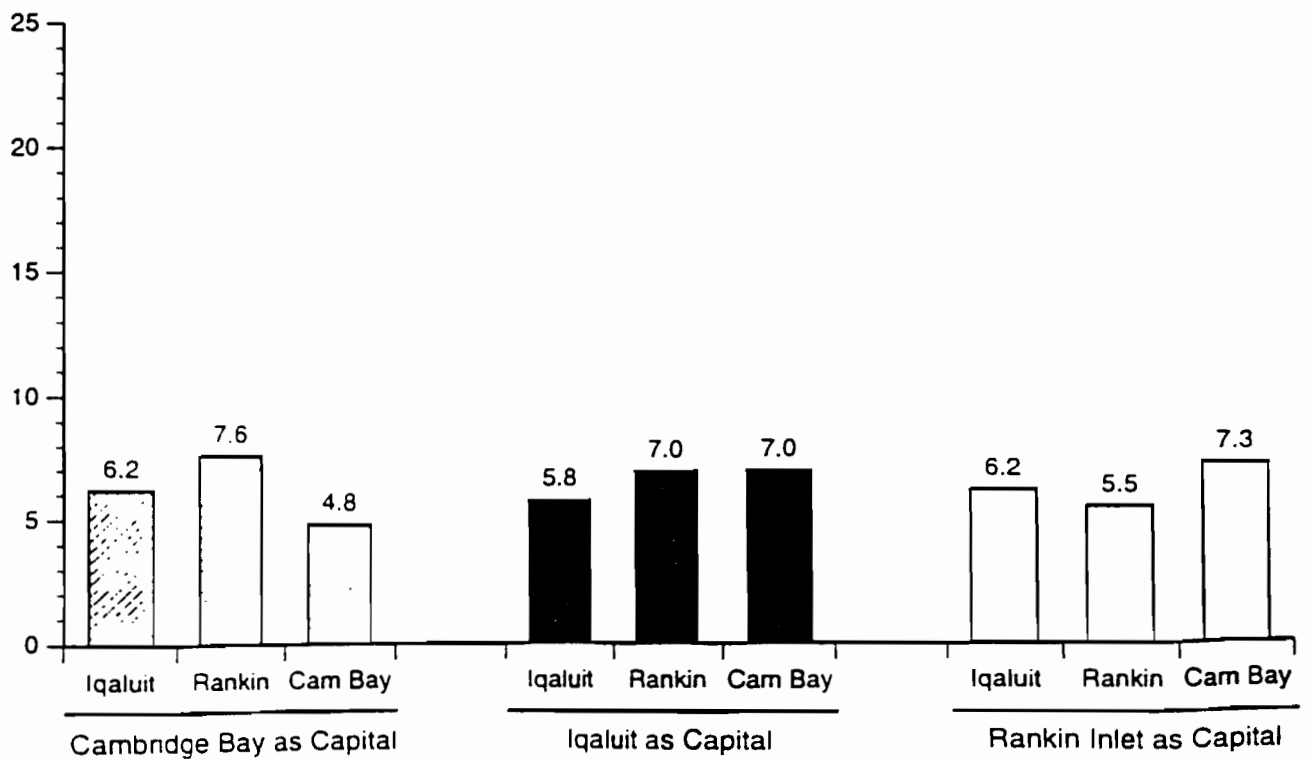
1999 Population per Nunavut Government Employee, by Region



% Estimated Population Growth, by Regional Centre

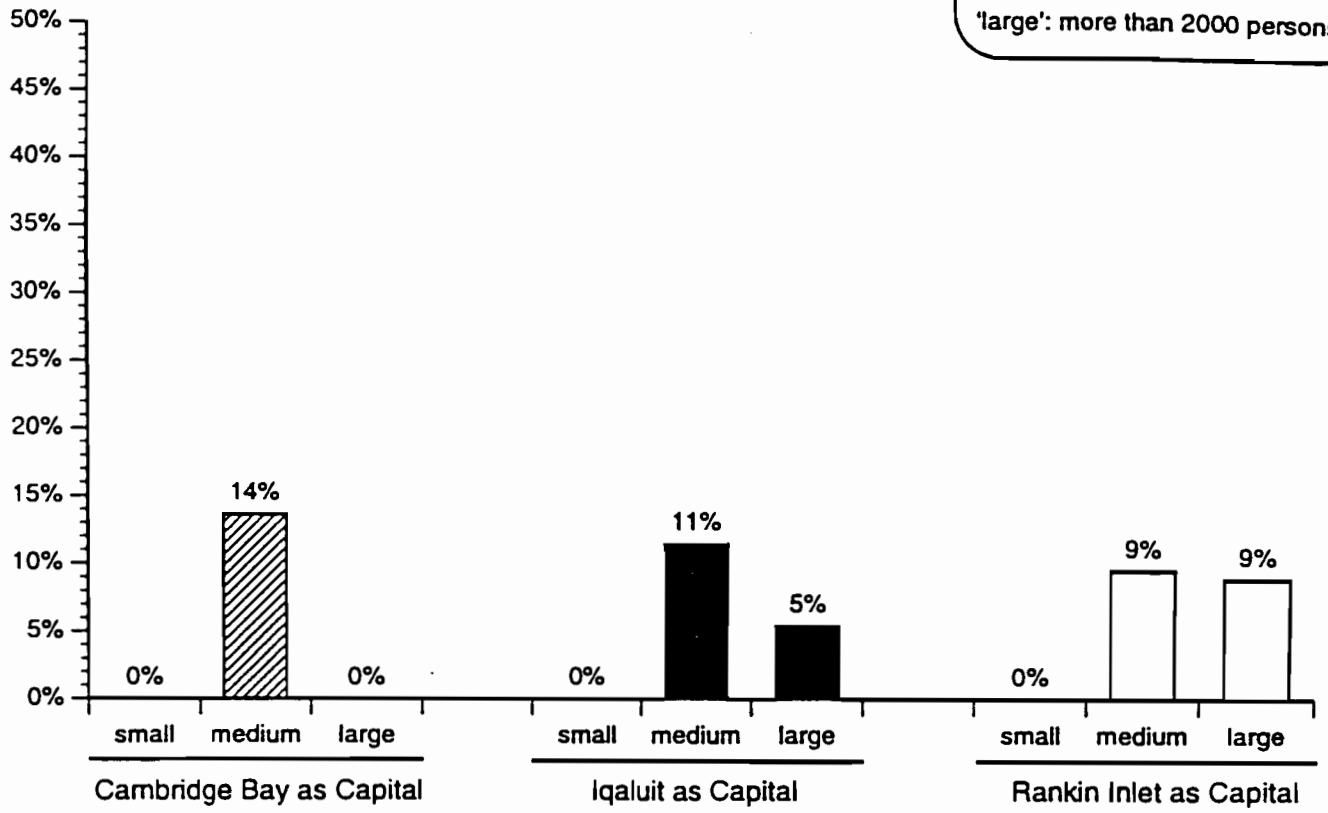


1999 Population per Nunavut Government Employee, by Regional Centre

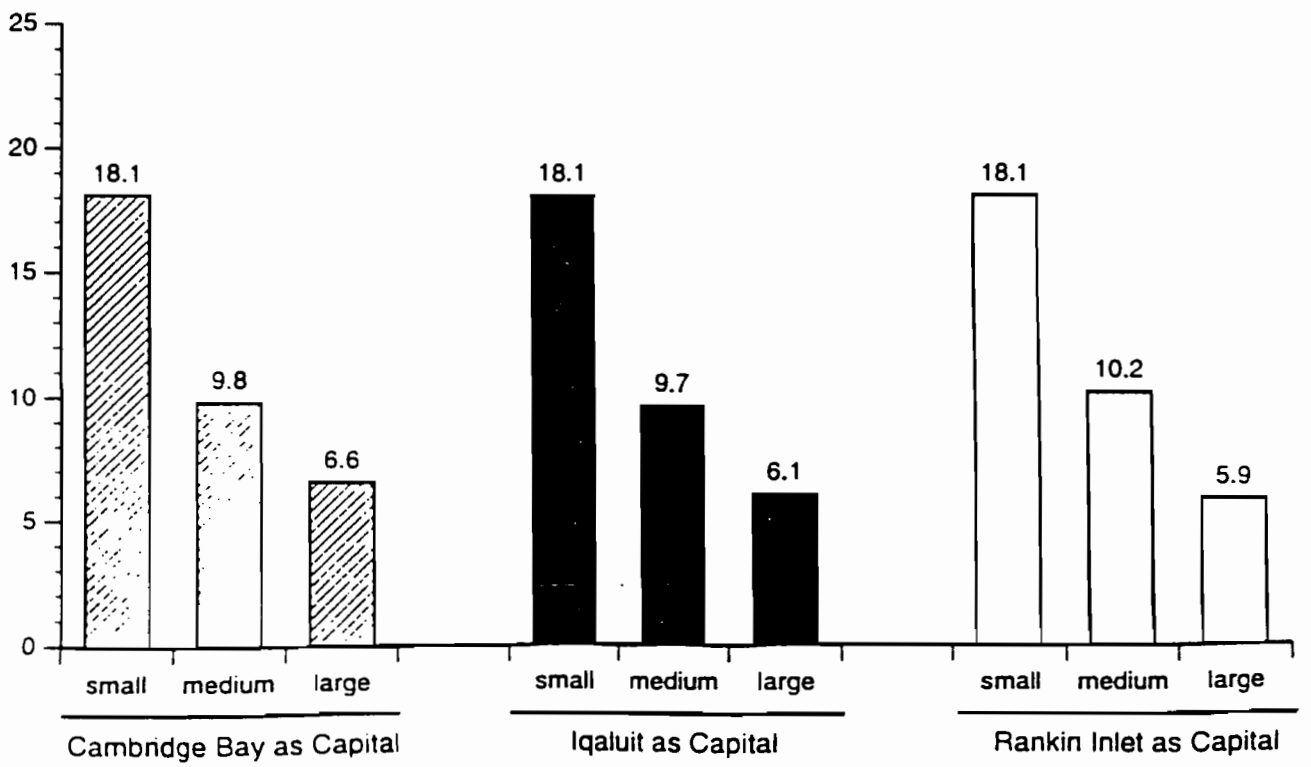


% Estimated Population Growth, by 1999 Community Size

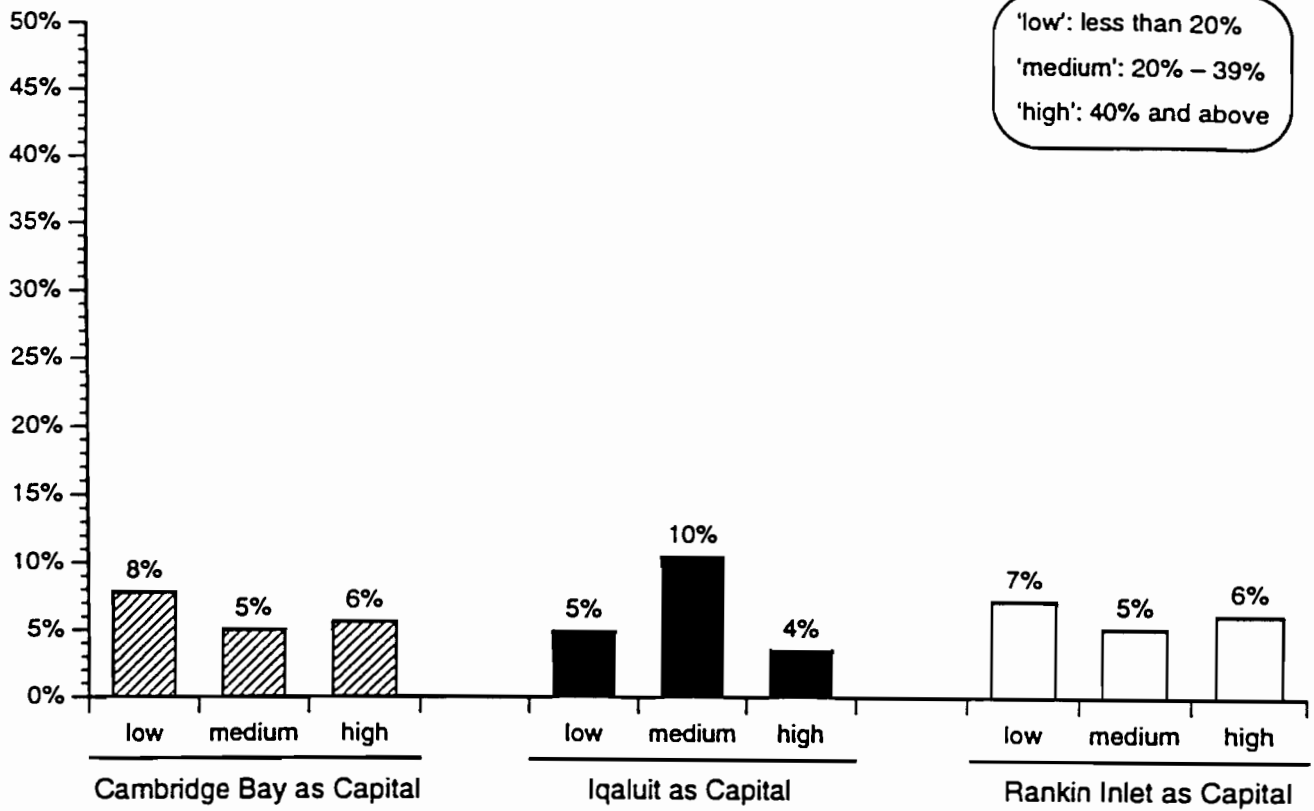
'small': less than 1000 persons
 'medium': 1001-2000 persons
 'large': more than 2000 persons



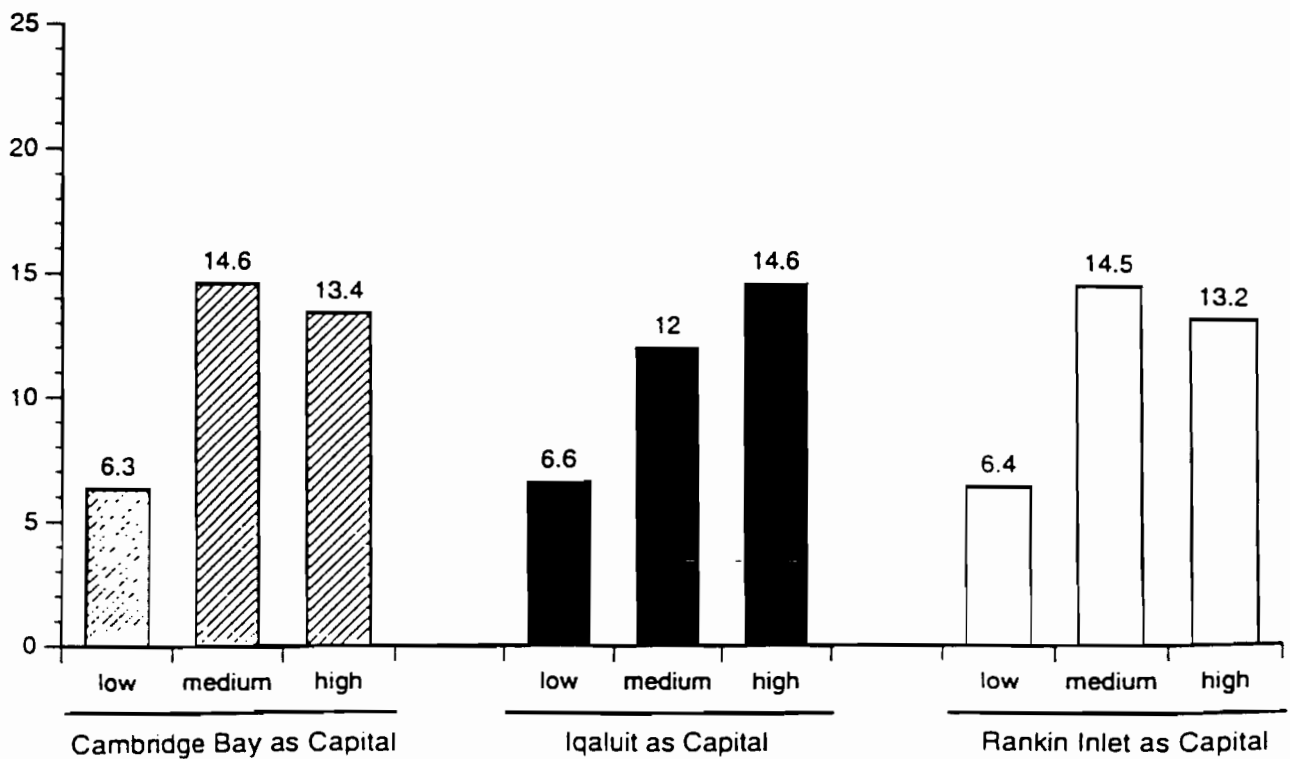
1999 Population per Nunavut Government Employee, by 1999 Community Size



% Estimated Population Growth, by Real Unemployment Rate



1999 Pop. per Nunavut Gov't Employee, by Real Unemployment Rate



**APPENDIX 3: Charts Depicting the Expansion Capabilities of
Cambridge, Bay, Iqaluit and Rankin Inlet in Relation
to Population Influx Levels**

Note:

On the charts, black areas indicate a community's capability to absorb population influxes without expansion, and white areas indicate a community's capability to expand to accommodate population influxes.

CAMBRIDGE BAY

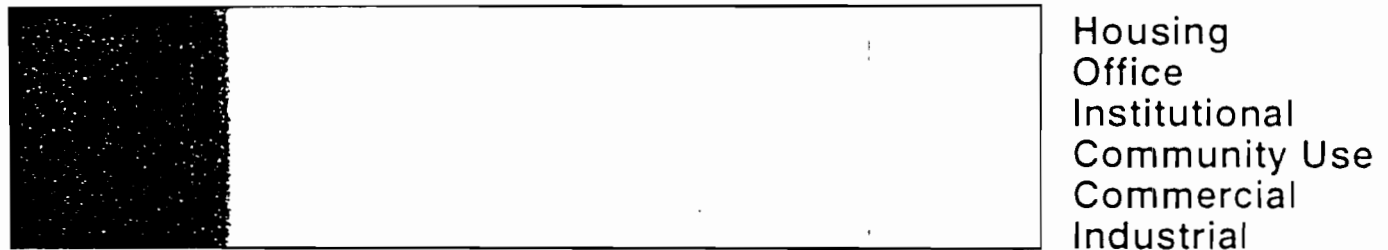
Population 1994: 1210
 Natural Growth per Year: 31.3

Community Expansion Capability at Influx Levels of...

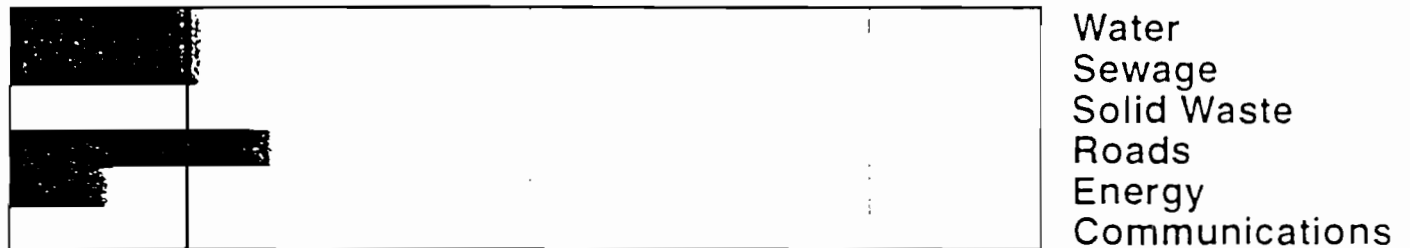
Factor

NATURAL GROWTH BY 1999	INFLUX DUE TO GON					Factor
	25	50	100	250	500	
	73	146	292	730	1460	GON Influx Employee
157	230	303	449	887	1617	Influx Pop. due to GON
1366	1439	1512	1658	2096	2826	Incremental Pop. at 1999
						Total Population at 1999

LAND AVAILABILITY



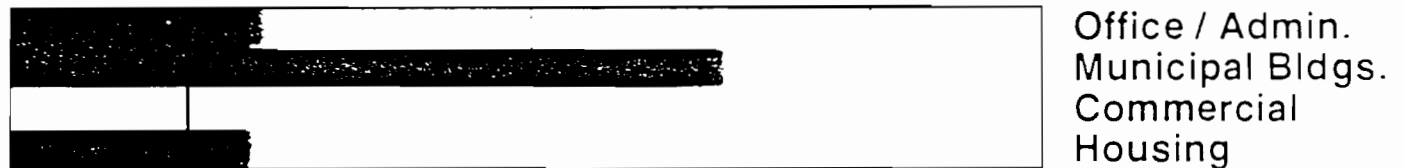
INFRASTRUCTURE



ACCESS



FACILITIES



COMMUNITY SERVICES

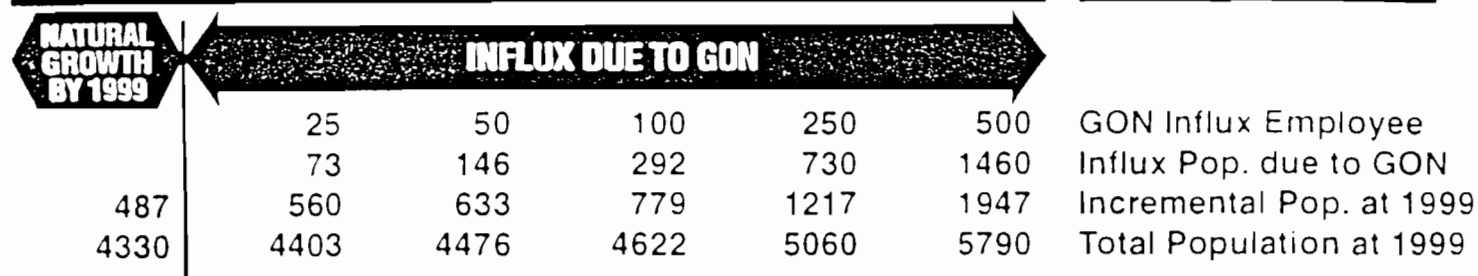


IQALUIT

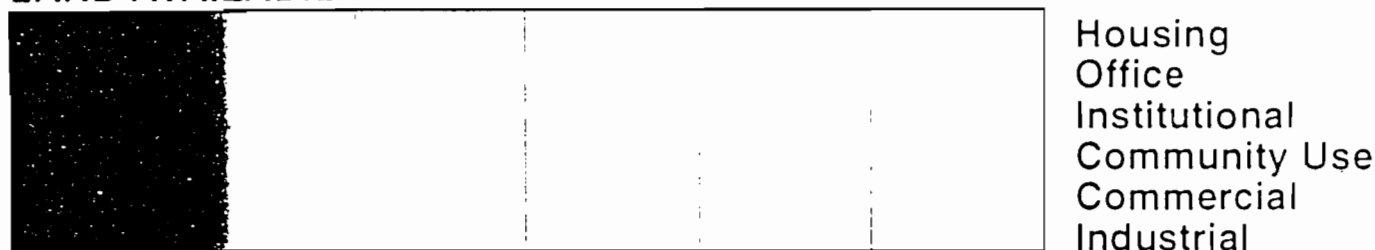
Population 1994: 3844
 Natural Growth per Year: 97.3

Community Expansion Capability at Influx Levels of...

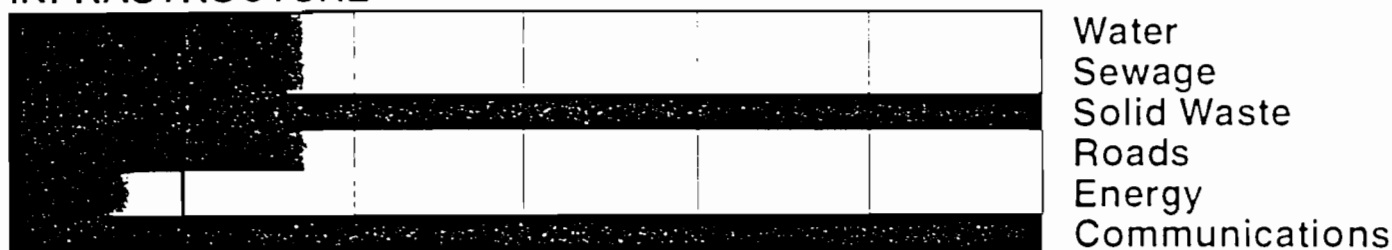
Factor



LAND AVAILABILITY



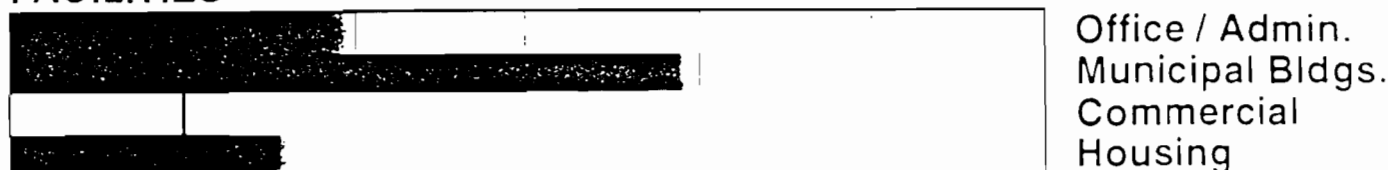
INFRASTRUCTURE



ACCESS



FACILITIES



COMMUNITY SERVICES

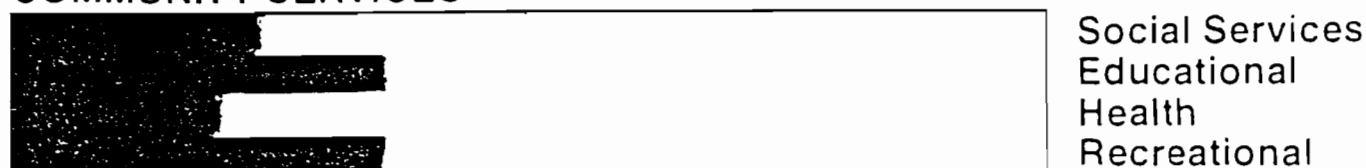


Chart 4

RANKIN INLET

Population 1994: 1862

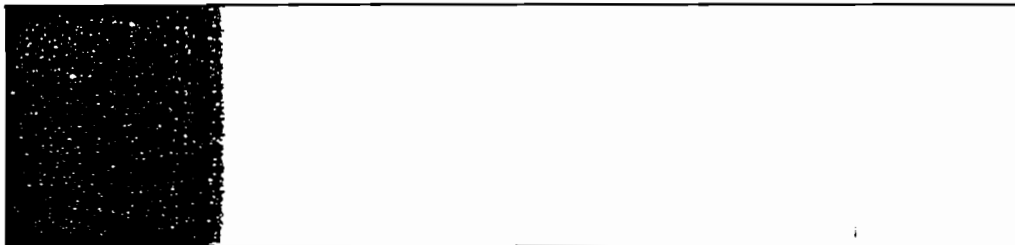
Natural Growth per Year: 52.2

Community Expansion Capability at Influx Levels of...

Factor

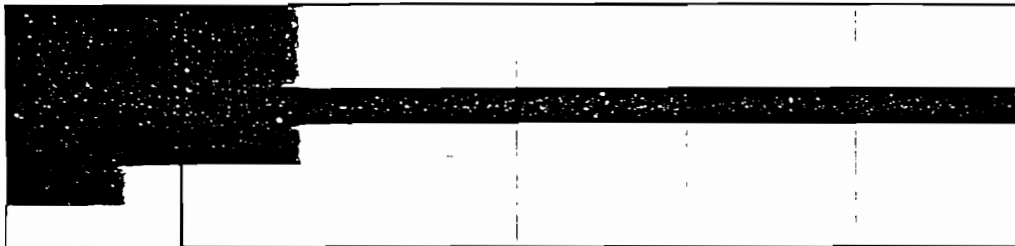
NATURAL GROWTH BY 1999	INFLUX DUE TO GON						Factor
	25	50	100	250	500		
	73	146	292	730	1460	GON Influx Employee	
261	334	407	553	991	1721	Influx Pop. due to GON	
2123	2196	2269	2415	2853	3583	Incremental Pop. at 1999	
						Total Population at 1999	

LAND AVAILABILITY



Housing
Office
Institutional
Community Use
Commercial
Industrial

INFRASTRUCTURE



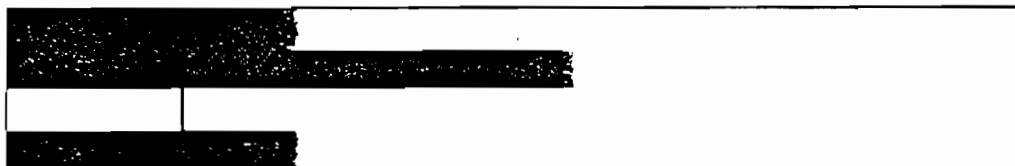
Water
Sewage
Solid Waste
Roads
Energy
Communications

ACCESS



Air
Marine

FACILITIES

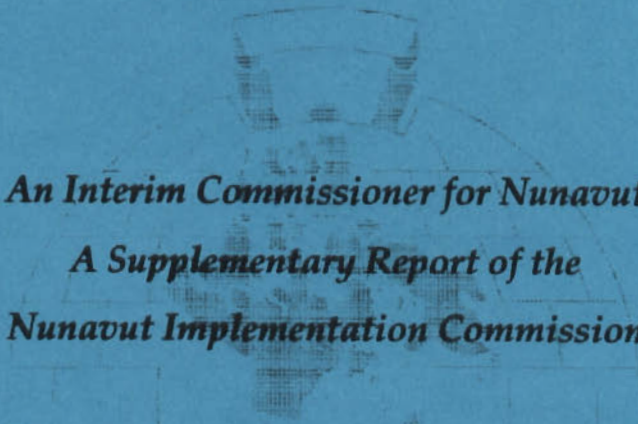


Office / Admin.
Municipal Bldgs.
Commercial
Housing

COMMUNITY SERVICES



Social Services
Educational
Health
Recreational



*An Interim Commissioner for Nunavut
A Supplementary Report of the
Nunavut Implementation Commission*

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Quotation with appropriate credit is encouraged.
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I would be pleased to discuss this report with you, or any other work of the Commission, at a convenient time.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'John Amagoalik', written in a cursive style.

John Amagoalik,
Chairperson

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1. Background

The **Nunavut Act** provides for, but does not compel, the appointment of an Interim Commissioner of Nunavut through federal Order in Council. The statute indicates that any person appointed Interim Commissioner must act in accordance with written directions given by the Minister of DIAND, and that such instructions must be made public. Under the statute, an Interim Commissioner is empowered to do the following:

- * recruit employees for the Government of Nunavut, and prescribe their duties and conditions of employment;
- * establish systems and processes for the Government of Nunavut, including the organization and administration of territorial courts; and,
- * carry out such other functions as may be assigned by federal Order-in-Council.

In addition to these functions, an Interim Commissioner may, with the approval of the Governor in Council, enter into the following kinds of agreements:

- * agreements for the carrying out on behalf of Nunavut of programs previously carried out by the GNWT;
- * funding agreements with the Government of Canada or the GNWT in relation to Nunavut; and,
- * agreements with the GNWT concerning the division of assets and liabilities between Nunavut and the Northwest Territories.

The **Nunavut Act** provides that an Interim Commissioner's ability to bind the Nunavut Government in relation to program delivery and funding will be limited in time.

2. "Footprints in New Snow"

In Chapter 12 of its report, "Footprints in New Snow", the NIC examined a number of practical issues surrounding the role and selection of an Interim Commissioner of Nunavut. This examination resulted in a number of specific recommendations, namely:

"Recommendation #12-1

The NIC recommends that the Governor in Council use the discretion set out in Part IV of the Nunavut Act to appoint an Interim Commissioner of Nunavut prior to April 1, 1999.

Recommendation #12-2

The NIC recommends that the selection of an Interim Commissioner be made in consultation with the GNWT, NTI and the NIC.

Recommendation #12-3

The NIC recommends that an Interim Commissioner of Nunavut take office on or about April 1, 1997.

Recommendation #12-4

The NIC recommends that the written directions given to an Interim Commissioner be developed in consultation with the GNWT, NTI, and the NIC.

Recommendation #12-5

The NIC recommends that an Interim Commissioner exercise powers in consultation with a member of the "Nunavut Caucus" of the NWT Legislative Assembly nominated by members of the Caucus, with the President of NTI, and with the Chairperson of the NIC.

Recommendation #12-6

The NIC recommends that the Office of the Interim Commissioner be located in the community chosen as capital of Nunavut. The Commissioner should have an adequate budget and staff, and the Office of the Commissioner should have a staff presence in Yellowknife and Ottawa. Further work should be undertaken by the NIC, resulting in recommendations at an early date, concerning the relationship between the Office of the Interim Commissioner and the NIC in the period following the appointment of the Interim Commissioner."

In addition to these general recommendations in "Footprints in New Snow" concerning the role and selection of an Interim Commissioner, the NIC made a number of recommendations concerning responsibilities of the Interim Commissioner in relation to specific issues, for example:

- * conclusion of a funding agreement concerning the Nunavut Government's first year of operations (Recommendation #11-4);
- * conclusion of an agreement concerning the division of assets and liabilities between Nunavut and the Northwest Territories (Recommendations #11-7 and #11-8); and,
- * communications needs of a Nunavut Government (Recommendation #7-8).

Three inter-related recommendations dealing with the staffing up of the Nunavut Government and the calculation of transitional costs warrant re-stating in their entirety:

"Recommendation #5-12

The NIC recommends that the GNWT complete a comprehensive plan to re-organize itself in preparation for division. This re-organization plan should, to the extent possible, calculate the degree to which positions within the GNWT can be dedicated, entirely or in quantifiable part, to activities within the Nunavut area. The plan should identify those positions that should be re-defined or created within the existing GNWT to assist in the creation of Nunavut; for example, the plan should examine the need to create an assistant deputy minister in relation to preparing human resources for the Nunavut Government. The plan should identify appropriate recruitment and training strategies needed for its implementation. The plan should be completed, at least in preliminary form, and the various implementation measures contemplated in the plan costed out, in time to feed into the federal Cabinet consideration of Nunavut issues that is recommended by NIC for the fall of 1995.

Recommendation #5-13

The NIC recommends that the Interim Commissioner for Nunavut be recognized to play a key role with regards to a number of aspects of phasing, including (1) the offering of employment security to a number of individuals who may be willing to step into senior "Nunavut oriented" GNWT jobs as described in a GNWT re-organization plan, (2) the entering into on behalf of the Nunavut Government with the GNWT of agreements governing the operation of any public sector organizations that are "shared" by the two jurisdictions for at least an initial period following April 1, 1999, and (3) the entering into of

any legal agreements that might be required to adapt to circumstances at variance from assumptions as to phasing that were built into the federal Cabinet review for the fall of 1995.

Recommendation #11-3

The NIC recommends that formula funding arrangements entered into by the GNWT not purport to deal with costs associated with the setting up of the Nunavut Government or with the costs of running the Nunavut Government after April 1, 1999. Costs incurred by the GNWT prior to April 1, 1999, and associated with the setting up of the Nunavut Government should be reimbursed by the Government of Canada through a special purpose agreement (a "Preparations for Nunavut Agreement") separate and apart from the formula funding agreement between the GNWT and the Government of Canada. A Preparations for Nunavut Agreement should have a term that expires 60 days after the appointment of an Interim Commissioner for Nunavut. At that point, the Agreement should be replaced with a tri-partite agreement signed by the Interim Commissioner on behalf of the Nunavut Government, as well as by appropriate signatories of the federal government and GNWT."

The relationships among these recommendations, and their combined implications, are discussed below.

3. Developments Since "Footprints in New Snow"

Since submission of "Footprints in New Snow", the Government of Canada, the GNWT and NTI have had an opportunity to assess its contents, both through inter-party discussions and through internal review. The NIC, at the Commissioners' and officials' levels, has been apprised of some of those inter-party discussions. In addition, the NIC has had bi-lateral contacts with each of the parties.

With respect to the issues associated with an Interim Commissioner, NTI has made its views known through a Board of Directors Resolution (B95-06) adopted in relation to the NIC's report at a meeting in Sanikiluaq, June 19 - 23, 1995. In that resolution, the following position was set out concerning an Interim Commissioner

- " - NTI supports the recommendations of NIC with respect to the appointment of an Interim Commissioner subject to the following conditions:
 - an Inuk be appointed as an Interim Commissioner;
 - the appointment be viewed as a highly administrative apolitical position; and,
 - the appointment be subject to the consent of NTI".

Neither the Government of Canada, nor the GNWT, has expressed its views in relation to an Interim Commissioner as clearly as has NTI. All parties, however, would appear to share a desire to see an Interim Commissioner appointed at least as early as April 1, 1997. While some interest has been expressed in considering an appointment earlier than that date, concern has also been expressed about the potential of an Interim Commissioner to detract from the political responsibilities of the GNWT in the period up to April 1, 1999.

The GNWT is currently in the process of completing its own in-house review of how best to re-organize itself to accommodate creation of Nunavut. This exercise, consistent with the suggestion of the NIC in Recommendation #11-3 of "Footprints in New Snow", is anticipated to be completed by the end of this summer, thereby allowing GNWT re-organizational planning to be factored into the anticipated federal Cabinet reference. The unavailability of the GNWT review at the time of the development of this report means that some of the Commission's thinking concerning the recruitment activities of an Interim Commissioner must, as revealed below, remain speculative.

4. Nature of Interim Commissioner's Work

It is obvious that an Interim Commissioner of Nunavut will be occupying a position that is extremely important.

The Interim Commissioner will be empowered to make a number of key commitments on behalf of the Nunavut Government, most notably in relation to the hiring of senior staff, the striking of inter-governmental funding arrangements to govern initial operations, and the sorting out of assets and liabilities between Nunavut and the Northwest Territories. While some of the powers of the Interim Commissioner will be time limited, the Interim Commissioner's capacity to make binding commitments will be sufficiently extensive to make it everyone's interests that the Interim Commissioner "gets things right".

It is also obvious that an Interim Commissioner of Nunavut will be occupying a position that is an extremely sensitive one.

An Interim Commissioner will be formally appointed by the Governor in Council and subject to written direction received from the Minister of DIAND. As such, an Interim Commissioner could be seen as a "federal agent". Viewing the position purely in that light would, however, fail to capture the subtleties associated with the job.

In the period leading up to April 1, 1999, an Interim Commissioner of Nunavut will be the only public official in Canada with statutory executive responsibilities focused exclusively on Nunavut. While exercise of such executive responsibilities will be shaped by both the broad features of the **Nunavut Act** and any specific directions supplied by the Minister of DIAND, an Interim Commissioner will nonetheless dispose of significant discretionary authority. In using this discretionary authority, an Interim Commissioner will need sound leadership and interpersonal skills and a keen sense of judgement.

While no one would benefit from an Interim Commissioner approaching issues in an overtly politicized or narrowly partisan way, it is inevitable that an Interim Commissioner will need to make some decisions that are unpopular in some quarters. This is particularly so in relation to such things as the division of assets and liabilities, where an agreement must be made between a new Nunavut Government and an on-going GNWT which will exist both before and after April 1, 1999. Accordingly, it would be a mistake to imagine that the role of an Interim Commissioner can be reduced to some set of symbolic, mechanical tasks.

Ideally, an Interim Commissioner of Nunavut would possess the following qualifications and aptitudes:

- * extensive management experience at a senior level, with demonstrated organizational and financial administration skills (preferably, obtained, at least in part, in Nunavut or elsewhere in the North);
- * good negotiating skills;
- * good diplomatic abilities;
- * good communications abilities;
- * knowledge of government design and operations; and,
- * a thorough understanding of national, northern and Nunavut issues.

As in any work involving a high level of innovation and time pressure, a sense of humour might also help.

Since the beginning of its work, Commissioners have, from time to time, heard concerns expressed about "who speaks for Nunavut?". Such concerns have been expressed in relation to a number of circumstances, including the role of an Interim Commissioner. It has been suggested that an Interim Commissioner might somehow undercut the responsibilities of incumbent political leaders and senior public officials in the NWT, either by being some kind of federal "Trojan horse", or by arrogating some kind of public profile that would eclipse all other organizations and individuals working on Nunavut.

From the NIC's perspective, it is unwise to reduce matters of political and administrative legitimacy to zero-sum games. In a federal state such as Canada, the public readily accepts that political authority can be vested simultaneously in a number of places; the allocation of total authority exists only in totalitarian states. In the period leading up to April 1, 1999, as in the process of political development that has taken us to where we are today, progress on Nunavut will require the combined efforts of a number of organizations and individuals with a variety of overlapping and interwoven responsibilities: the Parliament of Canada, the Minister of DIAND and other federal Ministers; an Interim Commissioner; the NWT Legislative Assembly, the GNWT Government Leader and other GNWT Ministers; government officials; NTI and other Inuit organizations; and so on. Elected leaders and officials sharing responsibilities in relation to Nunavut will need to concentrate efforts on achieving a high level of agreement on practical measures to assist in launching Nunavut as successfully as possible, rather than be sidetracked by theoretical fine points as to relative rank or privilege.

5. Selection and Direction of Interim Commissioner

The "Nunavut Political Accord" was concluded on October 30, 1992 by representatives of the Government of Canada, the GNWT and the Tungavik Federation of Nunavut (now NTI) to provide a common set of principles and work agenda for fulfilment of the commitment to create Nunavut set out in Article 4 of the Nunavut Agreement (the Accord is reproduced in Appendix 5 of "**Footprints in New Snow**"). The tri-partite nature of the Accord reflected an awareness that the creation of Nunavut turns on application of the combined energies of the two senior levels of public government in the Northwest Territories and the organization seized with implementing and enforcing Inuit rights under the Nunavut Agreement.

The tri-partite, consensual basis of the "Nunavut Political Accord" provides a useful precedent for resolving how best to go about selecting an Interim Commissioner and supplying direction to him or her. In keeping with that precedent, the NIC recommends as follows:

1. a tri-partite Government of Canada, GNWT and NTI committee should be constituted, as soon as practicable, to begin the process of nominating a person or persons as Interim Commissioner of Nunavut (formal appointment would need to be made by federal Order in Council); and,
2. the same tri-partite Government of Canada, GNWT and NTI committee should be requested to draft written directions to be supplied to an Interim Commissioner of Nunavut by the Minister of DIAND under subsection 71(2) of the **Nunavut Act**.

In "**Footprints in New Snow**", the NIC recommended that an Interim Commissioner be appointed effective April 1, 1997. This means that, in order to find the best candidate, the recruitment process would have to begin by the first part of 1996 (a good argument can be made that, if the best candidate were available --- and perhaps only available --- at some date before April 1, 1997, an appointment effective prior to that date would be preferable). Assuming an Interim Commissioner were to be appointed effective April 1, 1997, a committee developing draft directions for the Commissioner might want to direct the Interim Commissioner to pursue the following tasks and timetables:

- * to consult closely with persons designated by the Government of Canada, the GNWT, and NTI (this might include a member of the "Nunavut Caucus" of the NWT Legislative Assembly nominated by members of the Caucus, a member of the Board of Directors of NTI, and an NIC Commissioner; designated contact persons at a staff level might also be advantageous);

- * to establish and maintain good working relations with relevant officials of the Government of Canada, the GNWT and NTI;
- * to advise the Government of Canada, the GNWT and NTI of any agreements entered into by the Interim Commissioner resulting in binding commitments on behalf of the Nunavut Government, and to supply them with copies;
- * to inform the public as much as practicable as to the work of the Office of the Interim Commissioner and, more specifically, all commitments being made on behalf of the Nunavut Government;
- * on behalf of the Nunavut Government, to negotiate with the Government of Canada and the GNWT with respect to special purpose financial arrangements concerning preparations for the creation of Nunavut, and to seek to conclude an agreement with respect to that matter (this might be a new agreement or an amended version of an earlier bi-lateral agreement between the federal and territorial governments) as soon as practicable following the Interim Commissioner taking office;
- * on behalf of the Nunavut Government, to negotiate with the GNWT with respect to the division of assets and liabilities between Nunavut and the Northwest Territories, and to seek to conclude an agreement with respect to that matter by April 1, 1998; specific portions of that agreement, or separate subsidiary agreements, would deal with the NWT Power Corporation and the NWT Workers' Compensation Board;
- * on behalf of the Nunavut Government, to negotiate with the GNWT with respect to an agreement between the GNWT and the Nunavut Government governing the delivery of any services to the Nunavut Government by the GNWT in the period following April 1, 1999, and to seek to conclude such an agreement by June 30, 1998;
- * on behalf of the Nunavut Government, to negotiate with relevant provincial governments and agencies with respect to agreements governing the delivery of any services to the Nunavut Government by them in the period following April 1, 1999, and to seek to conclude such agreements by June 30, 1998;
- * on behalf of the Nunavut Government, to negotiate with the Government of Canada with respect to a funding agreement between the Government of Canada and the Nunavut Government dealing with the first six months operations of the Nunavut Agreement, and to seek to conclude an agreement with respect to that matter by September 30, 1998;

- * on behalf of the Nunavut Government, to negotiate with the GNWT, the Government of Canada (to the extent applicable), and public sector employee representatives with respect to the conditions of employment of employees of the GNWT who are covered by collective agreements with the GNWT and who become employees of the Nunavut Government, with a view to concluding agreements with respect to such matters by September 30, 1997 (it should be noted that section 72 of the **Nunavut Act** obliges the Interim Commissioner to prescribe employment conditions for Nunavut Government employees that are "consistent with the conditions of employment established by the Government of the Northwest Territories for its employees");
- * on behalf of the Nunavut Government, to negotiate with the GNWT and affected individuals with respect to employment conditions of senior managers who are employees of the GNWT and who become employees of the Nunavut Government, with a view to concluding agreements with respect to such matters by April 30, 1998;
- * on behalf of the Nunavut Government, to negotiate with individuals, not employed in the NWT public sector, who would make suitable employees in the Nunavut Government in its inaugural operations, with a view to concluding a large majority of such employment agreements, particularly at the senior management levels, in the period September 30, 1998 to December 31, 1998; and,
- * to establish a principal office at a designated location and other offices at other designated locations.

With regards both the nomination of a person or persons as Interim Commissioner, and the development of draft directions to an Interim Commissioner, the NIC would be happy to play any facilitating role thought advantageous by the Government of Canada, the GNWT and NTI.

6. Office of an Interim Commissioner

Assuming he or she were to be appointed effective April 1, 1997, the Interim Commissioner would need to "hit the floor running". This would require the Interim Commissioner to assemble quickly a core staff commanding the following areas of in-house expertise:

- * inter-governmental relations;
- * government organization in general, and core territorial government program areas in particular (e.g., social services, community government);
- * information systems;
- * public finances;
- * labour relations;
- * employment, education and training issues; and
- * legal matters.

Based in Nunavut, the Office of the Interim Commission would also likely need liaison officers in Yellowknife and Ottawa, a communications officer, and various support staff. All in, the Office of Interim Commissioner would probably require, practically from its inception, a staff complement of some 15 full-time equivalent positions.

It is safe to suggest that the payroll of the Office of the Interim Commissioner would not need to expand appreciably in the first year of the Interim Commissioner's mandate; there is no compelling reason why even the most senior prospective managers within the Nunavut Government work force (even, for example, a highly specialized employee such as the Clerk of the Nunavut Legislative Assembly) would need to begin salaried, preparatory work towards the creation of the Nunavut Government more than a year before that government would get off the ground. Avoiding offers of immediate employment need not, of course, detract from early confirmation of employment commencing closer to the start-up date for the Nunavut Government; indeed, ideally, all the most senior managers of the Nunavut Government would be "lined up" through binding offers and acceptances of employment well in advance of their actively taking up their new positions.

Predicting the number of people employed by the Interim Commissioner in the twelve months leading up to April 1, 1999, is an uncertain exercise.

According to the government design model set out in "Footprints in New Snow", and assuming a minimum amount of phasing in of administrative capacity in Nunavut, there will be a need to have some 600 additional territorial government positions filled on or shortly after April 1, 1999. From a project efficiency point of view, it could be argued that the most appealing way of accommodating this model would be as follows: successful candidates would be lined up for all 600 employment positions, and offers of employment would be made and accepted by them, well in advance of April 1, 1999; and, all new employees would be able and willing to begin work precisely on April 1, 1999. Whatever the appeal of this approach from a project efficiency point of view, there are a number of compelling reasons why reality will unfold in a different, less tidy, more protracted way:

1. some senior personnel will need to assume responsibilities in advance of April 1, 1999, in order to assist in a smooth transition;
2. the best candidates for some positions may not be available to begin work precisely on April 1, 1999;
3. it may not possible to find suitable candidates for all positions by April 1, 1999;
4. it may not be possible to fill all positions by April 1, 1999, and, at the same time, secure an acceptable ratio of Inuit and non-Inuit employees;
5. an unduly compressed staffing up period might compromise the possibility of transitional arrangements involving orderly reductions in GNWT headquarters employment levels in Yellowknife that would be mutually advantageous to the GNWT and the Nunavut Government;
6. unpredictable developments with respect to the supply of new housing, office space, and other forms of infrastructure may require some adjustments in the start-up dates for some employees; and,
7. the re-organization activities within the GNWT preparatory to division will significantly affect the extent to which an Interim Commissioner has to engage individuals directly in the lead up to the creation of the Nunavut Government.

The first six reasons listed are largely self-evident. The seventh reason warrants further discussion.

Recommendation #5-12 of "Footprints in New Snow" urged the GNWT to complete a comprehensive plan to re-organize itself in preparation for division. Such a plan would identify existing and new positions within the GNWT having a primary focus on the Nunavut

area, and establish appropriate recruitment and training strategies associated with those positions. In theory, such a plan could go so far as to result, in the gearing up to April 1, 1999, in a functional division of virtually all GNWT departments and agencies into Nunavut and Mackenzie Valley sections, with senior manager being assigned to each section at the headquarters as well as the regional levels (cost efficiency and other practical considerations would, no doubt, preclude a complete geographic bifurcation of all organizational functions).

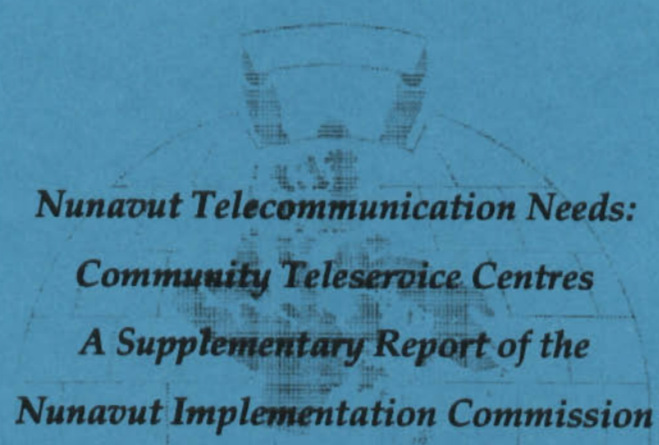
A plan along these lines, promptly developed and aggressively implemented, could minimize the need for an Interim Commissioner to engage senior personnel directly. The allocation of legal authority under the **Nunavut Act** means that decisions about who will fill the senior positions within the Nunavut Government must be made by an Interim Commissioner of Nunavut; while respecting legal formalities, however, an Interim Commissioner would be immeasurably better placed to preside over an effective "staffing up" of the Nunavut Government if a comprehensive GNWT re-organization plan generates obvious candidates for senior positions within the Nunavut Government. For example, in the event that, in a re-organized GNWT, a Deputy Minister or Assistant Deputy Minister were to be given the full range of territorial governmental responsibilities for employment and training issues in the Nunavut part of the NWT, the incumbent of that position would be the logical individual to turn to for filling an equivalent position within the Nunavut Government. Emphasizing this approach would lend itself to orderly, timely termination of employment relationships with the GNWT and orderly, timely commencement of employment relationships with the Nunavut Government.

In the event that the GNWT were to take a less ambitious approach to geographic bifurcation of departments and agencies in the run up to Nunavut, it is likely that an Interim Commissioner would need to engage a considerable number of senior managers as temporary employees of the Office of Interim Commissioner, in anticipation of their becoming employees of the Nunavut Government effective April 1, 1999 (the **Nunavut Act** does not foresee an Interim Commissioner administering a payroll directly on behalf of the Nunavut Government).

This report is being written in advance of the NIC obtaining a good sense of the GNWT's views as to re-organization in advance of the creation of Nunavut; this makes it problematic to offer any firm numbers as to the amount of hiring an Interim Commissioner of Nunavut will need to do in the year prior to April 1, 1999. In "**Footprints in New Snow**", the NIC suggested that an Office an Interim Commissioner might need to employ some 15 full-time equivalent positions in the period April 1, 1997, to March 31, 1998, and an additional 60 additional full-time equivalent positions in the period April 1, 1998, to March 31, 1999 (logic would suggest that the employment aggregated in the form of 60

additional full-time equivalent positions would be concentrated towards the end of the twelve month period). With small variations flowing from the location of the capital of Nunavut, the NIC predicted that the total costs associated with an Office of Interim Commissioner, over a two year period, would be between \$9,589,000 and \$9,758,000 (see pages A-18.22, A-19.22, and A-20.22 of the "Footprints" report). At the present time, and in advance of a better sense of the GNWT views as to its own re-organization, the NIC believes these estimates to remain realistic.

Whatever the difficulties and uncertainties associated with an efficient staffing up of the Nunavut Government, every effort should be made to ensuring that --- putting aside such things as organizations that may continue to be "shared" by the Nunavut Government and the GNWT --- the headquarters operations of the Nunavut Government are fully staffed up by the first anniversary of the coming into existence of the Nunavut Government.



***Nunavut Telecommunication Needs:
Community Teleservice Centres
A Supplementary Report of the
Nunavut Implementation Commission***

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I would be pleased to discuss this report with you, or any other work of the Commission, at a convenient time.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'John Amagoalik', written in a cursive style.

John Amagoalik,
Chairperson

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British Columbia
 Alberta
 Saskatchewan
 Manitoba
 Ontario
 Quebec
 New Brunswick
 Nova Scotia and Prince Edward Island
 Newfoundland
 Stentor
 MediaLink Interactive Inc.
 Information Highway Networks

PART I INTRODUCTION

"The pathways of the past were forged by dogteam and snowmobile. The pathways of the present are travelled by air. The pathways of the future will be travelled electronically."
("Footprints in New Snow", Nunavut Implementation Commission, March 31, 1995, page 54)

(i) Background

Chapter 7(b) of the NIC report "**Footprints in New Snow**" recommends a working group be established to undertake a variety of tasks related to the establishment of a telecommunications infrastructure for Nunavut. The chapter contemplates the establishment of a single telecommunications infrastructure of benefit and use to both public and private sectors. A letter to Simon Awa, Executive Director of NIC, from Ken Wyman, Associate Director of the Nunavut Secretariat, DIAND, May 4, 1995, requests additional information regarding: community benefits; impacts, costs and benefits to the Nunavut Government; and related transitional implications. The following report addresses these matters and explains how the establishment of a single telecommunications infrastructure may be of benefit to governments, private individuals, businesses and organizations. In doing so, it looks at the telecommunication needs of Nunavut and suggests how the needs of individuals, businesses, Inuit organizations, and other private organizations could be piggy backed at small additional cost, on a telecommunications infrastructure that the Nunavut Government requires to function.

(ii) Introduction

The **Nunavut Political Accord** (Section 8.4) provides that the federal government determine and fund "... **reasonable incremental costs arising from the creation and operation of the Government of Nunavut.**" This would include the infrastructure and ongoing operation and maintenance costs associated with Nunavut Government communications needs, the funding of which is fundamental to the successful and efficient operation of a decentralized government.

It would be prudent therefore to ensure that any communications infrastructure established serve the communication needs of the Nunavut public at the same time as meeting the communication needs of the Nunavut Government. The future needs of both the Nunavut Government and Nunavut residents, businesses and private organizations lie in the installation of telecommunications infrastructure capable of delivering a full range of electronically transmitted information. Full videoconferencing, the delivery of justice, education and health services, the use of interactive data bases, CD-ROM libraries, video file servers, graphic and broadband interactive services contemplated for the information highway ---

all these things require multimedia service. Access to the information highway would allow the residents of Nunavut to cement circumpolar ties with other Arctic peoples.

(iii) Policy and Regulatory Environment

In a series of recent policy statements the federal government has clearly linked the future of economic development in Canada with Canadian participation in the field of telecommunications. Key policy objectives outlined in the January 1994 Speech from the Throne included: the creation of jobs through innovation and investment in Canada; reinforcement of Canadian sovereignty and cultural identity; and provision of universal access at reasonable cost.

Job creation and economic growth are the cornerstones of a healthy Nunavut economy capable of paying its own way within Confederation. The impediments to economic growth are enormous: remote location, population situated in 26 small communities scattered across 20% of Canada's land mass, and a limited transportation and communications infrastructure. A strong integrated regional Nunavut economy is important, not only to Nunavut, but to Canada as well, and is consistent with Federal Industry Minister John Manley's recent statement:

"The government believes strong regional economies are the building blocks of Canada. To be effective, economic policy must recognize the differences between regions."

("Building a More Innovative Economy", 1994, page 17)

The economy of Nunavut must be revitalized. Traditionally it was based on the harvest of renewable resources. More recently, it has been based on non-renewable resource development, tourism, and employment in the public sector. Increasingly, reliance on such conventional forms of economic activity is becoming less and less sustainable. We are entering an age of economies based on "information". "Knowledge is power" it is said; without access to the information that permits the accumulation of knowledge, a Nunavut economy will remain a relic of a by-gone era. To enable the Nunavut economy to keep up and grow with the rest of Canada, its residents and businesses must enter the third millennium equipped with services and facilities that will allow them to compete effectively in the larger Canadian and global economies. With the deployment of appropriate telecommunications technologies providing easy access to global information, such participation is within grasp. Remoteness no longer has to be a major impediment to economic growth. Federal Finance Minister Paul Martin recognized this when he stated:

"The Information Highway promises to reduce the disadvantages of distance and remote locations in Canada. This has profound implications for the economic prospects of less-advantaged

regions and smaller communities throughout the nation."
("A new framework for economic policy" 1994, page 63)

The "Information Highway" is a common term for the broadband transmission of voice, full motion video, and interactive data services. It will offer access to a virtually unlimited array of health care, education, social services, entertainment, business enhancement, government and consumer services and information. Its establishment will enable Canada to become a "community of communities", linking communities and regions through the exchange and pooling of knowledge and information. Just as Nunavut can benefit from access to this pool of knowledge, Canada can also benefit through the contributions of Nunavut residents and businesses.

Regional economic development achieved through the establishment of a telecommunications infrastructure is a clearly stated objective of the federal government. The **Telecommunications Act** is a key piece of federal legislation aimed at articulating and pursuing this objective. It sets a social and economic policy agenda that contemplates the development of a telecommunications infrastructure to assist in regional economic growth:

"...a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its region;

b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;

h) to respond to the economic and social requirements of users of telecommunications services..."

(Section 7)

This statutory agenda has been buttressed by a recent Canadian Radio and Television Commission (CRTC) decision which determined that, as a result of increased competition, telephone companies under its jurisdiction must be subject to a greater degree of market discipline. Any changes to the current regulatory environment must be conducive to attainment of the following objectives: universal access at affordable prices; equitable treatment of subscribers in terms of service and price; and encouragement of the development and availability of new technology and innovative services to respond to the needs of business and residence customers. (Telecom Decision CRTC 94-19).

The economic future of Nunavut will in some measure, be determined by the ability of Nunavut residents and their different levels of governments to access information and plug into the global economy. This will only be achievable through the creation

of a modern day telecommunications infrastructure giving all Nunavut residents access. The needs and circumstances of Nunavut warrant energetic pursuit of the federal policy objectives of regional economic development and growth through the development of a knowledge based society that is supported by a modern day telecommunications system.

PART II COMMUNITY TELESERVICE CENTRES (CTSCs)

(i) CTSCs: The Concept

CTSCs are also known as "telecentres", "telecottages", "televillages", and "teleoffices". They are multi-purpose centres that provide telecommunications and computer facilities and support in small villages in rural and remote areas around the globe. They function as information gateways into communities; and out to the world. They have also been described "... as a **"virtual community" composed of people, firms, government agencies, schools, libraries, health care providers and others connected through a common vision or need linked through telecommunications, information resources and shared services.**" (The Rural Televillage: Creating A New Strategy for Rural Development; Kentucky Science and Technology Council Inc., 1994, page 3). The first two were established in Europe in 1985. As of 1994 well over 200 CTSCs have been established in eleven countries. They are now also found in Australia, North America, and South America.

CTSCs were initially conceived as a means of maintaining the economic and societal cohesiveness of rural communities in the face of changing economic conditions. In response to economic problems, many societies attempted to cope by investing more time and resources in obsolete development strategies. Failure to stimulate economies resulted in many people migrating to larger urban centres to seek employment and other economic opportunities. One consequence of rural/urban migration was to upset the societal, economic and political balance of communities. Another consequence was additional placed pressure on overloaded urban facilities and government assistance programs and services by unskilled and unemployable people.

Preserving the quality of life in a rural community in the face of a rapidly changing world requires solving economic problems associated with distance and remoteness. Access to telecommunications services and facilities is one means of doing so. Telecommunications can provide access to information and global markets. They can also facilitate the delivery of training, education, health care, and other public and private sector services. Unfortunately, many outlying regions cannot benefit from the potential benefits of telecommunications because of a lack of services, facilities, money and skills.

(ii) Barriers

In many rural or remote communities, people do not have access to telecommunications networks because they lack access to plain telephony, or, as in the case of Nunavut, access to more advanced telephone services. This problem is referred to as a **"network barrier"**.

A **"service barrier"** can also prevent access to telecommunications networks. As is the case in Nunavut, this situation occurs when a telephone network has been established, but the variety of services is limited.

Even if telecommunications services are available, a **"cost barrier"** can exist. For small rural families and businesses, and many Nunavut residents, the cost of computers, software, technical support, continuous upgrading, and such things, are often too high for infrequent users (i.e. small enterprises) to justify individual connection.

A **"qualification barrier"** can also exist. Skill requirements for using computers programs, telecommunication services and advanced information networks can be high. Sceptical attitudes towards the benefits of technology may be prevalent and may have to be overcome.

A **"personal financial access barrier"** may exist for some individuals. This barrier exists where people, desirous of taking advantage of CTSC facilities and services, may be unable to afford computer time charges and charges associated with long distance connections.

One way of overcoming a network barrier where individual connections are not financially viable, or where upgrading existing networks is cost prohibitive, is to provide access to telecommunications services at a single location. Overcoming the service barrier may be accomplished by providing computer and multi-media based services and training at this location in a cultural context that reflects local needs. Cost barriers may be addressed through the provision of telecommunications services and facilities on a community basis, thus reducing individual costs. The qualification barrier may be overcome by on site training and the provision of technical expertise. The personal financial access barrier might be overcome if CTSCs were to be supported as regional economic development programs.

CTSCs offer a cost effective solution to low income communities where the provision of advanced telecommunications services to individual homes and businesses is cost prohibitive.

(iii) **Nunavut Needs: Connecting The North Symposium**

In 1993, the Government of the Northwest Territories (GNWT) and the Inuit Broadcasting Corporation (IBC) conducted a pan Northern series of community consultations. The results of the consultations are summarized in a report entitled, **"Connecting the North: Defining Users' Needs"**. This report records Northerners recognition of the social, economic and business potential of emerging information technologies and the need for access to the information highway. As a result of these consultations, the GNWT

and IBC organized a **"Connecting The North Symposium"** (November 23-25, 1994). At the symposium representatives of federal, provincial and territorial governments, aboriginal organizations, educators, health care practitioners, economic development and business people, broadcasters, and local discussion groups in 27 communities presented their views on information and technology related issues. Their views, many of which are consistent with the purpose and function of CTSCs, are summarized in a report, entitled, **"Uqausiit Ukiuqtaqtumnit Sukajukkut Tusarutikkik: Northern Voices on the Information Highway"** (Inuit Broadcasting Corporation, 1995).

Public and private sector presenters emphasized the following concerns (page 6):

- * the high human and financial cost of delivering education, health and social services, training, justice and economic development programs to remote communities;
- * the lack of understanding of available technologies or applications by individuals and organizations;
- * the need to upgrade the present communication infrastructure to facilitate improved East-West and North-South communication, and the attendant cost of such an upgrade;
- * the absence of a pool of shared knowledge on communication initiatives, and the need for development of compatible systems by regions, government agencies, service providers and individuals;
- * the growing disparity between the rate of information systems development in the South and the North; and
- * the North's inability to access Southern and global information systems.

"Community discussion groups" identified six broad issues (page 22):

- * access to the information highway;
- * the potential impact of these new technologies on culture and language;
- * the need for training to enable Northerners to participate fully in the design and use of the information highway;
- * the need for a system of accountability;
- * the need for Northern participation in research and development; and

* ways of funding information highway development.

Many of the issues identified in the report can be defined and categorized as network, service, cost and qualification barriers, and could, with appropriate government policy and program support, and with proper community participation, planning, funding and training, be overcome, through the establishment of a network of CTSCs throughout Nunavut.

The personal financial access barrier might be overcome if CTSCs were to be supported as regional economic development programs and residents were encouraged and supported in their use of CTSCs through subsidization of computer training and on-line time. The costs and means of providing such support need further investigation.

(iv) CTSCs: Global Survey

A paper entitled "Community TeleService Centres: A means to social, cultural and economic development of rural communities and low-income urban settlements" was presented in late 1993 at a "Conference on World Telecommunication Development" by Las Qvortrup, Vice Chairman of CTSC International. "The Paper" offered a global survey of all known CTSC associations and public authorities responsible for CTSC programming. Of the 237 CTSCs surveyed, 65 responded to "the Survey". Of the 65 CTSCs, 36 (55.4%) were privately run, and 29 (44.6%) were publicly operated. Some of the privately run centres were business driven community organized centres and had public support. The publicly supported centres were normally run by local or regional public authorities such as a school, library, or community government.

Country	No. of CTSCs
Denmark	9 (2 in Greenland)
Sweden	23
Norway	5
Finland	49
United Kingdom	57 (currently 120)
Ireland	6 (currently 10)
Germany	47 (including planned)
Austria	5
Portugal	0 (currently 15)
Australia	9 (currently 40)
Brazil	4 (35-40 more planned for 1994)
Canada	7
Total (November 1993)	200
(Confirmed early 1994)	237

(v) CTSCs Sketches

The Paper provided "thumbnail" sketches of CTSC experiences in several countries.

(a) Denmark

In late 1990 there were ten CTSCs established as the result of a national program supporting rural telecommunication development. The CTSCs focused on the delivery of education and advisory services. At the end of the program, three centres had been closed and two new ones had opened.

(b) Sweden

Since 1985, approximately 40 CTSCs have been built. In 1989, public support was threatened and the CTSC movement had to decide whether to operate as private businesses or to apply for continuous public support. As public financial support was not forthcoming, most of the CTSCs decided to try to operate as small local enterprises. At the time of the survey, 23 of the CTSCs were operating as business oriented centres, while at the same time trying to organize themselves as a cooperative network of centres. A number of other CTSCs remained non-profit centres integrated with or related to local grass-roots organizations.

(c) Norway

By late 1990, more than 10 CTSCs had been established, but as of 1993 there were only five in operation. While some CTSCs in the Southern regions have closed since then, nine more CTSCs have been proposed for the more remote Northern regions.

(d) Finland

In 1988 four CTSCs were established. This was followed in 1989 by a national initiative to support CTSCs resulting in the establishment of 70 centres. Some of these centres were part of local folk high schools and were designed to meet educational needs while others were more oriented to providing business services. Public support ended in 1991 and precipitated a short crisis. As of November 1993 there were still 49 CTSCs in operation.

(e) Scotland

Six pilot CTSCs were established in the early 1990s with support from the Highland and Island Development Board and British Telecom North Scotland District. Experience gained in operating the CTSCs revealed that community cooperatives operating as joint stock companies were the most appropriate vehicles for centre establishment, and that by linking up with existing community based organizations provided a suitable environment with which to grow.

(f) **England, Wales, Northern Ireland, and Ireland**

Since the late 1980s, 30 CTSC organizations have been formed. As of mid-1993, some 57 telecottages and telecentres had been established in the United Kingdom, and six in Ireland. In 1992 the British and Irish "Telecottage Association", a support organization for teleworkers, telecottages, and CTSCs, was established. Its purpose is "... to improve opportunities and choice in employment, training and services for people who live in rural areas and the development of local economies through the use of information technology and telecommunications, including shared facilities in local centres." (page 5).

(g) **Germany and Austria**

A very active CTSC movement has developed in Germany and Austria and good CTSC relations between the countries have been established. At the time of the Survey, a total of 47 CTSCs were in operation or had been planned. In 1991 and 1992, in what was formerly East Germany, nine private telecentres and 13 teleoffices had been established to compensate for poor telecommunication services. All German CTSCs are publicly supported private enterprises. Some are very large centres with up to 60 employees and 10,000 sq. meters of space. Large centres serve to transfer technologies to regional enterprises, while others are more oriented to rural community teleservice needs. As of 1994, Austria had built five CTSCs and had another one planned.

(h) **Australia**

In 1991, the Department of Primary Industries and Energy published a report, entitled, "**Telecottages: The Potential for Rural Australia**" which prompted the development of a telecentre program. By November of 1993, three CTSCs had been established and 17 more had received grants from the national telecentre program. In addition, six CTSCs had been established by local communities, and 20-25 were to receive program approval by 1995.

(i) **Brazil**

With the assistance of the "**International Association of Community TeleService Centres**", (established in 1989), Brazil began a pilot project with a limited number of CTSCs. The first four were established by Telebras (national telephone company) in 1992 and 1993, and 35-40 were planned for 1994. Telebras has plans for eventually building some 13,000 CTSCs. The CTSCs are run by Telebras with the services being provided by independent public or private companies.

(j) **Canada**

In Newfoundland and Labrador it was decided in 1990 to

establish CTSCs in rural communities to take advantage of information services of the Enterprise Network and a number of open university courses based on interactive audio teleconferencing systems. The project initially followed the European approach of simply transferring technology. It evolved later to emphasizing the integration of the telecentre concept with on-line services. The difference in approach is important; whereas the European approach focuses solely on the diffusion of technology, the Newfoundland system attempts to promote both information seeking behaviour and the diffusion of technology and information.

(k) Other Initiatives

CTSCs projects are currently being considered in Benin, Greece, New Zealand, Sri Lanka and the United States of America.

(vi) CTSCs: Description

(a) Facilities

CTSCs are often located in schools, libraries, local authority buildings or converted buildings. Alternatively, they can be specific built new facilities. Generally, they contain office space, a classroom with computer and training facilities, a public area with access to computers and telecommunications services, a meeting room, a kitchen, and sometimes include a resource library and child care facilities. Child care facilities in the CTSCs (or associated with training and education program facilities) can prove to be particularly helpful to single parents seeking employment opportunities or trying to acquire or upgrade computer skills. Typically, minimum staff consists of a full time CTSC manager and a part time assistant. Together they look after the building and equipment and run computer training courses. The Survey found that many of the CTSCs are open only part of a day, or only a few days of the week.

Although equipment may vary from centre to centre the Survey found that CTSCs generally include the following equipment:

- * photocopier;
- * personal computers;
- * printers;
- * scanners;
- * access to ordinary telephone network;
- * modems for data communication (data bases, E-mail etc.);
- * video production and editing equipment;

- * sometimes facilities for broadcasting of local radio and TV;
- * sometimes videoconferencing facilities; and
- * ancillary equipment such as reference books and teaching aids.

The Survey found that in most centres, a wide range of software was provided, such as, word processing and desktop publishing, spreadsheets and integrated packages, graphics and computer aided design programs for educational purposes, computer games, etc. Within each centre personal computers are generally linked in a local area network. A wide area network was also sometimes established at the local and regional levels.

(b) Services

The Survey found that, while the services provided may vary, they often include:

- * information services: access to regional, national and international data bases;
- * telecommunications facilities: telefax, E-mail, etc.;
- * data processing services: desktop publishing and word processing;
- * information technology consultancy: management is undertaken by the CTSC manager who assists local businesses and organizations;
- * training and education: introductory computer courses and "open university" type on-line tutorials;
- * village hall facilities: rooms and facilities for meetings, municipal and county information;
- * distance working facilities: some provide work stations for distance working (telecommuting);
- * some hire out video-production equipment and provide access to editing facilities; and
- * some provide access to local entrepreneurs who need infrequent access to computer and telecommunication equipment or who want to set up new information based businesses without too big an initial investment.

The Survey found the most popular services to be, computer training, photocopying, telefax, access to office facilities and desktop publishing (see Appendix A, Table 1). This indicated that CTSCs are typically used by private individuals and small

businesses as centres for computer training, as offices, and for communication purposes. Because the CTSCs are used as offices and for distance working, they directly support small information based enterprises.

The Survey also found that information technology services offered by private CTSCs tended to be more intensively used than similar services at public CTSCs, except for distance training and certain "other" services. Private CTSCs tended to be used for "specific" purposes, while public centres served more "general" purposes not directly associated with information technology (such as providing meeting room facilities for social services).

(c) Users

The Survey found registered users to include both individuals and private businesses, who used the training facilities and office services on both an occasional and permanent basis. The Survey also found that, while some individuals used the facilities for only short periods of time, (i.e. to use the fax machine), most tended to come either on a regular basis for computer training, or on a permanent basis to use the office facilities. Many registered users use the facility several times a week.

(vii) Geographical and Social Context

The Survey discovered 11.5% of the CTSCs to be located in towns and cities of more than 10,000 people, with 26% being located within 10 kilometres of such centres. More than 60% of the CTSCs however, are located more than 20 kilometres from towns of more than 10,000 inhabitants, with 15% being located more than 100 kilometres away. In England, experience with televillages in rural areas found that they tended to function as points of social articulation for the communities, similar to the way in which country post offices or town halls serve as local gathering points.

The Survey found a predominant proportion of the CTSCs to be located in regions dominated by resource based industries. These regions also had a heavy dependence upon public sector employment, which was often responsible for providing the second largest number of jobs. Unemployment in the areas where CTSCs have been established the Survey found, ranged from 10% to more than 40%.

(viii) Lessons Learned

The Survey found that most CTSCs were launched as a result of national public support campaigns and after three years of operation experienced some form of financial crisis. This crisis was precipitated by either a withdrawal of public funding, or because some CTSCs were established with expectations that could not be met. The most prevalent reason for closing of CTSCs appeared to be the withdrawal of public funds. Recognizing that

the short history of CTSCs supported only tentative conclusions the Paper offered the following cautionary advice:

- * initial planning should be as realistic as possible to ensure that local services match local needs;
- * realize that some sort of "natural selection" process will occur generally within three to four years after establishment;
- * plan the public support program carefully so that the CTSCs can easily make the transition from public support to private business;
- * establish CTSCs within the context of long term aid programs for regional economic development;
- * combine financial support with other types of help such as training of CTSC managers, establishing relevant data bases, etc;
- * provide continuous and easily accessible support to CTSCs such as setting up an electronic help-desk function;
- * avoid viewing the CTSC programs as isolated activities and integrate them with telecommunications development programs as well as business, education, etc. development programs; and
- * establishment of national CTSCs associations can be beneficial in stimulating CTSC development.

(ix) Financial Viability

The Survey found that, even though the majority of CTSCs were privately owned the majority were initially financed with public funds. The majority of CTSCs received income from either public sources or from a mix of private and public sources. Some CTSCs received income through the sale of services to public authorities, such as running computer training courses for departments of education.

Regarding financial viability, the Survey found that in 1992, 50% of the CTSCs balanced their books, 27.5 % made a profit, and 22.5% lost money.

(x) Impact/Contribution

The Paper acknowledged that, due to the nature of information obtained and the short duration of operation of CTSCs (since 1985), any social and economic impact assessment had to be speculative and subjective. It did however provide some general observations. Education it thought was the most important role played by both private and public CTSCs. The Paper stated that public CTSCs

assessed their role in a more positive fashion than did private CTSCs. The Paper speculated that this may have been due to private CTSCs having to run themselves as businesses. Public CTSCs respondents in the Survey did not differentiate between their economic, employment, cultural and social service impacts. Private CTSCs respondents saw themselves playing a role in the local economy and in the provision of social services, but having little impact on local employment and culture.

(xi) **Newfoundland and Labrador Experience**

(a) **Introduction**

In the late 1980s, the Government of Newfoundland and Labrador began planning a network of telecentres, to facilitate government business and operations, to stimulate regional economic development, and to provide rural residents with access to a larger world. Building on the European idea of CTSCs following the **"Bridging the Distance"** conference in 1990, several Newfoundlanders from outlying communities were sent to Finland, Sweden and Denmark for two weeks to learn about telecentres. They returned with ideas and enthusiasm that laid a basis for a telecentre network to be set up. This initiative began as a provincial effort and evolved into a federal/provincial effort with the establishment of a federal/provincial Crown corporation: ACOA/Enterprise. The Enterprise Network Inc. (ENI), as it is generally known, now operates seven rural telecentres in communities (ranging in size from 300 people to 3,000 people) with on line services. As of March 31, 1995, it has been fully Internet inter-operable. A consultants report entitled **"Evaluation of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement"** prepared for "The Management Committee of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement" (Brian J. Hurley Horizon Consulting Limited, February 1994) provides an evaluation and overview of the operations of the ACOA/Enterprise Network.

(b) **Services**

The basic service mix delivered in a typical Newfoundland telecentre includes:

- * on-line access to AENet information services;
- * on-line access to a number of commercial database services;
- * access to business planning software tools and aids, with access to business planning support and consulting;
- * access to a variety of microcomputer application software products;
- * on-line access to the library holdings of the Business

- Resource Centre, with the ability to order books by mail;
- * access to distance education and teleconferencing facilities;
 - * access to general office facilities (fax, phone, copier); and
 - * access to on-site support and consulting through the staff within the centre.

(c) Users

The provincial government is the primary user of network applications, mainly for electronic mail and file transfer.

Business development agencies use the network to create an awareness of local business and employment opportunities and to assemble information for clients for business planning and marketing purposes. They provide research information on a variety of subjects such as market trends, product suppliers, and pricing. Information accessed through the network is also used by these agencies for professional development purposes. These purposes include research to keep informed of current events, press releases, and regular contact with colleagues.

The telecentres also create an awareness of computer technology. Walk in clients use the centres to do research for resumes and business plans, and to investigate business ideas. Other private sector clients use them for electronic mail and file transfer.

Senior government officials believe that federal and provincial agencies interact more, and are more accessible, as a result of the network. Data usage on network traffic indicates that federal and provincial governments account for 33% of all E-mail and file transfers traffic (see Appendix A, Table 2 for a breakdown of users, and Table 3 for a breakdown of products used).

(d) Regional Development

Experience in Newfoundland and Labrador has found the presence of CTSCs encourages the following efficiencies in regional development:

- * increased communications among and between development groups;
- * networking of groups who otherwise would not have had the opportunity to do so;
- * time and cost savings associated with improved communications and reduced travel;
- * availability of business and related information that was

not previously accessible; and

- * availability of a "one-stop shopping" concept for business information, services, and facilities.

(e) Training

The basic training package delivered to all new users consists of a one to three day workshop, depending on skill level. The package consists of:

- * introduction to PCs;
- * communications and electronic mail;
- * database access, searching and printing; and
- * file transfer.

Groups that benefited most from training were regional development associations, community futures groups, staff of business development centres (government), and womens' enterprises (see Appendix A, Table 4).

The provincial government was the largest user of the training programs.

(f) Structure

Telecentres in Newfoundland and Labrador are managed through a Cooperation Agreement. A Management Committee representing federal and provincial sponsors, is the official decision making body and it controls the project and its finances. The Steering Committee representing rural groups acts a liaison with the major user groups and the telecentre partner organizations. In addition, there is a board composed of mainly provincial public servants involved with rural economic development. A Technical Advisory Sub-Committee set up to advise on technical matters is now defunct.

Richard Fuchs, one of the three original proponents behind the drive to set up CTSCs in Newfoundland, identified three factors key to the fundamental success of the experience in Newfoundland and Labrador:

- * there must be a "local champion", that is, someone who is committed to nurturing the concept and educating people at the community level;
- * the people in a community must define their needs as they see them, and services adopted accordingly; infrastructure must not precede the identification of needs.

* a facility must seem to be a "familiar" part of the community;
this suggests a facility should be incorporated into an
existing facility.

PART III TECHNOLOGY

(i) Introduction

Telecommunications can be defined as point to point electronic transmission of voice, data and video images. Underlying infrastructure consists of cable, conduit, switching equipment, amplifiers, support systems, etc., which allow for the transmission of voice, video and data. A key infrastructural component, without which such services cannot be delivered, is the earth station (antenna), and its transmission and receiving capabilities.

(ii) Earth Stations

No electronic transmission of information via satellite into or out of Nunavut communities can occur without earth stations. An earth station in each community is required for the effective functioning of a decentralized Nunavut Government and access to the information highway. Earth stations owned and operated by government and the private sector are currently in place and an inventory of them and their capabilities should be undertaken. There may be no need to build new ones if the ones now in place could serve all future needs of government and the private sector.

Earth station antennae range in size from inexpensive Very Small Aperture Terminals (VSATs) (\$3-to 15,000) to expensive (\$2 million) large earth stations. Antenna size is important. Small antennas have low transmit power and low receive sensitivity. Small earth stations with low transmit power cannot communicate with another small earth station with a low receive sensitivity. Most networks use two different types of antennae. A VSAT network for example, uses a large master earth station with transmit power (and receive sensitivity if required) to communicate with small lower cost earth stations. Due to the northern geographical location of a number of Nunavut communities, and their relationship to the satellite "footprint", antennae in the 3.9 - 4.5 metre range are required.

An important aspect of a communications network is its configuration. Earth stations are designed for either "star" or "mesh" networks. Star networks require the transmission of information from one small earth station to another small earth through a larger master earth station. This transmission pattern requires a "double hop" which increases transmission time and costs, and compounds the lag time data storage requirements between each transmission burst. A mesh network allows each earth station to communicate directly with another earth station. Certain kinds of earth stations are specifically designed for mesh network applications such as high speed computer-computer links, integrated voice, data, and video conferencing applications. These networks generally use earth stations in the 2.4 - 4.5 metre range. In

Nunavut, CTSC communication needs might be more efficiently addressed through the establishment of a mesh network. This would allow for efficient point to point, and point to multipoint communication links for businesses, Inuit organizations and between different levels of governments. The costs and efficiencies of this type of network should be examined before network decisions are made.

(iii) Satellites

Of the four primary types of satellite orbits, the Geosynchronous Earth Orbit (GEO) is perhaps the best suited to Nunavut communication needs because it provides good coverage of the polar regions and is effective for personal voice and data communications needs.

Of all the many technical differences among satellites, the most important are the footprint or coverage pattern, and the "frequency bands". Satellites for fixed (non-mobile) networks operate in the 6/4 Ghz band (C-Band), and the 14/12 Ghz band (Ku-band). The C-band provides good coverage of the North, while the Ku-band's coverage is poor. Anik E-1 and Anik E-2 are both GEO satellites and are effective for personal voice and data communication needs. Both provide C and Ku-band coverage. Anik E-1 is designed for message traffic such as telecommunications, voice, data and video conferencing, whereas Anik E-2 is designed for radio and TV programming.

Television Northern Canada (TVNC) is switching from Anik E-2 to Anik E-1 in November of 1995 and through the use of digital compression TVNC will free up an additional 18Mbps of space segment (bandwidth) on its transponder (channel).

(iv) Bandwidths

Bandwidth is a measure of the carrying capacity of a channel. Wide bandwidths are required for two-way high-speed signals necessary for multimedia services. Multimedia is the simultaneous presentation of multiple forms of media (audio, video, and graphics, etc.). Multimedia services in Nunavut would allow for the delivery of full video conferencing, education and justice and health services, the use of interactive data bases, CD-ROM libraries, video file servers, graphics and broadband interactive services contemplated for the information highway.

A broadband network is a network capable of transporting voice, interactive full-motion video and data services. It requires a network capable of transporting 1.5 million or more pieces of information per second (1.544Mbps).

A narrowband network carries significantly less information than a broadband network. Narrowband applications include

traditional telephone service, electronic mail, paging services and faxes and require a network capable of transporting up to 64 thousand pieces of information per second (64Kbps). A narrowband network would provide the Nunavut Government with only minimal communication capabilities.

A wideband network is capable of carrying less information than a broadband network, but more than a narrowband network. Services over a wideband network include, video conferencing, file transfer, and video telephony and require a network capable of transporting between 64 thousand and 1.5 million bits of information per second (64Kbps-1.544Mbps).

Bandwidths can be upgraded to higher (wider) bandwidths or to digital carrying capacity by replacing hardware and software components in the network. Digitization or the transformation from analog and bandwidth enhancement requires changing equipment and software to create channels in the physical media (e.g. optical cable, coaxial cable, copper wire or radio spectrum). Analog transmission employs traditional technology through which sound waves or other information are converted to electrical impulses of varying strengths. Digital transmission converts sound waves into binary computer code; it is transmitted in that format to its destination where it is converted back to its original format. Digital transmission provides sharper, clearer and faster transmission. With digital encoding and sampling and compression technology, multiple applications can travel the same medium and channel simultaneously, and bandwidth requirements are reduced.

(v) Digital Video Compression (DVC)

DVC systems compress the TV signal so that it occupies a fraction of the power and bandwidth of the original analog signal. This allows for more signals to be carried on one channel. With TV transmission, 30 frames a second are transmitted and the change from one frame to the next is slight. DVC compresses only the change from one frame to the next rather than the whole picture. This results in substantial saving in the amount of information that must be transmitted. For fast moving scenes such as sports low compression rates (4:1) must be used, but for distance education, where there is little movement high compression rates (4:1 to 8:1) can be used. TV signals distributed via satellite to cable head ends will use DVC.

Using DVC to reduce bandwidth, and Demand Assignment Multiple Access (DAMA) or similar technologies to "pool" satellite circuits for voice, data and video, will reduce space segment costs, (the greatest portion of telecommunication costs), and will result in considerable savings in transmission costs.

(vi) **Wire**

Earth stations are the key ground based components. From them, information either enters the community or is transmitted to another earth station located in another community. The type or range of information that can be received or transmitted within a community itself is dependent upon the type of technologies and media used to transfer information on the ground.

The transmission of information to or from an earth station within a community requires the transmission of information over a physical medium such as copper wire, coaxial cable or fibre optical cable. Wireless networks transmit information in the radio/TV spectrum through the air, or in outer space through a vacuum. Of the three "wire" media, fibre optical cable can carry the greatest amount of information. It is capable of two-way broad bandwidth transmission. Coaxial cable can carry less total information than fibre optical wire, but more information than copper wire. Copper wire is the least expensive and most widely installed communication line, but has less carrying capacity than either fibre optical or coaxial cable. Its replacement with either fibre optical or coaxial cable can be very expensive. Fibre optical cable is the most expensive medium, while coaxial cable, although less expensive, is not necessarily less expensive to install because the greater percentage of the installation costs are associated with trenching, installing poles, and building towers. The purchase cost of the medium itself is a relatively small percentage of the overall cost. Wireless networks are the easiest to install because they do not require trenching or laying cable. Costs vary according to the type of signal generated and rights of ways for transmission towers. Microwave networks are generally less expensive than fibre networks and can carry high bandwidth signals.

Telephone service in Nunavut communities is currently delivered by NorthwTel over copper wire, but copper wire can transmit only limited amounts of information at any given time. Recent developments in standards and technology to send high speed digital signals through copper wire can significantly enhance the range of services. By using Asynchronous Transfer Mode (ATM), data can be broken up and transmitted more efficiently allowing voice, data and images to be transmitted on one line. An Asymmetrical Digital Subscriber Loop (ADSL) increases the capacity of a single copper wire more than one hundredfold, allowing for the transmission of multi-video channels, but the number of simultaneous transmissions is quite limited and high bandwidth is only possible in one direction.

The Arctic Cooperatives Ltd. (ACL) is in the process of providing cable TV services to several Nunavut communities. NorthwTel is also interested in providing cable TV service to Northern communities. Due to the small cable TV market the two organizations have been directed by the CRTC to provide cable service in a non competitive fashion. Coaxial cable transmits

information through electrical impulses (as do telephones), and is capable of carrying broadband communications. With changes to hardware and software it can provide two-way high bandwidth transmission. The highest bandwidth currently provided to homes is provided by cable networks.

Television Northern Canada (TVNC) is proposing to provide enhanced broadband communication services to the 96 communities it currently provides television services. Its proposal envisages rewiring every site (average 100 sites per community) in each community. Doing so require cabling, head-ends, ethernet servers and routers, plus upgrading existing cable systems to two-way capability. The proposal also envisages adding telephone service to the local cable system.

(vi) Networks

The basic purpose of a network is to provide access paths between users and amongst users at different geographic locations. To operate, networks require physical media to carry such services as voice, TV signals, digital transmission services, fax, etc. Interconnection of networks at the service level requires physical and functional connection at the lower levels.

A network makes it possible for end users to be connected and to communicate in spite of errors, differences in speeds of operation, protocols, and format. Access to content (i.e. programming and messages) and services (Internet) can be provided without being tied to a particular medium or channel. This involves standardizing protocols and changing hardware and software so that the transmission of signals and services over a variety of media can occur.

The development and control of a single network in Nunavut, supported through a standardized technological infrastructure delivering integrated network services would ensure easy access to the information highway that would serve both public and private and sector interests in a cost efficient and effective manner. The opportunity to create such a network should be seized before a proliferation of incompatible technologies makes the delivery of services inefficient and more costly than it need be.

PART IV APPLICATIONS

(i) Introduction

Nunavut residents, private businesses and Inuit organizations require an up to date telecommunications infrastructure to function within and outside Nunavut. Participation in global markets, community and regional economic development, commerce, marketing, business transactions, multi-community or multi-organizational conferences, video shopping, tourism, information gathering and sharing, etc., --- today all these things require access to modern day telecommunications services and facilities in Nunavut.

The success of an effectively run and cost efficient decentralized Nunavut government will in large measure depend on the establishment of a modern day telecommunications infrastructure. The Nunavut Government must be able, quickly and reliably, to transmit and receive information within and between its own departments and with other levels of government. If the Nunavut Government is to deliver upgraded education, health care and other social services and programs, it must deliver them directly to the communities themselves. It also must be capable of exchanging information with the private sector, both within and outside the Nunavut territory.

(ii) The Information Highway: Applications and Services

Access to the information highway will open the way for the delivery of more government programs and services directly to the communities. It will also allow individuals, organizations and businesses to benefit from access to information, enabling them to effectively participate in the global economy.

The development of an telecommunications infrastructure with service levels designed to meet both public and private sector needs will open up a variety of opportunities with the potential for untold benefits for Nunavut (see Appendix C for additional examples of current telecommunication applications and benefits).

(a) Health Care

The information highway has the potential to improve the administration and quality of health care. It will enable wide dissemination of health care information and training to remote communities. Video, audio, data, and imaging services will allow remote diagnosis and consultation improving the delivery of patient care. Health care workers will be able to access remote and widely dispersed data bases. Telemedicine will help in reducing health care associated travel cost which in 1992/93 cost the Government of the Northwest Territories (GNWT) approximately \$18 million (see Appendix A, Table 5).

(b) Distance Learning/Training

The provision of education programs and courses currently unavailable in communities will be made possible through access to the information highway. Videoconferencing will enable teachers and students to participate in joint learning exercises. It will also allow knowledge based information to be delivered to the South. For instance, Inuktitut language courses, could be taught in Southern universities through the use of videoconferencing facilities. Students will also have access to material stored in video libraries and access to multimedia training programs. School networks will enable students to communicate and share data and resource bases with students in other locations. Investments in distance learning services and programs will reduce the need for teaching staff in each community, as well as infrastructure costs. And if interactive education programs can be delivered simultaneously from a central location to multiple communities (as is currently being done in the North Slope Borough, Alaska), the need to move students to centralized locations for specialized education will become a thing of the past.

(c) Justice

Videoconferencing could be used in legal proceedings, interviewing witnesses, taking testimony, and even perhaps the conducting of trials for minor offenses. In many instances, court travel party costs and the costs associated with transporting witnesses for interviews might be saved. Access to federal laws and case law via the Internet is currently being developed by the Department of Justice. Internet access to this service could provide Nunavut residents and the Nunavut legal profession with the most up to date information on changes to federal legislation.

(d) Public Administration

The information highway will enable point to multipoint and point to point exchange of information, files, and data. Videoconferencing will enable distance meetings to occur. It will result in reduced travel costs and increased work efficiency as travel requirements are reduced.

By way of example, the GNWT in 1992/93 spent approximately \$70 million on travel associated costs, not counting travel costs associated with boards of health and education and other government agencies. A 50/50 split in the costs between the West and Nunavut, (which would not be unreasonable due to the high costs of fire suppression attributable solely to the west and the higher costs of travel in Nunavut) would mean annual government travel costs in Nunavut of approximately \$35 million (see Appendix A, Table 5).

(e) Legislative Assembly

Legislative Assembly Members (MLAs) could participate in sessions of the Legislative Assembly from remote locations through videoconferencing. Other interactive communications needs could be met by access to services provided through the information highway.

(f) Televoting

"Televoting", "teledemocracy", or voting electronically has been tried with varying degrees of success in Canada. Once the "kinks" in the system have been worked out it could be used for Nunavut wide plebiscites and territorial elections, and for voting in federal elections. Voting electronically will speed up the tallying of votes, and will reduce personnel needs and the overall costs of elections. The 1992 boundary plebiscite cost the GNWT \$825,000.

(g) Public Services

People in remote communities will be able to obtain information on federal and territorial government programs and services. Information on child care benefits, old age security and employment, the filing of income tax returns, applications for drivers licences and motor vehicle registration, the issuance of hunting and fishing licences, etc., could all be handled through "one stop shopping" government kiosks located in each community. Such a concept is advocated in a Treasury Board discussion paper, entitled **"Blueprint for Renewing Government Services Using Information Technology"** (pages 14-25, no date).

(h) Telecommuting

Access to the information highway will enable residents in remote communities to do distance work. Public and private sector employees will be able to carry out work in their home communities and transfer it electronically to regional or head offices. **"According to LINK Resources Corp., 43.2 million people, or about one-third of the entire U.S. work force, telecommute in some way. Approximately 8.8 million are full time telecommuters, i.e., never in an office ..."** (The Globe and Mail, July 11, 1995, page N1). Telecommuting is also an approach to work that is advocated by the Department of Human Resources in a report, entitled, **"Working Time and the Distribution of Work"**, (December, 1994).

(i) Marketing

People in communities will be able market local products and services, such as arts and crafts, country foods, sports hunting and fishing opportunities and tourism packages throughout the world. Video files of carvings could be made so that prospective buyers could view them before they are purchased. Local hunters

and fishermen could advertise the sale of their catches. Hunters and Trappers Organizations, hotels and local businesses could market sports hunting and fishing opportunities and tourism packages world wide.

(j) Libraries/Research

The information highway will enable people in communities to have access to electronic libraries and other databases. Multimedia information sources will enable users to gather information in audio, graphic and video form.

(k) News

People in remote communities will have instant access to global news services in the form of text based news and video based news casts. Customized news services will also be available to individual subscribers.

(l) Financial Information and Banking Services

Subscribers will be able to access information on global financial markets and conduct financial transactions electronically. Access to banking services such as, bill payments, transfers between accounts, account statements, mortgage payments, etc., could be made available to residents in remote communities. Only a few Nunavut communities currently have direct access to banking facilities and services.

(m) Home Shopping

Consumers in remote locations will have access to "virtual shopping malls" with a broad range of products and services. Food and hardware and other purchases from the South could be made easier for consumers. Consumers will be able to shop around for the best prices and to view products before they are purchased.

(n) Entertainment

Games, movies, and music will be available on demand to subscribers.

(o) Travel Services

Consumers will be able to choose travel destinations by browsing through video files. They will have a choice of travel agents, travel packages, and booking services.

(p) Regional, Nunavut, National, and Circumpolar Connections

Access to the information highway would enable Nunavut residents, communities, organizations and governments to link

themselves regionally and throughout Nunavut. It would enable Nunavut Inuit to exchange information, develop economic development strategies and cement social and cultural ties with Inuit in other parts of Canada and throughout the circumpolar world.

(iii) **Current Northern Initiatives**

Although pan Nunavut access to the information highway remains a distant objective, a number of Northern experimental telecommunication initiatives have been or are being undertaken.

The "**Connecting the North Symposium**" employed videoconferencing to communicate with Australian aboriginals. (Australian aboriginals regularly employ videoconferencing to communicate between remote communities.) The Inuit Communications Systems Limited (ICSL), (the commercial arm of IBC), and NorthwTel are conducting a joint venture in the area of high speed data transmission. The GNWT is providing ATM services (high speed digital signals through copper wire) for a Baffin Divisional Board of Education videoconference involving the communities of Pond Inlet, Lake Harbour and Iqaluit. A telemedicine demonstration project between Ottawa and Whitehorse in the Yukon Territory is being conducted jointly by the Communications Research Centre (CRC), NorthwTel, and the hospital.

TVNC has applied for funding from the Canadian Network for the Advancement of Research, Industry and Education (CANARIE) for a pilot project (The Arctic Connection) to demonstrate and test the delivery of enhanced communication services to several communities. The objective of the project is to enhance the capability of Northern communities to communicate with each other in the areas of education, health care, business development, and government administration. Four to six communities will be involved.

Iqaluit residents in the near future will be able to access the Internet through the World Wide Web via two Nunavut companies, Nunanet Worldwide Communications and Nunavut Communications Ltd. Local callers will be able to access these services as local calls, and thereby save long distance charges.

GNWT and federal government "informatics strategy" initiatives are also in progress and it would be prudent to design them in a fashion that is compatible with private sector telecommunications capabilities and service levels, as well as each others.

PART V DISCUSSION

(i) Community Needs

Development of a modern telecommunications network in Nunavut will not be the solution for all the social and economic needs of the new territory. It will not automatically lead to stimulation of the local economy, but it will be a precondition to economic growth and job creation. Because telecommunication is two way communication it could impact detrimentally on local businesses through encroachment on local business opportunities from outside sources. It can lead as well to a centralization of jobs in larger centres resulting in the displacement of locally held jobs. Telecommunications services, therefore, must be organized and provided in such a way that maximizes local social and economic development opportunities and minimizes the ability of larger external forces to gain a competitive advantage at the expense of local interests. In the case of Nunavut with its Inuit culture and language, safeguards must be introduced so that plugging into the world at large does not lead to unplanned social and economic consequences that may be more of a detriment than a benefit. This was a concern of the "community discussion groups" participating in the **"Connecting the North Symposium"**.

The technology, types of services required locally, nature and operation of the facilities, sources of support, and training needs must be clearly identified, planned, and incorporated into the design of the telecommunications infrastructure. There is little point in designing and establishing a state of art infrastructure if its operational capacity is beyond the needs of the local people, or their desire to use it. Community input into the planning and design of the infrastructure and services has also been identified as a requirement by the community discussion groups.

The need for training and the need for participation in research and development was seen as important by the community discussion groups. Where people lack basic computer skills, are unilingual, or may be intimidated by the technology, the placement of technologically trained and culturally sensitive individuals to train and educate will be required if the qualification barrier is to be overcome. The construction of appropriate local, regional and Nunavut wide databases can only be developed once Nunavut resident needs have been identified. This can only be accomplished with local participation.

The need for funding for development of the information highway has been identified by the community discussion groups. The cost barrier can be prohibitive in Nunavut, where the network barrier and service barrier preclude the home delivery of state of the art telecommunications access without considerable infrastructural

upgrades to the telephone system. Also, a personal financial access barrier may preclude some individuals from using the information highway because of an inability to pay long distance charges.

Accountability concerning the delivery of services in a monopoly environment was also identified by community discussion groups. Participants suggested that because of the lack of cross subsidization of Northern rates, and due to the lack of competition; residents, governments, and telecommunications companies all have a responsibility to ensure the North has access to the information highway. The participants suggested that territorial and regional governments be responsible for gathering community input; the communities be responsible for providing it; the telecommunication companies be responsible for gathering community feedback; and the federal government be responsible for regulating the industry to ensure the communities have "universal access at reasonable costs" to the information highway.

(ii) Nunavut Needs

In addition to the points above, the "Connecting the North Symposium" summarized the main private and public sector needs at issue: the high financial and human costs of delivering government programs and services in the communities; the absence of shared knowledge of communication systems; and the need for the development of compatible systems for governments, service providers and individuals. A properly designed and shared telecommunications infrastructure and services which accommodates both private sector and public sector needs, could result in considerable cost savings to both the private and public sector. Education and health care programs could be improved and costs could be reduced through the use of distance education and telemedicine. One stop shopping government kiosks for licences, social assistance matters, etc., could reduce costs and ease the administrative burden for both government and private citizens. Centralized data banks, data warehousing, accounting and file processing could achieve savings in the form of reduced personnel requirements. The shared use of telecommunications infrastructure and systems could reduce costs associated with duplication and could promote the use of integrated private and public sector telecommunication systems and data bases.

(iii) Mutual Needs: Private and Public

Rather than establish several different infrastructures with perhaps varying telecommunication capacities and different equipment and incompatible protocols, it would be wiser and certainly more cost efficient, if public and private sector needs were combined and subsumed within a single infrastructure and service network. Doing so requires; one, identifying the telecommunication needs of both sectors; and two, determining the

technologies required to support them. If both sectors were jointly to design, plan and participate in the management of telecommunications infrastructure and services, and if both sectors were to share in the operational and maintenance costs of satellite operation and share bandwidths, and if both sectors were to share in the use and costs of the same earth station in a community, problems of service duplication, equipment and protocol incompatibility would be considerably reduced.

If telecentres with attached earth station were set up in each community; if federal and territorial government offices, schools, health centres, Inuit organizations and local businesses in each community were connected to the same earth station; the telecommunication needs of private citizens, businesses and organizations, and government program and service delivery and administrative needs could be met at reduced cost, without the need to "rewire" entire communities. Likewise, if the CTSCs were used as sites for one stop shopping kiosks currently proposed for such things as the issuance of drivers licences, motor vehicle registration, filing tax returns, etc., and perhaps as videoconferencing sites, and if the facilities and costs were shared between the federal and territorial, cost efficiencies could be achieved.

(iv) Circumpolar Needs

For many years Inuit have been trying to establish and maintain connections with Inuit in other parts of the circumpolar world. This has been particularly difficult given the need to meet and the costs of Northern and circumpolar travel. Linking the circumpolar world could be facilitated through the development of telecentres throughout Northern Canada and the rest of the circumpolar world.

Through the use of videoconferencing and the electronic exchange of voice, data, and images, Northern Canadian Inuit could be linked with other Northern peoples and circumpolar ties strengthened with considerable social, cultural, economic and political benefit. Social and cultural exchanges could occur electronically, traditional knowledge could be disseminated through the Internet, circumpolar economic development strategies could be developed and joint business ventures undertaken, and government relations facilitated. Expansion of the telecentre network in Northern Europe combined with the establishment of a telecentre network in Canada and other parts of the circumpolar world would greatly enhance the opportunities for such benefits. An appropriately designed telecommunications infrastructure in Nunavut would provide Nunavut residents with access to other circumpolar peoples at little additional cost.

PART VI INFRASTRUCTURE AND SERVICES: REQUIREMENTS AND COSTS

(i) Introduction

The transmission and receipt of a full range of information requires a sophisticated infrastructure. Because land line connected telephone systems and microwave stations are not possible means of linking Nunavut communities and the rest of the country, (although this could change with the evolution of technology), the Nunavut Government and its residents must necessarily rely on satellites and earth stations for the receipt and transfer of information between the communities. The amount of bandwidth available will determine the level of telecommunication services deliverable to the communities. As well, there must be a means of transferring information to and from earth stations located in the communities among government offices, schools, nursing stations, private businesses and organizations, etc.

(ii) TVNC Business Plan Proposal

TVNC has committed itself to providing a communications infrastructure that will guarantee Northern communities access to the information highway. TVNC is investigating setting up a "for profit subsidiary" to provide enhanced broadband communication services to the 96 communities TVNC serves across Canada's North. The cost of establishing a communications network for three different levels of service (see Appendix A, Table 6) is outlined in a consultants report for TVNC, entitled, **"TVNC Subsidiary Business Plan: Draft Final Report"** (Nordicity Group Ltd., June 6th, 1995).

(a) Service Levels Options

Service Level One would support receive-only VCR quality video, CD-quality audio or wideband services. It would also support, two-way toll-grade telephone trunking, interactive data (up to 144Kbps) and compressed videoconferencing (limited motion), plus fax machine and personal computer connection capabilities (including access to Internet). In addition, each community would be provided with a fully featured multimedia personal computer that would support "desktop" quality video conferencing for general/public use.

Service Level Two would support all level one services, but with higher speed interactive data (up to 384Kbps) and video connections, high resolution graphics, multimedia, plus a dedicated "business" quality videoconferencing terminal in each community for general/public use. This service level would support high resolution image transfer required for proposed telemedicine applications.

Service Level Three would support all level one and two

services, but with a very high speed interactive data (up to 1.544Mbps), plus full motion videoconferencing and a higher quality videoconferencing terminal in each community for general/public use.

(b) Wiring Costs

The TVNC proposal envisages rewiring every site (average 100 sites per community) in each community, at a cost of \$200,000 per community (excluding earth stations for interactive services). Doing so would require cabling, head-ends, ethernet server and router plus upgrading existing cable systems to two-way capability. The proposal suggests including the addition of telephone service to the local cable system at an average cost of \$35,000 per community. This would require a cable set-top box or a separate "twisted wire" distribution network.

Applying TVNC cost estimates to Nunavut needs, at an average cost of \$2,000 per site, wiring the educational and health care facilities, R.C.M.P., and federal, territorial and hamlet government offices in 26 communities would cost \$312,000 (\$2,000 x 6 sites x 26 communities).

(c) Multimedia Computer Costs

The proposal also includes providing a fully featured multimedia personal computer that would support "desktop" quality video conferencing, plus a printer and fax, for general/public use in each of its 96 communities, at a cost of \$11,200 per site, per community.

At a cost of \$22,400, two fully featured multimedia computers, plus two faxes and two printers for use in each of the 26 CTSCs, could be provided at a cost of \$582,400.

(d) Videoconferencing Costs

The proposal at Service Levels Two and Three envisages dedicated videoconferencing equipment in each community for each general/public usage. Such equipment could also serve Inuit organization and government videoconferencing needs. The costs of Service Level Two "business" quality videoconferencing equipment is \$25,000 per site (excluding building facility costs). Service Level Three costs for full motion higher quality videoconferencing is \$35,000 per site (excluding building facility costs). Possible dedicated videoconferencing sites might include, schools, Nunavut Arctic College campuses, hamlet and regional government buildings, and IBC studios. Service Level One would only support "desktop" quality video conferencing and would not require any dedicated space.

Applying TVNC cost estimates to Nunavut needs, Service Level

Two videoconferencing equipment could be provided for \$650,000 (26 communities x \$25,000). Service Level Three videoconferencing equipment could be provided for \$910,000 (26 communities x \$35,000).

(e) Network Management Costs

All three service levels have network management system capital costs of \$1.07 million. A proportional 28% Nunavut share (26 of 96 communities) for 26 communities would cost \$299,600.

(f) Earth Station Costs

Service Level One, designed to maintain 144Kbps of continuous simultaneous communication links with 96 communities would require a master earth station at a cost of \$150,000, plus an earth station in each community at a cost of \$75,000 per site. Total earth station costs for Nunavut at this level of service would be \$2,025,000, (\$75,000 x 25 communities + \$150,000).

Service Level Two, designed to maintain 384Kbps of continuous simultaneous communication with 96 communities would require a master earth station at a cost of \$250,000, plus an earth station in each community at a cost of \$95,000 per site. Total earth station costs for Nunavut at this level of service would be \$2,625,000, (\$95,000 x 25 communities + \$250,000).

Service Level Three, designed to maintain 1.544Mbps of continuous simultaneous communication with 96 communities would require a master earth station at a cost of \$250,000, plus an earth station in each community at a cost of \$135,000 per site. Total earth station costs for Nunavut at this level of service would be \$3,625,000, (\$135,000 x 25 communities + \$250,000).

(g) Satellite Space Segment Costs

It is estimated that six complete transponders could be required to support bandwidth requirements for simultaneous and continuous transmission of 1.544Mbps to 96 communities. This requirement could be reduced as digital compression technologies evolve. Space segment time for a complete transponder is approximately \$2.0 million per year. TVNC estimates that its 18Mbps of extra bandwidth (75% of the transponder) could handle all additional Nunavut needs for the foreseeable future, including that of the Nunavut Government.

(h) Recurring Annual Costs

Recurring annual costs for space segment time, operations and maintenance, and local administration and maintenance for Service Level One would cost \$4.84 million; Service Level Two, \$8.71 million; and Service Level Three, \$19.02 million. (This includes

equipment and earth station amortization and profit margin.)

A 28% proportional Nunavut share of recurring annual costs would be \$1.35 million for Service Level One, \$2.43 million for Service Level Two and \$5.32 million for Service Level Three.

(iii) Total Nunavut Costs

Admittedly, taking a 28% share of the overall costs is a crude means of calculation, but not unreasonably so. The TVNC community costs are averaged costs which take into account the diversity inherent in the regions that it serves. Factors such as community size, current level of services, geography, distances from major centres, whether there is road access, whether land line connections or microwave stations could be used, etc., have been taken into account and the costs averaged across all 96 communities.

Although the greater costs of servicing the more northern Nunavut locations has already been averaged in, the total average Nunavut community costs would not be much outside the ball park".

Based on TVNC cost estimates, with no adjustments for economies of scale, or marginally higher Nunavut costs, earth station costs for Nunavut would be:

Capital Costs	Level One	Level Two	Level Three
25 Earth Stations	1,875,000	2,375,000	3,375,000
1 Master Station	150,000	250,000	250,000
Total	2,025,000	2,625,000	3,625,000

(It is worth noting that the cost of installing 26 Service Level Three earth stations is about 10% of the GNWT 1992/93 travel budget for Nunavut (see Appendix A, Table 5)).

To these capital costs must be added the on the ground infrastructural costs of building CTSCs or providing space in existing facilities, the provision of computers, communication equipment and training, and the linking by coaxial cable or fibre optical cable of the government sites, schools and health care facilities to the CTSC. These costs would be dependent upon community size, whether existing facilities could be used for CTSCs or new ones would be required, the number of sites that had to be wired into the CTSCs, the type of wire used, and the number of computer terminals and other equipment required in each community.

An inventory of possible CTSCs sites and an examination of the costs for the establishment of CTSCs equipped with full multimedia service capability, government one stop shopping kiosks, and child care facilities, is required before full cost estimates can be

made.

Using TVNC wiring cost information, the cost of coaxial cable wiring six government sites per community (hamlet, regional and federal government offices, R.C.M.P., school and health care facilities) into 26 community CTSCs, and the cost of providing two fully featured multimedia computer terminals with two printers and two fax machines (on average) in each of Nunavut's 26 community CTSCs, would be:

Capital Costs	Level One	Level Two	Level Three
Wiring 26 communities	312,000	312,000	312,000
2 Computers/community	582,400	582,400	582,400
Total	894,400	894,400	894,400

(Private businesses, organizations and other interested individuals if desirous of accessing the information highway from work or home could pay for their own computer terminals and the wiring costs of hooking up to the community earth station.)

The above figures of course do not include the costs of additional equipment such as photocopiers, telephones, scanners, modems, additional computers, furniture etc., nor is the cost of the building facility included. In estimating such costs, the building would likely be the greatest cost item. Outside additional costs of \$500,000 for a new building, plus furniture and equipment for 26 communities would amount to \$13.0 million. These costs could be considerably reduced if existing buildings were used. To do so would be in keeping with the advice of Richard Fuchs regarding the Newfoundland and Labrador experience; CTSCs must seem to be a "familiar" part of the community. Possible locations could include schools, Nunavut Arctic College campuses, hamlet and regional government offices, or commercial locations.

If dedicated videoconferencing equipment were to be provided in each community, excluding facility costs, the costs would be:

Videoconferencing Costs	Level One	Level Two	Level Three
26 Communities	-----	650,000	910,000

The total infrastructure costs for a telecommunications network for the entire Nunavut Territory that would provide public access to the information highway while at the same time servicing all Nunavut and federal government requirements, (except for the costs of one stop shopping government kiosk equipment), would be:

Total Start up Costs	Level One	Level Two	Level Three
25 Earth Stations	1,875,000	2,375,000	3,375,000
1 Master Station	150,000	250,000	250,000
Wiring 26 communities	312,000	312,000	312,000
2 Computers/community	582,400	582,400	582,400
Network Management	299,600	299,600	299,600
26 Videoconference Sites	-----	610,000	910,000
26 CTSC Facilities	13,000,000	13,000,000	13,000,000
Total	16,219,000	17,469,000	18,726,000

A 28% proportional Nunavut share of annual recurring annual costs for space segment time, operations and maintenance, and local administration and maintenance would be:

Annual Costs	Level One	Level Two	Level Three
Recurring	1,350,000	2,430,000	5,320,000

Earth station equipment and terminal equipment amortization rates and a 10% cumulative profit margin are included in the annual recurring cost totals. But other CTSC costs, such as the costs of CTSC staff salaries, costs of training courses for CTSC users, program costs to assist user time costs, etc., have not, and will have to be developed if the full cost picture for Nunavut is to emerge. This responsibility should be that of officials in charge of regional economic development.

If complete start up costs appear excessive a graduated approach could be taken. Initial telecommunications infrastructure costs could be spread out by first linking the capital and the two regional centres. This would allow experimentation, training, and for the bugs to be worked out before linking other communities (eight) with decentralized government headquarters functions. As both financial and human resources became available, the remaining 15 communities could be linked into the network.

(iv) TVNC Consortium Proposal

Service Level Two is recommended by TVNC as the appropriate infrastructure level for the initial construction of the Northern Canadian information highway (see Appendix B, Figure 1). Service Level Two is preferred over Service Level One because telemedicine applications can be provided. While Service Level Three provides increased service in the areas of data transmission speed and improvement in video conferencing quality, it is 34% more expensive to implement and more than double the cost of Service Level Two to maintain and operate. Thus Service Level Two is preferred. The proposal recognizes that although the use of higher bandwidths may be required in the future, doing so will be possible because of TVNC's use of digital transmission which will free up 18Mbps of

bandwidth. Using DVC will reduce TVNC bandwidth requirements for broadcasting to 25%, freeing up the remaining 75% for sale or use for interactive communications.

To use the excess bandwidth in the provision of interactive communication services in Nunavut, upgrading and restructuring the telecommunication infrastructure and services is required. TVNC proposes involving other communication companies to do this. This would require establishing an owner/operator consortium of companies. A consortium of communication companies would eliminate the need for the Nunavut Government to establish a dedicated government telecommunications infrastructure. The Nunavut Government could, (as could the federal government), simply purchase or lease bandwidth and/or telecommunication services from the consortium, an approach that is in keeping with NICs recommendations regarding government leasing of private sector services and facilities. This though would not preclude the need for a Nunavut Government management role in the consortium or the need for the Nunavut Government to design its own "informatics strategy".

Roles and responsibilities for existing Northern companies that could provide various elements of the infrastructure and services have been tentatively outlined in the TVNC report, **"TVNC Subsidiary Business Plan Draft Final Report"**. They are as follows (pages 39-40:

- * TVNC could be the network catalyst, systems integrator, possibly the franchiser of the earth stations, and it could be the broker of satellite airtime based on leasing arrangements with Telesat Canada;
- * Telesat Canada could provide space segment time; establish the DVC standards and leadership in decoder equipment; and help plan and assist in network development;
- * NorthwTel could provide for inter-operability between the TVNC and NorthwTel networks;
- * ACL could provide the provision of cable services at the community level, and the operation of earth station maintenance and user terminals; and
- * IBC and other TVNC shareholders could provide content and services and act as systems integrators for major users in the communities.

By organizing existing communication companies in the above fashion, community wiring and equipment, earth stations and telecommunication infrastructure requirements could be met. This would ensure that the Nunavut, federal and community governments, community residents, businesses, and organizations would have

access to broadband interactive communication services.

The only element of such an infrastructure missing is the provision of CTSCs facilities and services. (The TVNC proposal suggests permanent videoconferencing facility locations could be found in hamlet council or economic development organization buildings.) CTSCs could be provided by the federal government as a one time cost associated with setting up the Nunavut Government. The operation and maintenance of earth stations and other technical equipment associated with CTSCs could be provided through a service contract with ACL or IBC.

IBC, informally, has offered to play the role of local champion. This may make sense given the services it currently provides, and the fact that it already has technical staff and facilities located in many Nunavut communities.

(v) Operation/Service Options

An alternative to the TVNC approach would be for the federal government to pay for the wiring of main sites in the communities and the costs of the telecentres as a one time cost, and for the Nunavut Government to establish a Crown corporation, (with partial private ownership to reduce costs) to deal with the telecommunications needs (earth stations and satellite time). The latter could be handled through the purchasing or leasing of earth stations, bandwidths or satellite time. The main telecommunication infrastructure costs are associated with earth stations purchase and installation, and satellite time and maintenance.

These costs, plus the need for a network control centre staffed 24 hours a day, seven days a week with uninterrupted power supply etc., lead some earth stations users to lease capacity. For the Nunavut Government, it might be preferable to use standard satellite services or it may be simpler and less expensive to buy "pre-packaged" services from a carrier.

There are two types of carriers. A Type I carrier is a carrier that owns the basic facilities for the provision of services. Type II is a carrier that leases the basic transmission capability from a Type I carrier and sells a service to the end user.

As a general rule, satellite networks in Canada must operate with a Canadian satellite. For domestic applications, users are permitted to own and operate earth stations for any type of communications application.

A user has four earth station ownership options for a fixed satellite network (Satellite Communications in Canada; Telesat Canada, 1993, page 151):

(a) lease a complete service from a satellite provider including

all the earth stations, the satellite capacity required for the network, installation, maintenance, licensing, etc;

- (b) purchase all earth stations, lease the space capacity and operate its own network - this would require the user to find an organization to install, licence and maintain the earth stations;
- (c) combine options a) and b): purchase the earth stations and lease the master earth station and services from a service provider; or
- (d) form a group to operate a complete satellite network.

The trend today is towards options (a) or (c). Most users prefer a total solution and use a carrier for any of the following:

- * sale/lease of dedicated earth stations;
- * shared use of a large, expensive earth station;
- * shared use of space segment;
- * installation and testing;
- * network management;
- * maintenance;
- * licensing.

(vi) Licensing for Earth Stations

All transmit earth stations in Canada require a Department of Communications Radio Licence except for receive-only earth stations. An applicant for a licence must be either a Canadian corporation or a Canadian individual. This means that any company incorporated provincially or federally in Canada may apply for a licence. Municipal licences are sometimes required as well.

The licensing procedure requires frequency coordination to accommodate possible interference problems. C-bands are shared with terrestrial systems and require coordination, whereas the Ku band is dedicated to satellite communications and does not require frequency coordination.

(vii) Training Requirements

A body of technically trained Nunavut residents will be necessary to provide on site servicing and repair of telecommunications equipment in each community. Appropriately trained people could operate and maintain the community earth

stations and other equipment required for the operation of CTSCs, and also that of government. A lack of trained on site technicians involves costly service and repair visits to remote communities. A technical school in Nunavut offering a two/three year technical assistant course would provide individuals with adequate training to service most community telecommunication needs. Twenty-six trained telecommunication technicians would be required for each community to have local technician on site. A local technician in each community would save on expensive service and repair visits, and it would provide employment as well.

PART VII RECOMMENDATIONS

(i) Introduction

The needs of both private citizens and business, and governments are similar - both require access to a modern day telecommunications infrastructure. Whether it is a private citizen "surfing the net" or conducting banking electronically, a regional Inuit organization conducting a videoconference on economic development opportunities, or a regional government employee transferring files electronically to the capital, all such actions require access to a telecommunications infrastructure and services to conduct their business.

Therefore, infrastructure should be designed to accommodate the needs of individuals and the private sector as well as those of governments. CTSCs are a means of doing so that do not require heavy infrastructure investments such as rewiring entire communities throughout the Nunavut Territory (see Appendix A, Table 7). Infrastructure costs may be viewed as being made up of three parts: the on ground wiring costs of linking main government sites by either coaxial or fibre optical cable to earth stations, and the cost of earth stations; the provision of public access to telecommunication services through establishment of CTSCs attached to earth stations; and the establishment of a telecommunications network that links all Nunavut earth stations via satellite connection.

(ii) Two Approaches

Two approaches to providing the infrastructure may be taken.

(a) Option One: Private Sector Provides

The TVNC proposal appears to be a workable approach. It provides multimedia interactive wideband services to 96 communities that will give them access to the information highway. Its extra 18Mbps bandwidth could accommodate all federal and Nunavut government needs. It envisages implementing Service Level Two with a view to upgrading transmission speed when required.

The consortium proposal is a cooperative rather than a competitive approach to providing telecommunication services. This is in keeping with the wishes of the CRTC regarding services to Northern markets. It involves Northern communication companies many of which are aboriginally owned and operated. Some of the required infrastructure is owned by these companies and is already in place. These companies also have technically trained individuals on staff.

By supporting such a proposal, governments would be relieved of much of the financial burden of ensuring Nunavut residents,

businesses and organizations have access to the information highway. The main costs to governments would be the costs of developing and implementing their internal informatics strategies and establishing one stop shopping kiosks, and setting up and maintaining CTSCs. The costs of the CTSCs could be subsumed under a regional economic development strategy or, alternatively, could be provided by private sector business agencies associated with Inuit economic development organizations, or by IBC. Earth station services and satellite transmission time, in keeping with NIC's recommendations to use private sector services and facilities where ever possible, could be leased from the private sector. A management role or position on a private sector telecommunications consortium board of directors would ensure that government telecommunication needs are met.

(b) Option two: Governments Provide

This option would require wiring the main government sites in each community into the community earth station. Earth stations with broadband communication capability would have to be established. If public access to the information highway is also to be provided without expensive rewiring of entire communities, CTSCs will be required. Such costs could be subsumed under federal government one time costs associated with the Nunavut infrastructure.

Regardless of whether CTSCs are established, the wiring of main government sites and the installation of earth stations are necessary costs associated with the efficient functioning of a decentralized Nunavut Government. CTSCs, if existing facilities are used, can be piggy backed for little additional cost on an infrastructure that has to be established anyway. Satellite services could be handled by a Crown corporation established for that purpose with partial private ownership to assist in sharing the costs and giving the private sector a role in management.

(iii) Recommendations

1. NIC recommends that private sector telecommunications services and facilities be used.

2. The NIC recommends that the GNWT, the federal government, the Nunavut Tunngavik and NIC form the basis of a working group to undertake the responsibilities identified in recommendation # 7-7 in the NIC report, "Footprints in New Snow". The NIC further recommends that other levels of government and selected private sector organizations, as may be identified by the main parties to the working group, be invited to participate in the working group when thought appropriate, or when required. The working group shall:

(i) review the current state of public and private sector

communications systems capabilities, including technologies, facilities, and human resources;

- (ii) identify public and private sector communication needs, potential users and investors;
- (iii) determine public and private sector communication infrastructure needs and training requirements;
- (iv) develop a corporate model and a financing plan for a Nunavut-wide communications network to serve the public sector, the private sector, and individuals; and
- (v) prepare a comprehensive telecommunications strategy for Nunavut which will define what should be considered "basic services" and other services, and consider who might be partners that can provide the infrastructure.

3. The NIC recommends that the working group begin an inventory of existing facilities, equipment, antennas, satellite space segment needs and availability, etc. Care should be taken to identify any duplication of infrastructure, and recommendations should ensure compatibility of equipment and the standardization of protocols. Earth station power supply requirements should also be addressed.

4. The NIC recommends the working group develop plans for a single Nunavut wide network supported by standardized protocols.

5. The NIC recommends that a pilot project involving the three regional centres of Cambridge Bay, Iqaluit and Rankin Inlet be undertaken to demonstrate and test an appropriate telecommunications infrastructure and level of services with a view and timetable to linking the other eight communities with decentralized Nunavut Government headquarters functions to the Nunavut capital and regional centres by April 1, 1999, with the remaining communities to follow within two years. Guidance regarding community needs should be sought from the "Connecting the North Symposium" report.

6. The NIC recommends that the working group provide advice on training needs and the design of an appropriate training program. The NIC further recommends that GNWT provide and implement the training program in time to have a body of trained community based technicians in place for all communities with decentralized headquarters functions by April 1, 1999.

7. The NIC recommends that the GNWT and federal government, with Nunavut community participation, develop a regional economic development strategy to support the establishment and use of CTSCs for use by individuals, businesses and organizations, based on the issues and needs identified in the "Connecting the North Symposium"

report.

8. The NIC recommends that the federal government and the GNWT government collaborate on the design, use and costs of incorporating one stop shopping government service kiosks into CTSCs.

9. The NIC recommends that GNWT and federal government informatics strategies be designed to be compatible with public sector telecommunications capabilities, and if possible, with each other.

(iv) Concluding Remarks

Given the small population base and the vastness of the Nunavut Territory, a meeting of private and public sector needs through a blended and shared use of common telecommunications infrastructure, facilities and services is the only telecommunications strategy that makes sense. A network of CTSCs should be considered as a means of meeting the telecommunications needs of individuals, businesses, and organizations in the private and public sectors.

APPENDIX A

TABLES 1-7

- TABLE 1 Distribution of Technical Equipment
- TABLE 2 Number of Business and Economic Development Agencies Supported Through the Network
- TABLE 3 Percentage of Uses by Organization
- TABLE 4 Number of Users Trained by Organizational Type
- TABLE 5 FIS Travel Expenditures by Department and Type (1992/93)
- TABLE 6 Total System Costs
- TABLE 7 Impacts and Application of CTSCs: Accomodation, Technology, Costs and Stakeholder Considerations

TABLE 1
DISTRIBUTION OF TECHNICAL EQUIPMENT

Equipment	Number (in percentage)
Access to ordinary telephone network	100% ²
Personal computers	100%
Printers	98.5%
Scanners	96.9%
Telefax	87.7%
Photocopier	83.1%
Access to databases	66.2%
Electronic mail	61.5%
Access to data network	47.7%
Access to satellite services	41.5%
Access to ISDN	20%
Videoconferencing facilities	9.2%
CD-rom	6.2%
Others (teleconferencing, videotex)	3.1%

Source: "Community Teleservice Centres: A means to social, cultural, and economic development of rural communities and low-income urban settlements". A paper presented to a "Conference on World Telecommunication Development" by Las Qvortrup, 1993, Table 2, page 7.

TABLE 2
NUMBER OF BUSINESS AND ECONOMIC DEVELOPMENT AGENCIES
SUPPORTED THROUGH THE NETWORK

Organization Type	Number of Organizations	Percentage of Total Organizations
Federal Government	4	1.6%
Provincial Government (includes ENL offices)	45	17.8%
Municipal Government	9	3.6%
Rural Development Associations	42	16.6%
Community Futures Committees	15	5.9%
Business Development Centres	11	4.3%
Other Core AENet Users (eg. W.E.B.)	26	10.3%
Private Sector	65	25.7%
Industry Associations	8	3.2%
Enterprise Education	17	6.7%
Out of Province	11	4.3%
Total	253	100.0%

Source: "Evaluation of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement" prepared for The Management Committee of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement (Brian J. Hurley Horizon Consulting Limited, February 1994, Table 3.1, page 23).

TABLE 3
PERCENTAGE OF USES BY ORGANIZATIONS

Product Type	Fed	Prov	Muni	RDA	CFC	BDC	Oth	Priv	Assoc	Ent Ed	Out	Total	
Directories	6.3%	10.4%	8.2%	18.1%	8.3%	14.3%	8.4%	7.2%	5.9%	5.9%	16.7%	5.6%	7.9%
Opportunity ID	10.0%	16.8%	12.8%	9.3%	9.3%	9.7%	15.8%	13.7%	22.2%	4.4%	13.3%	7.4%	12.3%
Account & Finance Info	2.9%	10.0%	3.5%	3.1%	2.6%	4.6%	5.1%	5.7%	6.5%	3.2%	6.7%	1.9%	3.9%
Library/Research	18.3%	47.9%	22.8%	18.9%	7.4%	13.7%	15.8%	11.7%	11.3%	7.1%	36.7%	7.4%	17.6%
Communication Tools	36.1%	10.7%	34.6%	48.9%	70.8%	56.4%	54.9%	60.1%	52.4%	78.9%	26.7%	72.2%	45.8%
About AENet	0.6%	4.3%	0.9%	1.8%	1.7%	1.3%	0.0%	1.6%	1.7%	0.5%	0.0%	5.6%	1.2%
Other	25.9%	0.0%	17.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.3%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100.0%

Percentage of uses by product

Product Type	Fed	Prov	Muni	RDA	CFC	BDC	Oth	Priv	Assoc	Ent Ed	Out	Total	
Directories	11.8%	2.0%	44.6%	2.9%	13.8%	4.6%	1.3%	12.7%	4.1%	1.7%	0.4%	0.2%	100.0%
Opportunity ID	12.1%	2.1%	44.9%	1.0%	9.9%	2.0%	1.5%	15.4%	9.8%	0.8%	0.2%	0.2%	100.0%
Account & Finance Info	11.2%	4.0%	38.6%	1.0%	8.9%	3.0%	1.6%	20.5%	9.0%	1.9%	0.3%	0.1%	100.0%
Library/Research	15.5%	4.3%	56.1%	1.4%	5.6%	2.0%	1.1%	9.2%	3.5%	0.9%	0.3%	0.1%	100.0%
Communication Tools	11.8%	0.4%	32.6%	1.4%	20.4%	3.1%	1.4%	18.3%	6.2%	3.9%	0.1%	0.5%	100.0%
About AENet	7.6%	5.7%	34.3%	1.9%	18.6%	2.9%	0.0%	18.6%	8.1%	1.0%	0.0%	1.4%	100.0%
Other	34.3%	0.0%	65.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	14.9%	1.6%	43.2%	1.3%	13.2%	2.5%	1.2%	13.9%	5.5%	2.3%	0.2%	0.3%	100.0%

Legend:

Federal Government	Prov - Provincial Government	Muni - Municipal Government
Rural Development Associations	CFC - Community Futures Committees	BDC - Business Development Centres
Other Core Users (eg. WEB)	Priv - Private Sector	Assoc - Industry Associations
Enterprise Education	Out - Out of Province	

Source: "Evaluation of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement" prepared for The Management Committee of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement (Brian J. Hurley Horizon Consulting Limited, February 1994, Table 5.2, page 32).

TABLE 4
NUMBER OF USERS TRAINED BY ORGANIZATIONAL TYPE

Organization Type	Number of Users Trained	Total Number of Users	Percentage of Users Trained
Federal Government	23	41	56.10%
Provincial Government (includes ENL offices)	161	233	69.10%
Municipal Government	7	13	53.8%
Rural Development Associations	62	73	84.93%
Community Futures Committees	22	26	84.62%
Business Development Centres	26	26	100.00%
Other Core AENet Users (eg. W.E.B.)	62	79	78.48%
Private Sector	41	80	51.25%
Industry Associations	11	17	64.71%
Enterprise Education	14	18	77.78%
Out of Province	8	18	44.44%
Other	20	41	48.78%
Total	457	665	68.72%

Source: "Evaluation of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement" prepared for The Management Committee of the Canada/Newfoundland ACOA/Enterprise Network Cooperation Agreement (Brian J. Hurley Horizon Consulting Limited; February 1994, Table 8.1, page 45).

TABLE 5
FIS TRAVEL EXPENDITURES BY DEPARTMENT AND TYPE (1992/93)

Department	TYPE OF TRAVEL EXPENDITURE								TOTALS
	Airfare	Fire Suppression	Annual Assistance	Meals & Accomm.	Other Charters	Ambulance	Ground Transport.	Other Types	
Health	18,891	0	0	143	19	3,209	11	11,372	18,901
Personnel	8,060	0	8,023	231	84	0	246	1,757	18,401
Renewable Resources	734	9,399	0	700	2,213	0	71	217	13,334
Education	1,733	0	0	327	136	0	666	227	3,089
Social Services	1,742	0	2	653	106	11	101	240	2,855
Justice	805	0	0	509	1,101	4	53	134	2,606
Gov't Serv./Public Works	739	0	16	706	410	0	23	7	1,900
MACA	793	1	0	868	110	0	15	32	1,819
Transportation	488	0	0	857	210	0	18	33	1,406
Economic Development	640	0	0	483	142	1	68	103	1,337
Executive	566	0	0	327	180	0	32	127	1,212
Legislative Assembly	676	0	0	217	101	0	33	4	1,030
Safety & Public Services	301	0	2	223	19	0	14	2	561
EM&PR	109	0	3	64	92	0	1	54	323
Culture & Commun.	152	0	0	115	4	0	4	3	278
Finance	84	0	0	71	2	0	0	2	159
Other Programs	551	0	34	220	64	0	6	224	1,099
TOTALS	34,963	9,400	8,079	6,514	4,973	3,225	1,362	1,794	70,310

Source: Government of the Northwest Territories: Travel Management Project, 1994, page 6.

TABLE 6
TOTAL SYSTEM COSTS

	Capital Costs (\$ million)				Recurring Costs (\$ million/yr)					
	Hub + Earth Stations	Terminal Equipment	Network Management System	Total System Capital Cost for 96 Communities	Satellite Space Segment	Oper. & Maint.	Local Admin. & Maint.	Amort. multiple classes (\$ & 10 years)	Provider Margin @ 10%	Total
Service Level Offering:										
1- receive high quality video & originate/receive data (incl. Internet), voice, highly-compressed video/image, multimedia @ 144Kbps	7.35	1.08	1.07	9.50	1.50	0.60	1.20	1.06	0.48	4.84
2- receive high quality video & originate data (incl. Internet), voice, good-quality video/image, multimedia @ 384Kbps	9.37	3.48	1.07	13.92	3.50	0.80	1.80	1.74	0.87	8.71
3- fully interactive (originate/receive), high-quality video & multimedia, data (incl. Internet), voice @ 1.544Mbps	13.21	4.44	1.07	18.72	12.00	1.00	1.80	2.32	1.90	19.02

Source: "TVNC Subsidiary Business Plan Draft Final Report", Nordicity Group Ltd., June 6, 1995, Exhibit 3-4, page 27.

TABLE 7
IMPACTS AND APPLICATION OF CTSCs
ACCOMMODATION, TECHNOLOGY, COSTS AND STAKEHOLDER CONSIDERATIONS

Impact	Description	Accommodation requirements	Technology	Other Issues/ Cost Implications	Stakeholders
Government - GN - Federal - Community	<ul style="list-style-type: none"> • Information centre • Distance "government – i.e. taxation, social services, grants, drivers license renewal • Contracting 	<ul style="list-style-type: none"> • Office facilities • walk-up computer desks • Kiosk space • Resource materials 	<ul style="list-style-type: none"> • Computers • video-con • kiosk • networks • modems • satellite link • Internet • Fax 	<ul style="list-style-type: none"> • Coordinating different levels of government • Appropriate connections to service delivery • Co-location • Sharing FTEs • Training • Technology Costs 	<ul style="list-style-type: none"> • Nunavut Gov't • Federal OGD's • Communities
Inter-community Networking	<ul style="list-style-type: none"> • Gathering place for community • inter-community networking • Daycare 	<ul style="list-style-type: none"> • Meeting space for large and small groups • Kitchen facilities • Lounge areas • Daycare facilities • Accessible 	<ul style="list-style-type: none"> • Computers • Video-con • E-Mail • LAN/WAN • ISDN • Databases • Internet 	<ul style="list-style-type: none"> • Should be fully accessible • Braille, audio services, etc... 	<ul style="list-style-type: none"> • NIC • NTI • Interim Comm. • Communities
Education and Training	<ul style="list-style-type: none"> • Distance education from Arctic college/Southern universities • On-sight computer training 	<ul style="list-style-type: none"> • Training rooms • Video-con. room • Resource centre 	<ul style="list-style-type: none"> • Video-con. • BTV • Desk-top computers • Various software/ hardware 	<ul style="list-style-type: none"> • Partnerships with education institutions • Technology Costs 	<ul style="list-style-type: none"> • Arctic College • Other Universitie • NIC • Training Council • Communities
Tele-Medicine	<ul style="list-style-type: none"> • Medical delivery via. telecom., • Diagnoses possible on video-con., electronic x-rays, vital signs, etc. • Health care prof. on-sight 	<ul style="list-style-type: none"> • Health room • Private room • Accessibility 	<ul style="list-style-type: none"> • X-Ray • Video-con. • Telecon. • Other medical 	<ul style="list-style-type: none"> • Technology costs (travel avoidance) • Training • Partnerships 	<ul style="list-style-type: none"> • Medical prof. • Hospitals • Community • NIC/NTI
Economic Development	<ul style="list-style-type: none"> • Pooling resources for computers/ technology • Training • Support services (i.e. business consulting, admin. support) • Distance employment • Access to other markets through Internet • Provides office space 	<ul style="list-style-type: none"> • Office space - closed and open • Meeting facilities • Video-con. • Training space • Resource Centre • Process space • Storage • Kitchen facilities 	<ul style="list-style-type: none"> • Fax • Databases • Video-con. • Internet • Computers • LAN/WAN • Telephone/ Modem 	<ul style="list-style-type: none"> • Form partnerships with local enterprises • What are their needs? • Cost Recovery 	<ul style="list-style-type: none"> • NTI • NIC • Communities • Practitioners • CIO

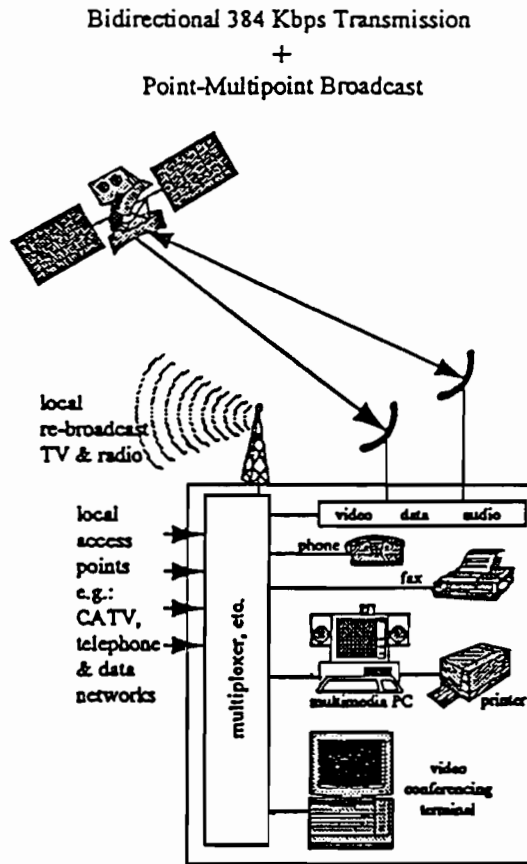
Source: Community TeleService Centres for Nunavut: Linking Information Technology and Facilities. Draft Discussion Paper. Prepared by Deborah Doane. PWGSC. June 6, 1995. Table 1.

APPENDIX B

FIGURE 1

FIGURE 1 Service Level Two

FIGURE 1
SERVICE LEVEL TWO



Supports:

Simultaneous Two-Way (send & receive)

- toll-grade voice (telephone quality)
- packet data (shared screen/GUI)
- circuit-mode data (G4 Fax, image)
- video conference-quality video
- high resolution graphics
- multimedia

+

One-Way (shared receive only)

- CD-quality audio
- VCR quality video
- wideband data (~500Kbps)
- combination of above (w/reduced BW)

Source: TVNC Subsidiary Business Plan Draft Final Report:
Prepared for Television Northern Canada by Nordicity
Group Ltd. July 6, 1995, Exhibit 3-2, page 23.

APPENDIX C
CURRENT EXAMPLES OF TELECOMMUNICATIONS
APPLICATIONS AND BENEFITS

British Columbia

Alberta

Saskatchewan

Manitoba

Ontario

Quebec

New Brunswick

Nova Scotia and
Prince Edward Island

Newfoundland

Stentor

MediaLinx Interactive Inc.

Information Highway Networks

Source: "The Beacon Report: Telcos and the Emerging Multimedia Market in Canada; summary of trials, applications and networks". (Stentor, July, 1995.)

British Columbia

UBIQUITY

ATM services in Canada were pioneered by MPR Teltech Ltd., the research & development (R&D) subsidiary of BC TELECOM Inc. Its affiliate company, BC TEL Advanced Communications, introduced the world's first commercially available ATM service — *The Ubiquity Network* — in 1992. Now extending around the province — from the Lower Mainland to the interior and to Vancouver Island — Ubiquity links most of the major urban areas in British Columbia. Services are delivered through a combination of fibre-optic, optical interface electronics and ATM switching technology, at speeds 10,000 times faster than with a modem link over an ordinary telephone line. To date, more than \$35 million has been invested in the province-wide fibre optic network using ATM technology.

Business

Among the groups benefitting from Ubiquity are stock brokerage houses. Since February 1995, the Vancouver Stock Exchange and stock brokerage houses in the Lower Mainland have been connected through this high speed network, making the fast exchange of data and information possible.

Pacific Coast Savings Union has established a disaster recovery plan that is unparalleled in Canada, with the assistance of BC TEL Advanced Communications' high-speed fibre optic network. The disaster recovery plan employs two data centres, at two separate locations, connected by fibre optics, which can update each other simultaneously. If something happens to the primary data centre, all records and information are preserved by the second data centre.

Health care

In November 1994, B.C. InfoHealth (BCIH) and BC TEL Advanced Communications announced a memorandum of understanding to form a joint venture that will deliver computerized, information-related services to the health care industry under a separate company. The new company will provide payroll and related information services to existing BCIH customers, and use new development tools and advanced telecommunications to enhance services to both new and existing customers.

Education

In distance learning, the Ubiquity network enables teleconferencing, remote access to seminars and lectures, and professional consultation among educators across a range of curricula at a number of locations. The service includes applications such as high-resolution video conferencing for training seminars, and video imaging and transmission for simultaneous observation and discussion. Through the Coast Hotel chain, videoconferencing services are available to groups throughout the province.

Research

Rnet BC has launched a broadband, fibre-optic network that can carry voice, data and video at 100 megabits -- or 100 million bits of information -- per second to the desktop. Rnet was implemented in late summer 1994, and joins three major Vancouver hospitals, Simon Fraser University, University of British Columbia, MPR Teltech, B.C. Systems Corp., BC TEL and several other technology companies that want to connect to test broadband applications. BC TEL Advanced Communications helped Rnet become operational by providing the connection to its province-wide ATM fibre-optic network.

Discovery Learning Services

Discovery Learning Services, part of BC TEL Advanced Communications, offers the Community Connections Network (CCN). CCN is a two-way, fibre-optic interactive multimedia learning network which will electronically link a number of schools, colleges and universities to remote learning centres, including the Royal British Columbia Museum and Science World.

Internet

Full Internet access for schools will soon also be available via CCN. The first phase involves an investment of \$5 million. In the future, virtually all educational centres, homes, businesses and community centres will be linked as part of BC TELECOM's \$1.2 billion investment in The Beacon Initiative.

Financial services

In 1994, BC TEL Advanced Communications conducted a trial of interactive home banking, in partnership with Vancouver City Savings Credit Union (VanCity). The Teleview trial allowed 100 credit union members to pay their bills, access account information, transfer funds between accounts, make RRSP contributions and get credit union product and service information. Customers found Teleview easy to use and beneficial. This service was launched publically in June, 1995. Ten to twenty thousand customers are expected to be actively using the service by the end of 1996.

Concord Pacific Place

Concord Pacific Place introduces visionary concepts in urban living on Vancouver's waterfront. Within the enclosed real-estate development, using Northern Telecom's *FiberWorld* technology, BC TELECOM has joined with Concord's developers in Pacific Place Developments to create North America's first fibre-optic community. Residents of this community are being offered the ultimate in personal communications, information, entertainment, security and environment control. In addition, Pacific Place Communications provides one of the most comprehensive television line-ups using SMATV. The Concord Pacific site also offers video conference capabilities, placing it among an increasing number of centres around the province and across North America which offer this convenient service.

Travel kiosk

The Information Highway is speeding tourist information to Whistler guests, with the launch of Discover Whistler. Interactive information kiosks and specialized hotel guest channels are part of a joint tourism initiative by BC TEL Advanced Communications and Nexus Display Systems, in conjunction with the Whistler Resort Association.

The first phase of Discover Whistler brings touch-activated video kiosks to the lobbies of a number of the larger hotels in Whistler. The kiosks will allow tourists to access tourism information and to make restaurant and activity reservations. Key hotels include the Crystal Lodge, the Delta Whistler Resort, the Fairways Hotel & Resort, the Westbrook Whistler, Radisson Blackcomb Suites and the Tantalus Lodge.

In addition to information kiosks, guests at Discover Whistler partner hotels will be able to obtain information geared specifically for them on special guest channels on their hotel room television sets. The Discover Whistler Guest Channel includes hotel information, weather and mountain updates, information about the Whistler Resort area, as well as where to go and what to see in Whistler Village. Without getting out of bed, guests can choose where to ski, shop and dine. Later, on their way out of the hotel, they can make dinner reservations at the kiosk before hitting the slopes.

Cellular Digital Packet Data (CDPD)

MPR Teltech is a leading expert in the cellular industry and is refining the transmission of digital data and video over existing cellular networks. Cellular Digital Packet Data (CDPD) enables users to exchange data quickly and efficiently at relatively low cost. Applications are virtually limitless:

- a vending machine reports to a central computer that it is out-of change;
- a rural doctor monitors changes in a patient's medical chart via a laptop computer with a real-time link to a hospital 200 miles away; and
- an executive receives a beep from her laptop as she drives to her next presentation alerting her to a message from her president indicating he will be joining her.

Alberta

Remote Consultative Network

AGT Limited, a subsidiary of TELUS, is a partner in two leading health networks. The Remote Consultative Network allows interactive consultation services between rural health care providers and specialists at the University of Calgary. The network enables physicians, technicians, nurses and residents to use audio, video, imaging and data transmission services to respond to queries. Real-time transmission of ultrasound, x-ray, and other test results facilitates diagnosis by specialists in larger urban facilities and reduces time for diagnosis and treatments. As well, it has enormous potential in terms of bringing cost savings in patient transportation. AGT donated a telecommunications link to trial the technology at street level during the Stampede parade. Another street trial is planned to take place during the World Police and Fire Games in June 1997.

Alberta Health Knowledge Network

The Alberta Health Knowledge Network provides health care professionals throughout the province with on-line access to medical databases. The network links the University of Alberta and the University of Calgary to databases such as *Medline*, which contains seven million records from 3,500 journals. The program's top priority is linking the universities with local hospitals and later making it available over provincial networks.

Alberta Educational Technology Research Foundation

The Alberta Educational Technology Research Foundation (AETRF) is conducting research on using information technologies to improve the delivery of education in the kindergarten to Grade 12 (K-12) segment. There are four focus areas: improving the link between home and school; special needs, including disabled as well as gifted students; development of an information management system for K-12, and the use of video and screen-sharing technology between classrooms.

Lacombe School District

Since 1993, the Lacombe School District has been employing Visual Interactive Technology (VISIT) for teachers with special training requirements (such as Japanese and advanced mathematics) to instruct students remotely in schools throughout the district. VISIT, launched two years ago, is a desktop multimedia system, developed by Northern Telecom, a subsidiary of BCE Inc., that integrates desktop video conferencing, screen sharing, high-speed file transfer, electronic voice mail access and voice call management on a desktop PC.

Saskatchewan

Community Fibre System

Three years ago, SaskTel completed the installation of a community fibre system between a Regina high school, a local elementary school, and 172 homes. It allows students to use the multimedia network to supplement their classroom activities and obtain remote access to video material.

Hollywood-to-the-Home

Two years ago, approximately 200 households in Regina participated in a near video-on-demand trial—a first in the world—in which current movies are available to participants via their television sets and a special remote control device. With *Hollywood-to-the-Home*, a viewer's rental request is transmitted to Acme Video, a video-rental chain, and in less than five minutes the selection appears on the home screen. Viewers enjoy the added benefit of being able to fast forward, reverse, or pause the movie selection.

Hospitality Network Canada Inc. and Nintendo

In cooperation with Hospitality Network Canada Inc. and Nintendo, SaskTel will soon be operating a closed circuit movie service in a limited number of hotels/motels in Saskatchewan. This service combines the use of fibre/coax cable with regular telephone lines, to allow for video game functionality in a hotel room. This leading edge technology is a pre-cursor of expanded interactive in-room services for the hotel/motel industry and has caught the interest of hoteliers in international venues in North and Central America. This service is fully interactive. The video game itself is not down-loaded to a game player. Rather, the player communicates directly with the central computer via the phone line and watches the interaction remotely on the closed circuit television.

Eston-Elrose School Division

In distance learning, video conferencing has been in use in Saskatchewan's Eston-Elrose School Division since 1991, enabling teachers to conduct a class from one location for students in two separate communities.

Special Needs trial

With the support of computer-based video/audio conferencing, a Special Needs trial was conducted last year for students and their teachers in six Saskatoon schools to communicate in real-time with counterparts at four Mississauga schools, as well as with mentors across North America.

Manitoba

Provincial Backbone Network

On February 15, 1995 MTS and the Government of Manitoba announced the development of a new provincial backbone network, the platform for Manitoba's information highway. The network, consisting of fibre optics, digital switching, and leading edge ATM technology, is being deployed through most of Manitoba. The network will increase access to government, medical, and distance education services, the Internet, and many future services such as home shopping and telebanking, as well as entertainment options. Also, the network, in combination with toll free calling areas, has allowed MTS to provide local Internet Access to many communities in Manitoba.

Evergreen School Division

Interactive television is currently being used by teachers in Manitoba's Evergreen School Division to send courses to students in rural schools. Prior to 1993, students had to travel at least an hour to larger urban schools to take these courses. Evergreen's technological push was born to address declining enrollments and the rejection of a proposed merger of area high schools. The fibre-optic network now links high schools in the communities of Gimli, Arbor, Riverton and Fisher Branch. The Evergreen division now foresees rural students taking university or college level courses without leaving home.

Interactive Video Courses

Brandon University and the Swan River Regional Secondary School are using MTS' ATM technology to conduct interactive courses for their distance education program.

Manitoba Network

Another distance education application in Manitoba links northern communities to the south. It is planning to migrate the narrowband two-way video service to ATM which would allow for multi-channel, point-to-point switched video conferencing and future expansion into applications for government services and the business sector.

Birds Hill School Division / VISIT

Birds Hill School Division is using VISIT to connect with schools, universities and businesses. For example, they connected a classroom to Spar Aerospace in Toronto via computer, enabling an engineer to explain Canada's role in the Space Station.

Ontario

VISIT

In September, 1993, Bell Canada, NB Tel and Northern Telecom announced plans to deliver a wide range of multimedia applications based on Northern Telecom's VISIT (Visual Interactive Technology) family of products. VISIT products permit users to share computer screens, transfer files and conduct videoconferences from their computers, at home, in the office or on the road. The partners unveiled seven new multimedia applications, including:

- VISIT Home Office, multimedia videoconferencing for home-based telecommuters;
- Private 9-1-1, emergency assistance for university campuses and office complexes, linked to the public 9-1-1 emergency service;
- Multimedia Transaction, multimedia kiosks;
- Portable VISIT, providing the features of the VISIT Home Office anywhere, via public telephone networks or cellular networks;
- Bill 2000/VISIT Post, a high-speed electronic courier and PC-based application that allows businesses to analyze their telephone usage and billing data; and
- VISIT Bridge, videoconferencing from a desktop computer to multiple locations worldwide simultaneously.

LARGnet

LARGnet is a three year project to develop a high-speed ATM / fibre optic linkage of five institutions in London, Ontario, including two hospitals and the University of Western Ontario. Now beginning its second year, the trial is testing ATM technology with medical, educational and administrative applications.

LARG*health

A spin-off of LARGnet, LARG*health is a computer based information network linking health care givers and institutions. It is designed to provide seamless service, eliminate duplication and delay and ultimately help patients become more involved in their own health care. London's three hospitals are key players. Others include nursing homes, family doctors, specialists and other care-givers. The system is expected to aid in hospital policy planning, management and clinical research. The service will provide video conferencing, two-way education and exchange of diagnostic information. Emergency room staff in hospitals will have records of diagnosed conditions, medication, and previous visits to medical facilities. Bell Canada provides the fibre optics hardware for the information exchange.

HealthLink

HealthLink is a trial project planned to begin in late 1995. It will interconnect seven Toronto hospitals with a network for sharing medical information, such as medical records and images. Technology partners include Digital Equipment Corp., the Ontario government, and CMR. Long term plans include linking to LARGnet in London, Ontario and other medical facilities in the Toronto area. The project will guarantee patient confidentiality and ensure that only medical personnel with security clearance have access to patient records.

Connecting Yukon

Northwestel, in partnership with the Communications Research Centre (CRC), the University of Ottawa Heart Institute (OHI) and Yukon College, will be using multimedia broadband communications over satellite to demonstrate medical and educational applications that may one day become standard features of the information highway.

In the first demonstration, which took place on July 6 1995, the OHI staged a 30 minute demo for Whitehorse doctors who could remotely monitor a prototype artificial heart. The doctors could consult with one another in real time through the full motion video capabilities of the multimedia workstations.

Centennial College

Bell Canada, in partnership with Centennial College, began a six month trial in May 1995 to offer dial-up Internet access on a trial basis to customers in the 416 area code, for six months beginning May 1, 1995. This trial will determine customer demand for this type of access, and how best to serve customer needs.

Ease of use will be paramount to the trial. Billing and tracking of the service will be handled by Bell, with the charges appearing on the customer's monthly telephone bill. For customers wishing to receive this service, they simply have to call one unique seven-digit number to make arrangements from anywhere in the 416 area code. The cost of this service will be approximately \$30 per month.

Intercom Ontario

Intercom Ontario is a consortium of public and private organizations that includes Bell Canada, governments, broadcasters, computer companies, real estate developers, universities, museums, educators, retailers, and members of the health industry. The consortium is building a 'smart city' or 'city of the future' in Newmarket, Ontario. During the course of the four year trial, 300 homes in Newmarket will link their computers, televisions and wireless communicators to libraries, museums, government offices, to access video, music, pictures, computer files, games, transactions, etc.

Orangeville / River Oaks Project

The River Oaks development company is working with Bell and Shaw Cable to interconnect 70-80 new homes in the Montgomery housing development with the local high school using an Ethernet Local Area Network (LAN). The Orangeville switching centre has full ISDN capability, making Orangeville the first community in Canada to have such capability.

Queens University Distance Learning

Bell and Queens University are jointly operating a distance learning program involving 79 students from across Canada. The students are using multi-point videoconferencing facilities in their home locations to participate in MBA lectures given in Ottawa. This is a customer solution already in service, not a trial.

Bell is also in the process of organizing a research project with Queens University to develop generic models for distance learning using new applications of information technology. Bell is providing telecommunication support for the project, as well as financial and personnel assistance. If an application for additional funding from the Ontario University Research Incentive Fund is successful, the project will begin in December 1995 and conclude in mid 1996.

Baynet Project

The North Bay community initiated the Baynet project to develop a broadband network connecting local government, hospitals, local college and businesses to help reduce costs and create jobs. Bell is working with the local economic development team to finalize a business plan and obtain a financial commitment from the municipality. Similar projects in less advanced stages are being explored with the municipalities of London and Kitchener/Waterloo.

George Brown College

In July 1995, the Bell Canada Centre for Distance Education at George Brown College in Toronto opens for classes. A joint venture between the College and Bell, the Centre will help instructors and students benefit from interactive technology. It will use curriculum developed at the Teletraining Institute at Oklahoma State University -- a world leader in distance education -- to teach people how to design and deliver distance education courses using Video Conferencing and related technology. The Centre will be a living laboratory comprised of two learning labs, two electronic classrooms, presentation studios, edit suites and a multimedia lab. For more information about the Bell Centre for Distance Education at George Brown College, call the information hotline at: 1 800 413-2588.

Highway 407 Electronic Toll System

Bell and Bell Sygma have recently bid to build a fully electronic tolling system for the new Highway 407 which spans metropolitan Toronto. Bell is proposing a SONET and ATM network circling the highway to collect video records of automobiles that do not have the appropriate on-board electronics indicating they have paid their tolls. There are two aspects to the proposal -- first, the provisioning of equipment, and second, the operation and billing of the system. Bell's partner in this venture is Hughes Aircraft from California.

Real Estate

For some time, MPR Teltech Ltd., the research & development (R&D) subsidiary of BC TELECOM Inc., has been working in the area of video and multimedia on demand, developing custom applications for various markets. In an Ottawa trial in 1992, Royal LePage, the national real estate brokerage chain, used an MPR-developed system to help home buyers narrow the search for their dream home without leaving the real estate office.

The service is currently operational in Royal LePage offices in Ottawa and Toronto, plus two shopping malls. Using *Infohome 2000*, prospective buyers can scan coloured photographs of available homes, photographs of adjacent homes, and regional maps depicting the location of the home and its proximity to schools, shopping and other amenities. Plans call for the evolution of this system into a national network, allowing interested buyers to use the system to view available listings in any community in the country. The company is also exploring with MPR Teltech the possibility of giving real estate agents access from their cars over a wireless network.

Quebec

Hôtel Dieu (Montreal) and Centre hospitalier Cochin de Paris

On Wednesday, November 23, 1994 a test was successfully performed between the Hôtel Dieu in Montreal and Paris to transmit X-rays. Doctors in both countries were able to share information and consult by seeing the same X-rays at the same time. This new technology permitted the team of doctors to exchange expertise in the area of research and treatment of hormonal illnesses. Bell provided six microlink lines and the test was conducted on Bell's network. Doctors in Chicoutimi and Trois-Rivières used Bell's video-conferencing services to view the event.

In February 1995, surgery was performed at the Hôtel Dieu in Montreal with the assistance of doctors in Paris. This surgery was filmed and presented at the G7 Conference held in Brussels at the end of February, 1995.

Quebec Hospital Trial

In Quebec, a three phase trial using ATM and fibre optic technology is underway that reduces the time and improves the quality of transmitting X-ray, mammography and Magnetic Resonance Imaging (MRI) images between various institutions in the hospital community. The trial began in Montreal with the Montreal Cardiology Institute and St. Luc Hospital with plans to expand to the rest of Quebec, and later to hospitals in Toronto. Other hospitals involved in Quebec include CHRR Rimouski, CHUL in Quebec, Maisonneuve-Rosemont, and Joliette. This is a joint venture between Bell Canada and Québec-Téléphone.

VISIT (Université de Québec)

The VISIT system for video conferencing has been installed in the offices of Université de Québec executives in Montreal, Chicoutimi and Trois-Rivieres. Bell is also proposing the installation of broadband technology at the Université de Québec to support the introduction of "tele-education" between campuses. A co-writing trial will be held between a literature professor and a publisher during 1995.

Provincial Courts service

Lawyers, their clients, and judges are now able to use Québec-Téléphone and Bell's public videoconference facilities and phone lines for remote trial appearances. They are being used on a regular basis and response has been very positive. The service has also been used by the Québec Court of appeal.

CallMall

Six hundred Bell Canada customers in Sherbrooke have taken a first step on the information highway as part of a pilot project to provide home access to information and transactional services. The services are available through a new telephone set equipped with a display screen (Nortel's Vista 350). During the pilot project called CallMall, which ran from April 10 to July 31, 1995, Bell collaborated with four partners -- Northern Telecom, New North Media, Tele-Direct and CentreSource.

Participating customers had access to the products and services of some 15 businesses operating in diverse sectors such as: banking, lotteries, retail sales, postal services, legal services, and travel. As a result, customers participating in the project had direct access, through their home phone, to such things as banking services, lottery results, listings of movies and cultural events in Sherbrooke and elsewhere in Quebec, local and national news, and personalized or prerecorded legal advice, depending on their individual needs. Approximately 150 Sherbrooke businesses also participated as advertisers.

L'Université du Québec à Rimouski Distance Learning

Québec-Téléphone has established partnerships with l'Université du Québec à Rimouski and regional school boards to deliver distance learning programs at the university, technical and K-12 level in remote areas.

New Brunswick

NBTel, along with the Province of New Brunswick, Northern Telecom and other partners are positioning New Brunswick as a leader in the telecommunications industry. New Brunswick leads in a range of services, from universally available residence voice mail services, to elementary schools all connected to the Internet, to approximately 20 call centres bringing jobs and investment to the province.

Electronic delivery of public services

NBTel is working closely with the government in the delivery of electronic applications of public services. Digital on-line property mapping allows businesses to scan deeds province-wide through a service developed by NBTel for the provincial government. Plans are to link NBTel's *TalkMail* to a new service called *NBAAlert* which would disseminate evacuation messages in the event of a disaster. NBTel and Anderson Consulting, with the provincial government, have developed a database and support system for a province-wide, Emergency 911 service, to become fully operational by the end of 1996.

Electronic Kiosk

NBTel, in conjunction with North Communications (Canada) Ltd. and the Province of New Brunswick, also launched the first ever multi-tenant electronic kiosk service in Canada. The Info/New Brunswick kiosks -- located in malls, grocery stores and gas stations -- are equipped with a full-motion video screen, graphics and english and french audio. Kiosks enable the general public to renew vehicle registrations, purchase hunting and fishing licenses, access government information, review their telephone bills and activate a wide range of calling features on their telephone lines.

Health care distance education program

Sixty-one hospitals in eight regions of the province are using a health network. Hospitals within the same region share one centralized data base for financial, purchasing and patient care information. In addition, a health care distance education program is using advanced communications applications to train ambulance drivers and other health care professionals.

PharmaPhone

Rural residents no longer have to travel miles to the nearest pharmacy for prescription drugs. *PharmaPhone*, a kiosk system that incorporates video and telephone connections, enables an urban pharmacist to see-and talk to a remote customer. Using VISIT, the system was developed by Northern Telecom for MEDITrust (a mail-order pharmacy company based in Ontario). A pharmacist can scan the customer's prescription and offer advice. Transactions are completed through a standard "credit card swipe" device. Orders are then delivered directly to customers via courier.

Broadband multimedia network

In June 1995, NBTel and Northern Telecom unveiled plans for the next era of telecommunications services. The two companies signed a \$300 million memorandum of understanding to develop a broadband multimedia network to serve the province. By late 1996, more than 26,000 homes and 10,000 businesses in New Brunswick will have access to broadband communications. This will expand to over 60 per cent of the province's homes and businesses by 1999.

Customers will use a set-top box or multimedia controller to access such services as: educational multimedia-on-demand; home-shopping; on-screen telephone features; display-based marketing; government services; health billing; multimedia *TalkMail*; telecommuting and work-at-home; videoconferencing; on-line information access, and business data networking.

As system integrator, Northern Telecom will provide project management for the development of the broadband network. The development will involve the construction of a fibre/coaxial network to allow two-way interactive broadband communication. NBTel will be the first carrier to use the Magellan Concorde, the latest and largest capacity member in the Northern Telecom Magellan family of ATM switches.

CallMall

CallMall, by New North Media, is a joint venture of Bruncor and Northern Telecom. *CallMall* uses an advanced screen telephone, the Vista 350, which was developed and made in Canada by Northern Telecom. The eight-line display screen is used to deliver a variety of services to customer's homes including home banking, electronic shopping and community messages. New North Media officials are working with governments to enable citizens to access public information services from home.

CallMall is also a new advertising and information channel that allows customers to request and receive only the information they want, giving them full control and choice. Currently more than 75 service providers and partners are using *CallMall* to market their products and services such as Canada Trust and Tele-Direct (Services Inc.) and international companies such The Body Shop and CentreSource Inc. that brings with it suppliers such as Lands' End, Sears Canada Inc. and Regal Greetings and Gifts.

Nova Scotia & Prince Edward Island

Izaak Walton Killam Hospital for Children

At the Izaak Walton Killam Hospital for Children in Halifax, medical practitioners use MT&T's remote diagnostics system to examine young patients in their own community hospital. The system incorporates video depicting full-motion images of the heart and a speaker phone for the doctors and technicians. The telecommunications link saves the health care system the cost of transporting the patients for diagnosis, while extending the benefit of the Halifax-based cardiac unit to hospitals throughout the Maritimes. The families benefit as well by not having the stress of traveling with an ill child.

College L'Acadie

In September, 1992, MT&T provided the technology for french-language distance education to Acadian and Francophone regions of Nova Scotia. MT&T developed a digital audio network that also combines personal computers and real-time video conferencing. College L'Acadie links six small learning centres around the province, making French-language learning a reality that would not otherwise be affordable for those communities.

Nantucket trial

A multimedia market trial is taking place in Dartmouth, Nova Scotia. In the Nantucket trial, residents of a 200-home subdivision have access to VOD, audio jukeboxes, home delivery and messaging services. Applications in home banking, government sales, lotteries and ticket sales will also become available in 1995.

Teledemocracy™

MT&T Technologies, a wholly owned subsidiary of MT&T, is the first company in the world to offer Teledemocracy™ services. Teledemocracy enables citizens or members of an organization to vote in an election using the telephone. In 1994, MT&T conducted the first election of a national party leader as well as the first electronic referendum in a federal constituency. The National Party of Canada elected both its leader and president using the televoting system. Liberal MP Ted White conducted an electronic referendum on the federal *Young Offenders Act*, querying constituents in his North Vancouver riding. The Progressive Conservative Party in Saskatchewan elected its new leader through the telephone system as did members of the Alberta Liberal Party. The Liberal Party of British Columbia also chose the system to elect its new leader in September 1993 following upon the Nova Scotia Liberal Party leadership televote in June 1992.

Newfoundland

Memorial University

Newfoundland Telephone and Memorial University have combined efforts on several communications projects, driven in many cases by the geographic challenges. Memorial University, in concert with Newfoundland Telephone, has developed its own teleconference centre that has grown into one of the most sophisticated systems in North America.

Another recent joint project linked the university campuses and two tertiary care hospitals in St. John's and Corner Brook. Multiple voice and data signals sent at high speeds over long distances permit the use of compressed video in educational settings, teleconsulting, and the transmission of complex medical diagnostic images.

Newfoundland Telephone is providing technical and marketing support to Memorial University which introduced a special topics course within its MBA program, to evaluate distance technology. It has also teamed up with Northern Telecom to test educational applications associated with the use of VISIT. Two VISIT systems in remote locations are connected through communications lines, permitting educators to trouble shoot, collaborate on projects, and design programs, saving time and travel costs.

Telemedicine Network

The Telemedicine Network operates in approximately 207 sites located in health centres, community colleges, high schools, university campuses and government buildings, and links approximately 120 communities within the province. Telewriters enable the exchange of freehand writing and computer graphics via personal computers and special modems which allow simultaneous transmission of voice and data on the same telephone line, a feature mainly used in teaching courses.

Integrated Rural Delivery Network

The Integrated Rural Delivery Network (IRDN), a consortium of Telecommunications In Health and Learning Inc., Newfoundland Telephone, Compusult Ltd., the Telemedicine and Educational Technology Resources Agency, and the Enterprise Network Inc., is a field technology trial to provide solutions customized to rural clients' needs for integration of varied network models. The technology is unique in its application to rural environments where bandwidth availability is more limited than in metropolitan areas.

Stentor

National Aviation Museum Kiosk Trial

The National Aviation Museum—with the assistance of Stentor, the Canadian Heritage Information Network, MPR Teltech, Digital Renaissance and Kodak, launched the *Silver Dart Project*—an on-line multimedia electronic aviation encyclopedia for museum patrons. For the first time in any Canadian museum, an electronic encyclopedia provides users with an easily accessible database containing sound, moving images, information on aircraft, and famous aviators. The kiosk uses telephone lines to provide access to multimedia programs from a central server. The project provides a remote access link using ATM technology to a kiosk located at the Ontario Science Center in Toronto. Because of the success of the trial, a major consortium of museums and libraries, are looking at duplicating the trial across the country.

Mentor Networks Trial

An interactive multimedia-on-demand trial involving five players, including the Ottawa Civic Hospital, the Royal College of Physicians and Surgeons, and Stentor, provided continuing medical education services for doctors in Ontario. This phase of the trial ended in August 1994. The trial was conducted in a Local Area Network (LAN) environment as well as a telephone network environment using Bell Canada's telephone lines and ADSL technology to transmit interactive multimedia to PCs. Users of the application could choose from a module representing patient care scenarios for chest pain. Its interactive nature allowed choices to be made on diagnostics and procedures, leading to more cost-efficient medical decisions. In a related trial, Bell and Mentor will interconnect members of the Ontario Medical Association in the Halton region with e-mail and conferencing facilities. Mentor eventually hopes to link physicians across Canada.

Global Library

Members of the Stentor Alliance are participating in the international project aimed at ultimately bringing material from such institutions as the National Library of Canada, the U.S. Library of Congress, the Bibliothèque Nationale in Paris, the Lenin State Library in Moscow and the British Library in London to classrooms and homes around the world via cable TV and the Internet.

VOD at Carleton University / University of Ottawa

Students at two Ottawa-based universities broke ground in the field of electronic information in a video-on-demand (VOD) trial launched in January of 1994. Stentor joined with the University of Ottawa and Carleton University to deploy the first fully digital VOD trial in Canada. Phase I of the trial began in January and ended in May, 1994. Using personal computers located on campus, students accessed taped lectures and lecture support material, such as films, from a video library. Multiple viewers had simultaneous access to the video material and could pause, rewind, fast forward and scan through video information carried over existing telephone lines. Phase II, started in October 1994, extended the project to include other business customers in a multi-office environment. Customers included eight Ottawa schools and three RCMP locations. The technology platform was developed by Bell-Northern Research, the R & D arm of Northern Telecom.

MediaLinx Interactive Inc.

Founded in 1994 as part of the \$8+ billion promise of The Beacon Initiative, MediaLinx Interactive Inc. is funded by BCE and a number of other Canadian telephone holding companies. Through partnerships, MediaLinx develops content for Canada's full-service fibre optic information highway. Its mandate is to form joint ventures with companies and organizations in seven alliance pools: News & Information, Education & Learning, Financial Services, Health, Entertainment, Shopping, and Government Services. MediaLinx will acquire no less than 20% of a venture but no more than 49%. The ideal arrangement is three partners, each owning 33%. MediaLinx is a collaborator not a competitor, a catalyst not a controller, a gateway not a gatekeeper.

MediaLinx offers its partners content packaging and marketing, service bureau support and media labs, on-screen consumer product and service directories, "smart" searchers, advertising and sponsorship, standards development, and ultimately, a network of linked digital video servers soon to exist across Canada.

MediaLinx plans to distribute its first services from stand-alone consumer kiosks in strategic locations across Canada in 1995. Network services and programming are slated to begin in 1996. These will include entertainment-on-demand, home shopping, home banking, and personalized news searches delivered to subscribers. These first services can be delivered over conventional twisted-pair copper cable. But, as more Canadian communities are wired with fibre optic / coaxial networks under the Beacon Initiative, capacity will increase dramatically, greatly heightening the ability to deliver programming and services, including two-way video.

Consumer Kiosks

MediaLinx's first consumer kiosks will be installed by the end of 1995. Located in high-traffic sites such as shopping malls or office towers, each kiosk is equipped with a touch-screen, keyboard, telephone, fax machine, printer, and credit card swipe. In a few minutes, a kiosk can pay several bills, order flowers, book concert tickets, and check a credit card account balance.

The system will be linked nationally and regionally, first to existing high-speed connections and eventually to the broadband fibre-optic network now being installed across the country.

Information Highway Networks

CANARIE

Formed in 1993, the Canadian Network for the Advancement of Research, Industry and Education or CANARIE is a public-private partnership to build a Canadian Information Highway. At a cost of \$22.5 million, CANARIE links regional computer networks around the country, enabling universities, businesses, research institutions and hospitals to test the latest information highway products and services.

A non-profit corporation, CANARIE has evolved from the work of more than 200 people from 56 organizations representing Canada's research, university, business and government communities. Their efforts, over a four year period, developed the seven year multi-phase Business Plan which defined a program to improve Canada's overall competitiveness in the Information Age. CANARIE has over 140 private and public sector, fee-paying members. It has a seventeen member Board, with eight members representing the private sector and eight representing institutions, with the seventeenth being jointly appointed.

In addition, CANARIE provides funding for the Internet backbone network in Canada called CA*net; development of applications and products for the information highway; and deployment of a high speed test network called the CANARIE National Test Network.

OCRInet

OCRInet is an ATM / fibre optic network linking twelve research centres in the Ottawa-Carleton region, with satellite links to remote areas of Canada. University, government and industry R&D centres are using the network for field trials of new equipment, services and applications of multimedia broadband networks.

SchoolNet

SchoolNet is a Federal / Provincial / Territorial and Industry initiative developed to introduce elementary and secondary school students and teachers to the Internet, and to enhance educational opportunities by making national and international resources available. This trial involves an electronic network linking students and teachers across Canada to national and international databases and a wide variety of learning applications. About 4,500 schools are currently on-line.

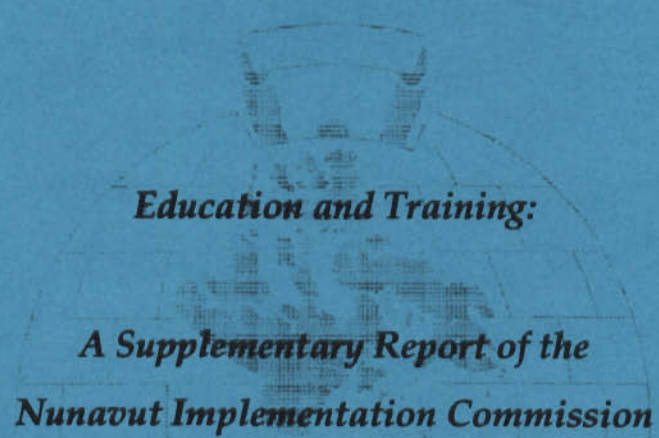
The project is a cooperative endeavour of Industry Canada and participating schools, provincial ministries of education, Canadian universities and colleges, and the private sector, including Stentor.

Telesat

The satellite company, wholly owned by the Stentor owners' holding companies and Spar Aerospace Limited, is embarking on new technology developments and customer applications that will enable universal access and maintain Canadian leadership in the "skyway" portion of the Information Highway. In conjunction with the Broadband Applications and Demonstration (BAD) lab at Industry Canada's Communication Research Centre (CRC), Telesat is believed to be the first satellite operator to successfully trial commercial ATM multimedia at T1 rates. Satellite ATM will allow new, interactive multimedia technologies to be delivered to locations that cannot be accessed economically by terrestrial ATM technology.

WurcNet

Launched in July 1994, WurcNet is a not-for-profit organization based in Western Canada that manages the provision of a high-speed ATM testbed network for research and development into high-speed networks and the development of applications that require connectivity at high speeds. Membership includes several universities and Stentor owner companies based in the West. The network, which spans B.C., Alberta, Saskatchewan and Manitoba, allows university research institutions and research departments of major industrial members to access supercomputer facilities at the University of Calgary. Consistent with WurcNet's objective to encourage the development of commercial products and related background technologies, network projects are also being explored in business, education, media and entertainment applications.



Education and Training:
A Supplementary Report of the
Nunavut Implementation Commission

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**Nunavut Hivumukpalianikhaagut Katmayit
Nunavut Implementation Commission
Commission detablissement du Nunavut**

August 30, 1995

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Dear Mr. Wyman, Ms Fair and Mr. Campbell:

As indicated in my letter of May 24 to the Honorable Ronald Irwin, the Honorable Nellie Cournoyea and Josie Kusugak, the Nunavut Implementation Commission (NIC) has been preparing a number of supplementary reports in response to Mr. Wyman's letter of May 4.

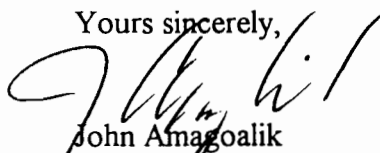
At this time, I am pleased to supply you with a component part of the Commission's second supplementary report entitled, "**Education and Training: A Supplementary Report**".

This report summarizes the number of staff positions and the required education and training for each position in the headquarters organization of the Nunavut Government. The report outlines some current trends and initiatives related to education and training in

the Nunavut Region of the Northwest Territories impacting on achieving an appropriate level of Inuit employment. Finally, the report comments on the impact in the short, medium and long terms of the eleven training projects proposed in NIC's report Footprints In New Snow.

I would be pleased to discuss this report with you, or any other work of the Commission, at a convenient time.

Yours sincerely,



John Amagoalik
Chairperson

Education and Training
A Supplementary Report of the
Nunavut Implementation
Commission

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1. BACKGROUND

In a letter from Ken Wyman , Executive Director Nunavut Secretariat addressed to Simon Awa, Executive Director of Nunavut Implementation Commission, additional information was requested regarding training. NIC was asked to provide more information regarding Management, Technical and Paraprofessional training, coordinating NIC's proposed projects with land claims training and the development of existing new or modified programs providing training for the Inuit of Nunavut.

In this supplementary report, NIC presents a summarized analysis of the proposed positions in the recommended Nunavut Government structure, identifies the number of positions by National Occupational Code and examines the impact of the training projects over the short, medium and long time periods.

2. FOOTPRINTS IN NEW SNOW

The first report submitted by the Nunavut Implementation Commission, Footprints In New Snow outlines eleven training projects to supplement the present training and education opportunities for Inuit in Nunavut. Their impacts are of short, medium and long time duration. Each project requires the attention and support of the Government of Canada, the GNWT, NTI and other Inuit organizations.

The short term projects are designed to broaden the skills of the present Nunavut labor pool to assist in meeting NIC's goal of recruiting an initial 50% Inuit headquarters staff, especially at senior management levels. The medium term projects are designed to ensure for Inuit a significant majority of the employment in Nunavut's public service. The long term projects focus support on the preparation of children and youth for the advanced and highly specialized training required in professional fields of employment.

Inuit now working for the federal, territorial or municipal governments are prospective employees of the new government. The short term projects are designed to increase their levels of skill and prepare them to undertake advanced responsibilities in the new government.. In order to "move up", current Inuit employees must be trained for positions of greater responsibility.

The medium term projects are designed to prepare Inuit to staff more of the professional, senior managerial and technical positions required to operate Nunavut's government at the territorial, regional or community level.

The long term projects are designed to increase public involvement with the education opportunities available for adults, youth and children. The long term projects will directly influence the education planning decisions made today, impacting on those who will be Nunavut's professional staff. The education system needs specific financial support if Inuit are to complete the schooling required for advanced training in technical and professional fields including law, medicine and engineering.

NIC's recommendation #6-6:

*"The NIC recommends that planning with respect to the organization and design of the new Nunavut Government on the one hand, and with respect to government employment in Nunavut on the other, must be seen as bound together. Issues relating to the size and composition of the Nunavut public sector cannot be dealt with in isolation"*¹

NIC reaffirms the legal obligation towards Inuit employment in recommendation #6-7:

*"The NIC recommends that all planning with respect to government employment in Nunavut be built upon the Constitutionally protected commitments with respect to Inuit Participation in government employment set out in Article 23 of the Nunavut Agreement"*²

NIC's recommendation #6-8:

*"The NIC recommends that all planning with respect to government and employment in Nunavut proceed from an understanding that implementation of the Nunavut Agreement, and honoring the expectations of the people of Nunavut, require that the new Nunavut Government, at its inception, be at least as representative of the Inuit share of the Nunavut population as is the public sector in Nunavut today (approaching 50% of government employees in Nunavut are Inuit). Accordingly, NIC recommends that all planning proceed from an understanding that, at a minimum, Nunavut government employment as of April 1999 be 50% Inuit by way of (1) overall composition, and (2) occupation of senior management positions."*³

To achieve this target, NIC proposed eleven training projects of which the short term projects are intended to ensure that 300 Inuit are prepared by 1999 to undertake expanded or new duties.

3. NUNAVUT GOVERNMENT HEADQUARTERS

Footprints In New Snow proposes a government structure with following of positions at the headquarters level:

¹ Footprints in New Snow

² *ibid.*

³ Footprints in New Snow

Position Title ⁴	Legislative Assembly	Office of the Commissioner	Finance and Administration	Human Resources	Justice and Regulatory Affairs	Community Government, Housing and Transportation	Culture, Language, Elders, and Youth	Education	Health and Social Services	Public Works and Services	Sustainable Development	Boards Commissions and Corporations	Shared Among the Program Departments
Speaker	1												
Deputy Minister		1	1	1	1	1	1	1	1	1	1		
Assist Deputy Minister					1	1		1	1	1	1		
Executive Secretary	2	7	1	1	1	1	1	3	1	1	1		
Secretary		3	5	3	9	8	3	8	6	6	7		1
Directors		4	6	3	9	9	4	8	6	6	8		1
Ombudsman	1												
Executive Assistant	1	6											
Presidents								1					
Clerks	2		1		2	1		4	2	2			13
Registrar					1								
Deputy Registrar					1								
Managers	3		5	4	5	10		6	5	3	3		
Officers	4		10	4	5	16		8	10	7	13		
Council					5								
Interpreter Translators/Linguists	2				1		3						
Technicia			1			1					6		

⁴ The numerical break down of the numbers of staff required at the various responsibility levels following the models outlined in the Nunavut Implementations Commission's report Footprints In New Snow.

Position Title ⁴	Legisla- tive Asse- mbly	Offi- ce of the Com- mis- sion- er	Finan- ce and Ad- mini- stra- tion	Hu- ma- n Res- our- ces	Jus- tice and Re- gul- atory Aff- airs	Com- mu- nity Gov- ern- ment , Hou- sing and Tran- spor- tation	Cul- ture, Lan- guage , Eld- ers, and You- th	Edu- cating	Health and Social Services	Public Works and Services	Sustain- able Develop- ment	Boards Com- mis- sions and Cor- pora- tions	Shar- ed Among the Prog- ram Dep- art- ments
Chief Statistician		1											
Statistical Analysts		2											
Administrators					1	1							
Community Justice Specialists					2								
Reporters					4								
Specialists										2			
Sheriff					1								
Coroner					1								
Fire Marshall					1								
Administrative Assistant							1						
Accountant										1			
Geologist											3		
Recorder											1		
Biologists											5		
Inspector					2						1		
Counselor											1		
To be defined						2						46	

4. INUIT EMPLOYMENT: THE CURRENT SITUATION

Investment in people through the short, medium and long term projects, creates opportunity to achieve the requirements of Section 23 of the Nunavut Agreement:

“to increase Inuit participation in government employment in the Nunavut Settlement Area to a representative level”⁵

and will increase the potential for achievement of NIC’s recommendation #6-9:

“The NIC recommends that the Inuit employment plans to be completed initially by all government organizations by July 9, 1996 ensure consistent progress in five year increments, towards the goal of representative levels of Inuit employment. Such plans should provide for the attainment of representative levels as soon as possible and, in any event, not later than 2021 (i.e., 25 years - a generation- after the completion of the first Inuit employment plans)⁶

Analysis of Inuit participation as staff of the Government of the Northwest Territories in the years 1992, 1993 and 1994 reveals that their recent employment is stable:

Labor Force Analysis for Inuit ⁷

YEAR	REGION	% INUIT IN PUBLIC SERVICE
1992	Headquarters	3%
	Baffin	42%
	Keewatin	52%
	Kitikmeot	49%
1993	Headquarters	3%
	Baffin	42%
	Keewatin	50%
	Kitikmeot	46%
1994	Headquarters	2%
	Baffin	41%
	Keewatin	50%
	Kitikmeot	44%

Within the GNWT the distribution of Inuit employment is:

⁵ Nunavut Land Claims Agreement

⁶ Footprints in New Snow

⁷ Human Resource Planning for Division: Internal Supply Analysis: Preliminary Report: March 1995

<i>Inuit Employment with GNWT by Occupational Categories⁸</i>	<i>% of GNWT Labor Force</i>	<i>Numbe rs of Inuit employ ees</i>
<i>Management</i>	1.9%	12
<i>Technical</i>	3.1%	24
<i>Professional⁹</i>	16.1%	255
<i>Admin Services</i>	24.2%	227
<i>Program Delivery</i>	24.9%	255
<i>Labor and Trades</i>	30.4%	322

All though Inuit have made progress in all employment categories, developmental support in management, technical and professional categories is required. Some of NIC's eleven training projects provide such support.

5. INUIT TRAINING

<i>TRAINING PROJECT</i>	<i>TITLE</i>	<i>SHORT TERM Results</i>	<i>MEDIUM TERM Results</i>	<i>LONG TERM Results</i>
<i>A</i>	<i>HERITAGE PROGRAMMING: ELDERS IN THE SCHOOLS</i>			<i>X</i>
<i>B</i>	<i>PEER TUTORIAL SERVICES: JUNIOR AND SENIOR HIGH SCHOOL</i>			<i>X</i>
<i>C</i>	<i>STAY IN SCHOOL INITIATIVES: EDUCATOR/PROFESSIONAL COMMUNITY WORKSHOPS</i>		<i>X</i>	
<i>D</i>	<i>PEER TUTORIAL SERVICE: NUNAVUT ARCTIC COLLEGE</i>		<i>X</i>	
<i>E</i>	<i>ACADEMIC SUPPORT SERVICES: COUNSELORS: NUNAVUT ARCTIC COLLEGE</i>		<i>X</i>	
<i>F</i>	<i>NUNAVUT SIVUNIKSAVUT TRAINING PROGRAM</i>		<i>X</i>	
<i>G</i>	<i>MANAGEMENT DEVELOPMENT FOR EXISTING EMPLOYEES OF CANADA AND THE NWT (PSCTP</i>	<i>X</i>		
<i>H</i>	<i>SENIOR MANAGEMENT TRAINING: CCMD/RADIAN</i>	<i>X</i>		
<i>I</i>	<i>HUMAN RESOURCES DEVELOPMENT PLANNING: MUNICIPALITIES OF NUNAVUT</i>	<i>X</i>		
<i>J</i>	<i>STAFF DEVELOPMENT COURSES: MUNICIPALITIES OF NUNAVUT</i>	<i>X</i>		
<i>K</i>	<i>DEVELOPMENT OF EDUCATION AND ORIENTATION TRAINING MATERIALS</i>	<i>X</i>	<i>X</i>	<i>X</i>

When taken together the short , medium and long term projects meet and support the broad employment objective of economic well being among the Inuit of Nunavut.

The GNWT, using the National Occupational Classification (NOC), has categorized the Nunavut headquarters staff positions.

⁸ *ibid.*

⁹ Includes school teachers

¹⁰ Table 2 presents a time horizon analysis of the eleven training and education projects proposed by the NIC in the report Footprints In New Snow

NOC ¹¹	NOC Title	Major Category	NOC	Number of Positions	Existing Post Secondary Training Programs with potential impact	NWT
1241	Secretary	Administrative Support		80	Nunavut Arctic College (NAC).	
1244	Court Recorders and Medical	Administrative Support		4	NAC	
1411	General Officer Clerks	Administrative Support		3	NAC	
1413	Records and File Clerks	Administrative Support		2	NAC	
1422	Data Entry Clerks	Administrative Support		13	NAC	
1431	Accounting and Related Clerks	Administrative Support		7	NAC	
1441	Administrative Clerks	Administrative Support		4	NAC	
1443	Court Clerks	Administrative Support		3	NAC	
1447	Purchasing and Inventory Clerks	Administrative Support		1	NAC	
12	Senior Government Managers and Officials	Executive Management		19	NAC	
14	Senior Management --Education	Executive Management		1	Nunavut Management Development Program (NMDP)	
111	Financial Manager	Management		11		
112	Human Resources Manager	Management		6	NMDP	
114	Other Administrative Services Manager	Management		13	NMDP	
210	Engineering, Management Sciences and Architecture Managers	Management		14		
311	Manager in Health Care	Management		2		
411	Government Manager in Health and Social Policy Development and Program Administration	Management		25		
412	Government Manager in Economic Analysis, Policy	Manager		11		
413	Government Management Manager in Education Policy Development and Program Administration	Management		8	NAC	
414	Other Management in Public Administration	Management		18	NAC/NMDP	
511	Library Archive, Museum and	Management		2		

¹¹ Analysis of the proposed positions for the Government of Nunavut with positions classified to National Occupational Categories

NOC ¹¹	NOC Title	Major Category	NOC	Number of Positions	Existing Post Secondary Training Programs with potential impact	NWT
	Art Gallery					
512	Manager in Publishing, Motion Pictures, Broadcasting and Performing Arts	Management		1		
513	Recreation and Sport Program and Service Director	Management		3		Aurora College
632	Accommodations Service Manager	Management		1		
642	Fire Chief and Senior Fire Fighting Officer	Management		2		
1221	Supervisors, General Office Administrative Support Clerks	Paraprofessional		2		NAC
1211	Supervisors, General Office in Administrative and Support Clerks	Paraprofessional		2		NAC
1212	Supervisors, Finance and Insurance Clerks	Paraprofessional		1		NAC
1221	Administrative Officers	Paraprofessional		3		NAC
1222	Executive Assistants	Paraprofessional		8		NAC
1224	Property Administrators	Paraprofessional		1		
1225	Purchasing Agents and Officers	Paraprofessional		2		
1227	Court Officers and Justices of the Peace	Paraprofessional		3		NAC
1233	Insurance Adjusters and Claims Examiners	Paraprofessional		1		
1235	Assessors, Valuators and Appraisers	Paraprofessional		5		
2212	Geological Paraprofessional and Mineral Technologists and Technicians	Paraprofessional		2		NAC
2221	Biological Technologists and technicians	Paraprofessionals		6		NAC
2224	Conservation and Fisheries Officers	Paraprofessional		1		NAC
2231	Civil Engineering Technologists and technicians	paraprofessional		1		
2241	Electrical and electronics Engineering technologists and technicians	Paraprofessional		2		Aurora College
2254	Survey Technologists and technicians	paraprofessional		1		NAC
2262	Engineering Inspectors and Regulatory Officers	Paraprofessionals		3		Aurora College
2263	Inspectors in Public and Environmental Health and Occupational Health	paraprofessional		2		

NOC¹¹	NOC Title	Major Category	NOC	Number of Positions	Existing Post Training Programs with potential impact	NWT Secondary
5211	Library and Archive Technicians and Assistants	paraprofessional		3		
1111	Financial Auditor and Accountant	Professional		6	NAC	
1112	Financial and Professional Investment Analyst	Professional		16	NAC	
1114	Other Financial Officer	Professional		18	NAC	
1121	Specialist in Human Resources	Professional		12	NMDP	
1122	Professional Occupations in Business Services to Management	Professional		2	NMDP	
2113	Geologists, Geochemists and Geophysicists	Professional		2		
2121	Biologists and Related Scientists	Professional		5		
2131	Civil Engineers	Professional		7		
2132	Mechanical Engineers	Professional		1		
2148	Other Professional Engineers	Professional		1		
2151	Architects	Professional		1		
2153	Urban and Land Use Planners	Professional		6	NAC	
2161	Mathematicians and Statisticians and Actuaries	Professional		2		
2162	Computer Systems Analysts	Professional		10	NAC	
3111	Specialist Physicians	Professional		1		
3132	Dietitians and Nutritionists	Professional		1		
4112	Lawyers	Professional		11		
4152	Social Workers	Professional		3	NAC/NMDP	
4155	Probation and Parole Officers and Related Occupations	Professional		1		
4160	Health and Social Policy Researchers Consultants and Program Officers	Professional		3		
4161	Natural and Applied Science Policy Researchers, Consultants and Program Officers	Professional		11		
4162	Economists and Economic Policy Researchers and Analysts	Professional		6		
4163	Economic Development Officers and Marketing Researchers and Consultants	Professional		5		
4164	Social Policy Researchers Consultants and Program Officers	Professional		26		
4165	Health Policy Researchers Consultants and Program Officers	Professional		5		
4166	Education Policy Researchers, Consultants and Program	Professional		18	NAC	

NOC ¹¹	NOC Title	Major Category	NOC	Number of Positions	Existing Post Secondary Training Programs with potential impact
	Officers				
4167	Recreation and Sports Program Consultants and Program Officers	Professional		4	Aurora College
4168	Program Officers Unique to Government	Professional		10	
4169	Other Professional Occupations in Social Sciences	Professional		3	
5111	Librarians	Professional		1	
5124	Professional Occupations in Public Relations and Communications	Professional		2	
5125	Translators, Terminologists and Interpreters	Professional		3	NAC
6461	Sheriffs and Bailiffs	Professional		1	
	Various Other	Unknown		52	NAC

These classifications codify 534.5 headquarters positions (114.5 Administrative, 117 Management, 47 Paraprofessional, 204 Professional and 52 other). Through the programs of Nunavut Arctic College and the Boards of Education, supported by the training projects recommended by NIC, potential exists that two hundred additional Inuit can complete training and take up employment by 1999. The GNWT has forty Inuit staff currently enrolled in the second year of a Public Service Careers Training Program (PSCTP). More than one hundred additional Inuit employees from territorial, regional and community government levels, could complete PSCTP. As well, fifty participants will have completed the Nunavut Management Training Program designed to provide advanced training for senior managers. If the above mentioned short term projects are successful, a minimum of three hundred ninety Inuit will be prepared for new or enhanced employment. These numbers suggest that NIC's proposal for a recruitment of an initial 50% Inuit headquarters staff is achievable.

6. SHORT TERM PROJECTS

The goal of the short term training is to ensure on April 1, 1999, 50% of the Nunavut Government headquarters staff are Inuit. The short term focus of some of the proposed training projects can increase the skills of Inuit presently employed in public sectors.

Project G: Management Training for Existing Government Employees will prepare present Inuit staff for advanced responsibilities in Nunavut. Today, Inuit are receiving advanced training through the GNWT's Public Service Careers Training Program (PSCTP) preparatory for enhanced responsibilities.

Baffin Region of Nunavut

Name ¹²	Current Positions	GNWT Projected Target Position
Employee #1	Government Liaison Officer	Executive Assistant
Employee #2	Administrative Assistant	Manager
Employee #3	Government Liaison Officer	Assistant Deputy Minister
Employee #4	Senior Personnel Officer	Specialist
Employee #5	Government Liaison Officer	Executive Assistant
Employee #6	Regional Airports Officer	Administrator
Employee #7	Regional Equipment Officer	Advisor
Employee #8	Coordinator of Language Bureau	Assistant Deputy Minister
Employee #9	Government Liaison Officer	Advisor
Employee #10	Government Liaison Officer	Officer
Employee #11		
Employee #12		
Employee #13	Employee Benefits Clerk	Manager
Employee #14		Manager
Employee #15	Executive Assistant	Director

Keewatin Region of Nunavut

Name	Position	Target Position
Employee #16	Senior Personnel Officer	Manager
Employee #17	Administrative Officer	Manager
Employee #18	Coordinator of Human Resources	Manager
Employee #19	Manager of Operations	Director
Employee #20	Municipal Works Officer	Manager
Employee #21	Administrative Officer	Manager
Employee #22	Regional Land Claims Coordinator	Director
Employee #23	Language Consultant	Director
Employee #24	Vice Principal	Director
Employee #25	Program Officer	Manager
Employee #26	Teacher	Consultant
Employee #27	Teacher	Consultant
Employee #28	Teacher	Director
Employee #29	Community Justice Specialist	Counsel

Kitikmeot Region of Nunavut

Name	Present Position	Target Position
Employee #30	Administrative Officer	Director
Employee #31	Assistant Regional Superintendent	Director
Employee #32		
Employee #33	Teacher	Director
Employee #34	Executive Assistant	Director
Employee #35	Regional Superintendent	Deputy Minister
Employee #36	Secretary Manager	Director
Employee #37	Teacher	Consultant
Employee #38	Executive Assistant	Deputy Minister
Employee #39		
Employee #40	Regional Superintendent	Deputy Minister
Employee #41	Career Development Officer	Superintendent
Employee #42	Regional Superintendent	Deputy Minister
Employee #43	Manager of Finance and Administration	Deputy Minister

The training planned for these employees includes the following courses:

Courses¹³

¹² Current GNWT staff undertaking part time Public Service Careers Training, their current positions and projected potential target positions with the Government of Nunavut.

Courses¹³	
Baffin	The Effective On the Job Trainer
	Communicating for Impact
	Influencing and Network Management
	Leading Your Team
	Managing Performance/Liberating People
	Thinking Strategically
Keewatin	Advanced Supervisory Skills
	Influencing and Network Development
	Conducting Successful Meetings
	Negotiating Skills
	Power Presentations
	Leading Your Team
	Resolving Workplace Conflict
	Managing Performance
	More with Less
	Thinking Strategically
Kitikmeot	Influencing and Network Development
	Leading your Team
	Managing Performance
	Thinking Strategically

Support of NIC's recommended Project H: Senior Management Development: Nunavut Management Development Program (NMDP) from Inuit leaders suggests this project is appropriate Inuit senior management training.. Twenty five participants will beginning in early 1996, the first of three, year long employment development assignments in the fields of policy, program and human resource management. Annually, for the next five years, twenty-five new enrollments are planned. Fifty Inuit will have completed the NMDP training for senior managers by 1999 and twenty five Inuit will have completed each of the second and first years of the program. These individuals will be available in Nunavut for employment as senior managers of the new public government.

. As this Senior Management Training Program moves from planning into delivery stages, responsibility for the program will shift from Ottawa to Rankin Inlet.

A significant feature of NMDP is the involvement of NTI and NITC. Both organizations have committed support through staff participation in the program.

To increase the skills of residents at the community level, Project I: Human Resource Development Planning: Municipalities of Nunavut and Project J: Staff Development: Municipalities of Nunavut envision planning and delivery of training at the

¹³ Table 4 lists the courses planned for 1995-96 through the GNWT's PSCTP on a part time basis.

base of the structures of governance of Nunavut -- the municipalities. These projects are designed to increase the skill levels of Inuit in the communities. Municipal governments deal with the day to day life of each community where it is important that Inuit have the skills to plan and operate a full range of services from the delivery of water to management of budgets. Training at the community level provides a stepping stone to advanced employment in more senior levels of government.

Project I will provide a portion of the funding required to allow Nunavut's municipal corporations to undertake planning and implementation of comprehensive Community Human Resource Plans (CHRP).

Once each CHRP is complete, Project J provides support funding for specific training courses. Agencies in each municipality will contribute to the cost of the courses through paid work release for staff training. The education and training facilities of both the Boards of Education and Nunavut Arctic College may be used as training centers.

Nunavut's leaders recognize the interests and career potential of Nunavut's residents. The Mayors and members of the Hamlet Councils, the Chair and members of the Education Council, the Chair and members of the Hunters and Trappers Associations, the Chair and members of the Health Committee -- each community organization appreciates the need for an organized approach to training. These community officials are uniquely positioned to coordinate the formulation of training plans and the delivery training programs.

Project I and Project J bridge the administrative structures in each community. Preparation of the CHRP will stimulate discussion across the organizational strata of each of Nunavut's communities. Development of CHRP's with funding support from Project I and the planned and coordinated purchase of specific training programs supported by Project J will broadly impact on the potential development of the human resources of Nunavut.

A second objective of Project I and Project J is the continued advancement of the technical skills and hence the percentage of Inuit employed at all levels across Nunavut. This impacts directly on achieving population employment equity in Nunavut as required by section 23 of the Nunavut Land Claims Act.

7. MEDIUM TERM PROJECTS

The medium term projects outlined in Footprints in New Snow are designed to prepare residents of Nunavut for higher education. These projects are important because students must be encouraged and assisted in attaining higher levels of education.

Statistics from for the GNWT Department of Education Culture and Employment reveal that Inuit make up 93.3% of the school enrollment in Nunavut. Inuit enrollment in high school programs has increased from 836 in 1990/91 to 1236 in 1993/94. The number

of Inuit graduating from high school has increased from 14 in 1989/90 to 43 in 1993/4. In 1994, 50% of all Inuit over fifteen years of age had a grade eight or less education, a significantly improvement from 1989 when 64% had grade eight or less.

These trends also are reflected in the enrollment by Inuit in post secondary training. In 1993/4, Inuit made up 27.5% of students receiving the GNWT's financial assistance for post secondary education. Aboriginal enrollment in post secondary education is rising at 25% per year, significantly faster than enrollments by non-aboriginal students. Aboriginal male enrollment at 19% significantly lags behind female enrollment at 37.9%. Over 80% of Inuit enrolled in full time post secondary education attend Nunavut Arctic College where Inuit enrollment has risen from 30 in 1984/85 to 329 in 1993/94. The median age for College students in Nunavut is 26, significantly above the national median of 20. In 1991, 13% of Inuit took upgrading towards a high school equivalency preparatory for College or University entrance. These trends all demonstrate a commitment by Inuit to improving their skills and employability.

GNWT statistics show major improvements in the participation rates in schooling across the NWT:

Year	% enrollment for school aged children
1988	42%
1990	48%
1995	80%
2000	84%
2005	86%

Corresponding significant increases in school completion by the children of the Northwest Territories have accompanied the increased participation:

Year	Number of Students Successfully completing High School Courses
1986	1000
1987	1200
1988	1300
1989	1300
1992	2100

The GNWT plans continued expansion of the grade level delivery ceiling in community schools across Nunavut:

LOCATION	Year	Grade Level Expansion
----------	------	-----------------------

LOCATION	Year	Grade Level Expansion
Arctic Bay	1995/96	Grade 12
Broughton	1996/97	Grade 11
Clyde River	1996/97	Grade 12
Grise Fiord	1995/96	Grade 10
Hall Beach	1995/96	Grade 12
Resolute Bay	1995/96	Grade 10
Saqqitup	1995/96	Grade 12
Chesterfield Inlet	1995/96	Grade 10
Qim Haven	1996/97	Grade 11
Tulovak	1996/97	Grade 12

The planning initiatives of the Government of the Northwest Territories are supported by the implementation decisions of the Baffin, Keewatin and Kitikmeot Boards of Education. Nunavut Arctic College's Board of Governors recently adopted new strategic directions creating opportunities for more delivery at the community level.

Inuit skilled in a wide range of occupations are needed for the operation and maintenance of the new government. Inuit graduates of Nunavut's high schools, Nunavut Arctic College and other post secondary institutions will staff the Nunavut government. NIC's recommended medium term projects create and support educational successes for students presently enrolled at primary, secondary and post secondary levels. Financial support of the medium term projects, will expand Nunavut's trained human resource base.

"In the 1990's young people make up 22% of the NWT labor force and represent 40% of those who are unemployed. Up to 1000 young people will enter the labor force per year in the 1990's and by the year 2010 that number will increase to more than 1500 a year

The population in the NWT is growing - rapidly.

- *the birth rate is about twice the national average*
- *in the east the population is growing by 2.4% a year*

In the NWT, women between the ages of 15 and 19 have three times more children than women of the same age in Canada as a whole

Nunavut will have the youngest (and the fastest growing) population in Canada. Approximately 40% of its population is under 15 years of age compared to less than 25% in Canada"¹⁴

NIC's Project C: Stay in School Initiatives proposes funding for a series of community based workshops promoting public awareness of the need for children to achieve the highest possible education levels.

¹⁴ People: Our Focus for the Future: A Strategy to 2010

The school and college system need to work in partnership not only with students, but also with the parents and community professional staff. Graduates are needed to achieve the 85% Inuit employment goal by 2021.

Community staff from the widest possible range of disciplines need exposure to initiatives focused on issues of student retention.

The costs to Canada of students dropping out of school before the completion of Grade 12, magnified in Nunavut's case, are staggering:

“The costs of dropping out of high school are discernible and significant. Canadian society will lose more than \$4 billion over the working lifetime of the nearly 137,000 students who dropped out in 1989. Each individual male dropout will lose nearly \$129,000 over his working lifetime, while each female dropout will give up \$107,000 over her working lifetime. The rate of return to society for investing in high school education is 19.0% for males and 17.8% for females. The rate of return for the individual student is even higher. The individual male student receives a rate of return of 65.4% by graduating from high school while the female students earns a 74.7% return”¹⁵

Community participation in broad based stay in school initiatives needs financial support. Education Councils working with other community agencies can organize and deliver public workshops oriented to developing greater public understanding of student needs. The workshops will explore issues and strategies for student retention as well as develop an awareness of the requirements of employment within Nunavut:

“The kinds of jobs available in the NWT (sic Nunavut) require a highly skilled work force.

- *70% of jobs here are filled by people with certificates or diplomas including high school diplomas or university degrees*
- *Only about 14% of jobs require a Grade 8 or less (1991 Census)”¹⁶*

With direct community and parental support and encouragement, Nunavut students have a greater potential to graduate from high school and continue successfully to advanced level training.

“Today, a high school graduation certificate has become the passport to most entry level jobs. In addition, to get a more advanced job, people will need several more years of specialized or technical training”¹⁷

¹⁵ The Conference Board of Canada

¹⁶ People: Our Focus for the Future

¹⁷ *ibid.*

Project E: Academic Support Services is designed to support the present efforts of Nunavut Arctic College to provide appropriate professional counseling services for adults encountering serious non academic problems which interfere with their studies.

Nunavut Arctic College understands the nature of the difficulties encountered by adult students. Experience has shown, that students with more than adequate academic abilities, may withdraw as a result of personal or social difficulties.

“The horrific statistics that were heard from individual students about the abuses in their own communities and in their own lives convinced us to ask some important questions. Why? why so much abuse? why so much violence? why so little help for those who are abused? ... we have had first hand information from sixteen students in the classroom on abuse; all are saying the same thing:

- 80-90% of Inuit adults some and a high % of the children smoke
- 80-90% of Inuit are addicted to drugs or alcohol
- 70-80% of young girls are sexually abused
- over 90% of adult females have been abused either sexually or physically
- 25% of the sexual abusers are children who abuse other children
- very young people are been sexually abused on a regular basis at a very tender age (2 years upwards)
- the rate of suicide is 25 time greater among Inuit than it is in the rest of the Canadian population.”¹⁸

Students must have resources to deal with problems of this nature. Counselors are required to support students through their post secondary education. Present college counseling resources are inadequate to assist students resolve their personal issues en route to the completion of a college education.

Project F: Nunavut Sivuniksavut is designed to support efforts which help Inuit prepare for enrollment in University or employment in management. Nunavut Sivuniksavut has been successful in helping Inuit do this for ten years. Sivuniksavut helps Inuit understand the requirements and expectations of post secondary institutions.

Sivuniksavut’s Inuit graduates apply their acquired skills on the job. A significant proportion of the enrollees (68%) have established successful careers.

Sivuniksavut’s courses focus on the past, present and future of Inuit in Canada and in the circumpolar world:

<i>Semester</i>	<i>Courses</i>	<i>Contents</i>
<i>Fall</i>	Orientation Inuit History	Pre-contact history, early contact history, the “government” era

¹⁸ Memo from Students at Nunavut Arctic College to the President of Nunavut Tungavik Incorporated

<i>Semester</i>	<i>Courses</i>	<i>Contents</i>
	Skill Development	essay writing, research methods, public speaking computer literacy, project/time management, self evaluation
	Inuit Organizations	ITC, NTI, Pauktuutit, IBC, ICC, NIC
	English	Algonquin College
<i>Winter</i>	Urban Living Skills	Skills for independent living
	History	Treaties and Federal Aboriginal Policy, northern development, federal aboriginal policy and land claims since '68, Inuit Political history, Inuit land claims negotiations
	Nunavut Land Claims	agreement and sub agreements
	Skills development	continued from Fall Semester
	Career Planning	
	Contemporary Issues	

Sivuniksavut was organized by the Tunngavik Federation of Nunavut as a vehicle to assist Inuit students access University level training. Sivuniksavut continues to meet this need by creating a location and environment where Inuit can access the support they need in preparation for employment or post secondary studies. The eighty Inuit who have successfully completed the program of studies received a Certificate in Aboriginal Studies from Algonquin College

Sivuniksavut enrolls students from the four regions of Nunavut:

<i>Region¹⁹</i>	<i>Enrollment</i>	<i>Graduates</i>
<i>Keewatin</i>	31	21
<i>Kitikmeot</i>	21	17
<i>North Baffin</i>	22	17
<i>South Baffin</i>	31	22
<i>TOTAL</i>	105	77

Communities of origin for students of the program reveal a balance within the regions:

<i>Community²⁰</i>	<i>Number of Students</i>	<i>Year(s)</i>
<i>Arctic Bay</i>	1	'86

¹⁹ Nunavut Sivuniksavut (TFN Training Program) June 1994

²⁰ *ibid.*

<i>Community²⁰</i>	<i>Number of Students</i>	<i>Year(s)</i>
<i>Arviat</i>	6	'91, '92, '93
<i>Bay Chimo</i>	1	1985
<i>Baker Lake</i>	7	'85, '86, '87, '88 , '92, '93
<i>Broughton Island</i>	1	'89
<i>Cambridge Bay</i>	2	'89, '91
<i>Cape Dorset</i>	2	'91, '92
<i>Chesterfield Inlet</i>	4	'88, '93
<i>Clyde River</i>	3	'90, '91
<i>Coppermine</i>	6	'86, '87, '88, '93
<i>Igloolik</i>	6	'87, '88, '90, '92 , '93
<i>Iqaluit</i>	8	'87, '88, '89, '90 , '91, '92, '93
<i>Hall Beach</i>	1	'85
<i>Lake Harbour</i>	2	'88
<i>Pangnirtung</i>	7	'85, '90 '87, '90, '91, '92
<i>Pelly Bay</i>	1	'92
<i>Pond Inlet</i>	5	'86, '89, '92, '93
<i>Rankin Inlet</i>	5	'86, '89, '90, '92
<i>Taloyoak</i>	4	'88, '90, '93

Graduates of Sivuniksavut have achieved an impressive record of continuing education and employment following the one year of the program:

<i>As of February, 1994²¹</i>	<i>%</i>
<i>Employed or maternity leave</i>	65%
<i>Continuing post secondary training</i>	16%
<i>Full-time mother</i>	7%
<i>Unemployed</i>	11%
<i>Unknown</i>	2%

By funding Project E, Nunavut Sivuniksavut will be able to continue to perform this much needed transition function.

The NIC Project D: Peer Tutorial Services: Nunavut Arctic College is designed to support Supplemental Instruction (SI) for adults. Modeled on student support systems that identify problem courses rather than problem students, SI encourages student participation in support programs which supplement classroom lectures. SI directly assists student enrolled in courses that have an above average number of students achieving low

²¹ Nunavut Sivuniksavut (TFN Training Program) June 1994

or failing grades or withdrawing from courses. Ongoing research proves that students willingly attend the support sessions if they enhance the individual's chances for academic success.

Pilot tested models of peer tutorial services were successful at Arctic College. Campus faculty endorse the approach and are seeking opportunity to implement SI. Students with incomplete academic credentials when supported by SI have successfully completed University courses in disciplines of entirely new content. SI is known to work with Inuit post secondary students.

The project's funds will be used to employ SI leaders. The key requirement of the SI leader is that they, if enrolled as students, could achieve a grade level of 80% or better on the content of identified difficult courses. SI leaders ensure that every student knows and applies effective study techniques. The leaders create opportunity for the application of these techniques by providing organized reviews of each lectures subject matter.

8. Long Term Projects

Project A: Heritage Programming: Elders in the Schools and Project B: Peer Tutorial Services: Junior and Senior High School broadly reinforce the opportunities and options for the creation of success for children enrolled in the school system.

Students need a thorough academic background if they are to continue their education at post secondary levels. Student at graduation must be prepared to compete for both professional post secondary training and for employment not only at community and territorial levels but also at national and international levels. Today, every opportunity to plan support systems that will create success for students must be seized.

Project A is designed to offer heritage instruction from elders for school children supporting each individual child's educational growth and maturity. Such support will directly influence the child's decisions concerning school completion and plans for future training and employment.

There is an immediate need for organized and formal contact with elders in the school system. Elders can through such a contact pass on accumulated knowledge and wisdom. Children and youth want contact with the lives and stories of those who created Nunavut. Nunavut will benefit through the transmission of traditional knowledge to those who will be tomorrow's leaders and staff.

By increasing the contact between children and elders, Project A will foster abilities in children to resolve personal and emotional problems. Today, the opportunity for elders to influence and guide the teaching of Nunavut's children is sharply limited by the advanced age of the elders. Children's school experiences are enhanced and enriched through contact with individual elders and their traditional knowledge. Children, culturally

grounded and secure in their place in society, will develop personal confidence contributing directly to successful careers.

Youth are strongly influenced by the behavior and attitude of their peers. Children in lower grades see, and respond to, the actions of older siblings. Project B will promote creation of an education support program which will encourage youth to assist other children through academic studies subsequently influencing children's choice of activities. Getting good grades and excelling in schooling requires significant dedication from students. A positive focus supportive of academic efforts models positive behavior. By providing financial support peer leaders will be able encourage and influence other children to achieve greater academic success.

Students are often motivated to continue schooling by seeing the success of their peers.

Programs promoting the leadership in students will add to the successes of the education system. Students working collaboratively reflect traditional Inuit values of cooperation and mutual support. Mutual support by students will increase the learning in complex disciplines. Students, returning to schools in the evenings on a voluntary basis, develop confidence in their abilities to study effectively. Project B will help students get the required education preparatory to enrollment in the wide range of professional fields needed by Nunavut. Today's students will, in time, become Nunavut's doctors and lawyers and engineers. Efforts to build support systems for today's children need immediate implementation.

9. The Bridging Project

Project K: Development of Education and Orientation Materials is designed to educate students and staff about Nunavut. Such materials must be organized and planned for the use in schools and the college, and for use by new staff. The materials assembled will examine and provide an overview on twenty years of negotiation and seven years of preparation leading to Nunavut. Explanations for the creation of Nunavut must be available and understood by both those adults responsible for running Nunavut and by children that will come after them to foster an understanding of the aspirations of Nunavut's founders.

NIC recommends in Project K, the provision of funding for the documentation and recording of the history and implementation of those processes leading to the creation of Nunavut from the Inuit perspective.

Some initial efforts to record this history will be available in August 1995. An interactive CD-ROM, featuring bilingual sound tracks (English and Inuktitut) and capacity to operate on both common personal computer platforms, is in production. This CD-ROM is immediately useful in DIAND and GNWT staff orientation sessions by assisting employees to understand both the processes leading up to the creation of Nunavut and

understanding the obligations and challenges of the new territory. Within this interactive media, the pictures, voices and thinking of the planners and creators of Nunavut are recorded. Those who use the material will hear and see those individuals critical to the origins of Nunavut. Those using the CD-ROM will be better educated and able to dispel some of the mythology held by employees continuing to work in Nunavut after 1999. The CD-ROM will provide a contemporary resource for government staff not currently residing in the Kitikmeot, Keewatin or Baffin regions of the Northwest Territories and faced with a decision whether to move to Nunavut. Students at all levels will have an accurate record of Nunavut's history through the CD-ROM.

As Nunavut's creation approaches it is anticipated that there will be need for a continued review and recording of the historic events that define the new territory. Project K ensures that sources of information accurately and thoroughly detailing the processes prior to, during and post the creation of Nunavut is recorded and readily understood by the widest range of Canadians

Because of the dynamic nature of the events leading to the creation of Nunavut, Project K will require ongoing attention and a regular review and upgrade of the collected materials. By the date of the establishment of Nunavut, appropriate detailed information will have been accumulated for public use to understand the rationale of both Canada and the Inuit for the establishment of the new Canadian Territory of Nunavut.

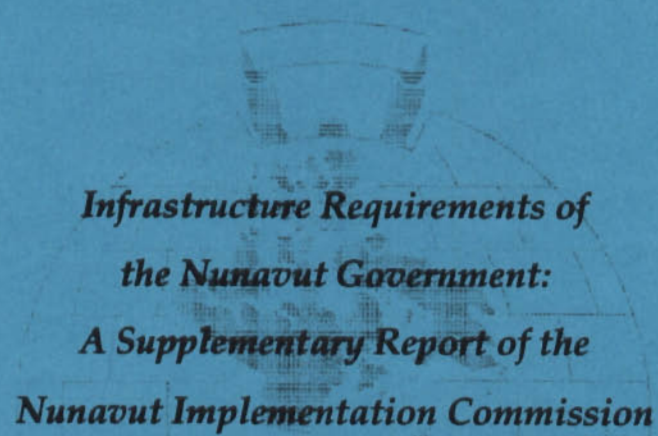
10. CONCLUSIONS

The Nunavut Implementation Commission in its major report Footprints in New Snow outlined and described a multitude of recommendations concerning the establishment and operation of the first government of Nunavut.

Footprints In New Snow does not directly speak to the most obvious objective of the preparatory processes prior, during and post the establishment of Nunavut.

Nunavut is created to achieve both Canadian and Inuit goals..

Investment in NIC's recommended training projects will return benefits lasting far past the creation of Nunavut assisting both Canada and Inuit in the achievement of these goals.



*Infrastructure Requirements of
the Nunavut Government:
A Supplementary Report of the
Nunavut Implementation Commission*

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Nunavut Hivumukpalianikhaagut Katimayit
Nunavut Implementation Commission
Commission d'établissement du Nunavut
September 8, 1995

The Hon. Ron Irwin,
Minister,
Department of Indian Affairs and
Northern Development,
Ottawa, Ontario

The Hon. Nellie Cournoyea,
Government Leader,
Government of the Northwest Territories,
Yellowknife, NWT

Mr. Jose Kusugak,
President,
Nunavut Tunngavik Inc.,
Iqaluit, NWT


Dear Mr. Irwin, Ms. Cournoyea, and Mr. Kusugak,

On behalf of the Nunavut Implementation Commission (NIC), I am writing further to my letter of August 17, 1995, concerning work of the Commission supplementary to its earlier report, **"Footprints in New Snow"**.

At this time, I am pleased to supply you with a supplementary report of the Commission entitled **"Infrastructure Requirements of the Nunavut Government"**. This report examines, in some detail, the infrastructure requirements associated with the establishment of the Nunavut Government along the organizational lines set out in **"Footprints in New Snow"**. It also sets out capital and operations and maintenance costs relating to required infrastructure.

The Commission would be pleased to discuss this report with you, or any other work of the Commission, at a convenient time.

Yours sincerely,


John Amagoalik,
Chairperson

INFRASTRUCTURE REQUIREMENTS OF THE NUNAVUT GOVERNMENT:

**A SUPPLEMENTARY REPORT OF THE NUNAVUT IMPLEMENTATION
COMMISSION**

September 8, 1995

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1. Introduction

Under the Nunavut Political Accord the Government of Canada is committed to funding reasonable incremental costs of establishing the Government of Nunavut . The Nunavut Implementation Commission (NIC), established under the Nunavut Act to make various recommendations concerning the Government of Nunavut, submitted a proposed organizational model in the March 31, 1995 report entitled "Footprints in New Snow."

As part of its mandate, the Commission is required to identify and recommend the infrastructure requirements for the Capital Of Nunavut and the proposed organizational structure of its government. For its March 31, 1995 report, the Commission did not have the time nor the in-house technical expertise to undertake this task in detail. The Commission retained Price Waterhouse Management Consultants to assist in estimating the costs of creating and running the Nunavut Government. As part of the planning process for Nunavut, a Joint Technical Infrastructure Working Group co-chaired by Public Works and Government Services Canada and the Department of Public Works and Government Services of the GNWT was established early in 1994. Price Waterhouse Management Consultants contacted Public Works and Government Services in Ottawa, and arranged for that department to identify the infrastructure and the associated costs.

As a result of the very tight timetable given to Price Waterhouse Management Consultants, it was not possible to complete all of the requirements for identifying, scheduling and costing the infrastructure, nor was it possible for Public Works and Government Services Canada to work jointly with the Government of the GNWT's representatives on the Joint Technical Infrastructure Working Group to prepare this analysis.

On April 25, 1995, a meeting was held in Yellowknife with officials of Public Works and Government Services Canada and the GNWT and the Technical Infrastructure Working Group was formally requested by the NIC to identify and recommend the public infrastructure and the incremental costs for the capital of Nunavut and the proposed organizational structure for the Nunavut Government. This analysis was to be completed for the three capital scenarios of Rankin Inlet, Iqaluit and Cambridge Bay, as recommended in "Footprints in New Snow". The Commission provided the terms of reference for this task (see Appendix A).

On May 4, 1995 the NIC received a letter from the Nunavut Secretariat ,Department of Indian Affairs and Northern Development (DIAND), on behalf of the federal government, GNWT, and Nunavut Tunngavik Incorporated(NTI), identifying areas in its March 31,1995 report where further advice and clarification was requested from the Commission. One of these areas involved infrastructure development. The letter indicated that the GNWT and Public Works and Government Services Canada were

prepared, jointly and individually, to lend their assistance to the NIC on the technical aspects of this work. The Public Works and Government Services officials participated in the initial joint meeting on April 25, 1995 and in some follow-up discussions. It was left, however, to the Government of the NWT to undertake all of the research required to identify the incremental infrastructure and the associated costs. This report, therefore, represents the analysis and work of the GNWT on behalf of the NIC.

The objective of this report is to identify the incremental infrastructure and the costs for construction, operations and maintenance of public infrastructure required as a result of the establishment of the Government of Nunavut under the March 31, 1995 model proposed by the NIC. Ultimately the program costs associated with this incremental infrastructure will have to be incorporated as well.

2. Incremental Growth: Concept and Definition

The establishment of the Nunavut Territory in 1999 will result in impacts on the infrastructure of a number of communities in Nunavut where territorial government functions are placed, and not just on the infrastructure of the community selected as the capital. Accordingly, the NIC maintains that there are direct incremental costs, consistent with the following definition:

Direct Incremental Costs

Capital and Operations and maintenance (O&M) costs which are primarily or exclusively attributable to decisions to construct or provide infrastructure to support directly the operation of functions of the new Nunavut Government (e.g. office buildings, courthouses, staff housing, land development for government facilities, additional school space, etc.).

Each capital program undertaken by the GNWT includes the principle of "future investment" (water supply systems are built with a minimum 10-year horizon, land is supplied on the basis of a 3-year inventory, classrooms are built with a 70% capacity at occupancy, etc.). All future investments are made on the basis of known population statistics and in keeping with approved program standards and criteria.

If division-related growth - - - growth related to establishing the Government of Nunavut - - - consumes some or all of the future investment in any community, the Government of Nunavut either have to invest more capital, to invest capital earlier than originally planned, or to do a combination of both. Investments that need to be made now would result in different outcomes if division related growth factors were known and applied to capital planning. Accordingly, the NIC maintains that division and establishment of the Government of Nunavut will also entail indirect incremental costs, as defined below:

Indirect Incremental Costs

The capital and O&M costs associated with incremental growth, beyond currently projected levels, or above currently projected rates, which has the effect of reducing the available capacity of existing public infrastructure (territorial or community) and dictating early replacement or produces immediate requirements for expansion of existing infrastructure.

3. Assumptions of March 31, 1995 Government of Nunavut Model

In general, NIC's March 31, 1995, model for the Government of Nunavut describes a decentralized form of territorial government with new (incremental) Government of Nunavut jobs allocated to 11 communities throughout the Nunavut Territory. The same incremental Government of Nunavut job increase of 600 full-time equivalent positions (FTE) is assumed for each of three scenarios:

- Scenario 1: Iqaluit as capital
- Scenario 2: Rankin Inlet as capital
- Scenario 3: Cambridge Bay as capital

New Positions

The incremental Nunavut FTEs in each community for each scenario provided by NIC are listed in Table 1 of Appendix B.

Demographics

The following NIC demographic assumptions have been used in this report to determine the population growth in each community:

- Household size = 4.20 for households currently within Nunavut;
- Household size = 2.70 for households from outside Nunavut;
- Job multiplier = 1.40
Multiplier applied to any new Government of Nunavut positions to determine the additional new jobs created in the community. (Note: This multiplier value is assumed to include new jobs in the private sector, and in the federal government sector);
- Spouse Factor = 1.1 (for every 100 new Government of Nunavut employees, 10 are assumed to be married to other territorial government employees; this factor of 1.1 also applies to multiplier jobs);
- For all new jobs, the employees are assumed to be hired as follows:

- 25% from within the community
- 25% from other communities within Nunavut
- 50% from outside Nunavut, including existing GNWT employees from Yellowknife; i.e., 75% of the employees (and their households) will be hired outside the community (Note: These factors are assumed to apply to all new Government of Nunavut positions as well as multiplier jobs);
- Community populations are based on the 1991 census values; and,
- Population growth rate = 2.40% (since the 1991 census)

Using these assumptions the population increase in a community due to each new Government of Nunavut FTE is as follows:

$$\begin{aligned}
 &\text{Household size (average)} \\
 &= 4.2 \text{ (within Nunavut)} \times (25\% + 25\%) + 2.7 \text{ (outside Nunavut)} \times 50\% \\
 &= 3.45
 \end{aligned}$$

$$\begin{aligned}
 &\text{Population increase per new Government of Nunavut FTE.} \\
 &= \frac{3.45 \text{ (household size)} \times 1.4 \text{ (multiplier)} \times 0.75 \text{ (net local hire)}}{1.1 \text{ (spouse factor)}} \\
 &= 3.2932
 \end{aligned}$$

Housing Mix

Staff housing be provided to all Government of Nunavut households according to the following housing mix assumptions:

- 5% single family housing;
- 50% multifamily - row housing; and,
- 45% multifamily - apartment (low rise).

The type of staff housing is preliminary. As the staff housing policy is refined the type of multifamily housing could be modified to facilitate a gradual transition from leased housing to home ownership to meet the accommodation needs of some staff.

Program Levels of Service

According to the Nunavut Political Accord, the scope and quality of programs and services of the Nunavut Government are to recognize the scope and quality of programs and services of the GNWT. For the purpose of identifying the infrastructure, the current capital standards and criteria of the GNWT are used for identifying and costing infrastructure needs.

Division Planning Cycle

The GNWT maintains a 5-year capital plan for all infrastructure programs. In addition, the GNWT makes long-term, 20-year projections of its infrastructure needs using the Capital Needs Assessment; therefore a 20-year cycle - - - from 1996/97 to 2015/16 - - - was assumed.

It is critical to understand that changes in the proposed model of the Government of Nunavut, if any are made, would affect the total number of Government of Nunavut jobs, and in turn, the distribution of Government of Nunavut jobs. The multiplier effects might change as well, in all or some of the 11 communities facing incremental population changes under the NIC model if the model is changed in any substantive aspect.

4. Incremental Population Growth

The incremental population growth projections, for all 11 communities affected by the recommended NIC model, have been calculated and are presented in Appendix B.

5. Infrastructure Programs

General Descriptions

Currently, the GNWT delivers a comprehensive range of infrastructure in support of programs throughout Nunavut. General descriptions of the following infrastructure are provided in Appendix C:

- Schools;
- Cultural Facilities;
- Health/Social Service Facilities;
- Justice (Courts, Corrections);
- Municipal Buildings;
- Recreational Play Space;
- Water Systems;
- Sewage Systems;
- Solid Waste Disposal;
- Vehicles;
- Land Development;
- Air Transportation;
- Marine Transportation; and,
- Bulk Fuel Storage.

How Capital Projects are Delivered

A GNWT capital construction project is typically carried out in stages, starting with the initiation of a project and ending with the warranty period following occupancy. The entire cycle will usually span a period of five years because of three major factors: the approvals required in the capital planning process; the schedules for sealift that prevent the start of the construction season until mid or late summer; and, the short construction season itself.

The following are the typical stages:

Initiation

The sponsoring department initiates the project by including it in the GNWT Capital Plan. Projects are based on GNWT standards and criteria. There may be additional analysis at this stage to determine the type of project; for example, whether to renovate an existing building or to replace it. The site for the project is selected at this stage, in consultation with the community government.

Planning

At this stage, the project is defined in enough detail to allow the design to proceed. The client, working with the project team, sets out what is required and the standards that apply. The site and land are secured with community government approval.

Design

Architectural or engineering consultants are hired to provide design and other professional services during construction. The consultants are selected through requests for proposals, which are sent to northern consultants.

The design is reviewed with the client and the project team on a regularly basis, and client approval of the completed design is required before construction can proceed. The consultant is expected to follow GNWT design standards and guidelines.

Tendering

When the design has been completed, the contract for construction is then publicly tendered. There are special approaches to construction that may be used in order to maximize local and northern business and employment opportunities. These special approaches are detailed in Appendix D.

Consultation with communities at an early stage is important in selecting a special approach to construction. The GNWT Business Incentive Policy applies to all construction contracts.

Construction

The approach taken determines how the project is managed. There may be a single contract with a general contractor or several small contracts directed by a construction manager. The contractor is usually paid in several payments (progress payments) as the construction proceeds. Site inspections are scheduled during the period of construction and the client may take part in these inspections.

Warranty

The warranty period starts at the completion of the project and usually lasts one year. During the warranty period, design and construction defects are corrected and the work and process used to carry out the project are evaluated.

Leasing

For the purposes of the infrastructure assessment, it has been assumed that all housing and general office space would be leased, as would the Legislative Assembly facilities.

Whether leased from the private sector or constructed as government-owned assets, the standards for design and construction are essentially the same. For staff housing, the standards developed by the NWT Housing Corporation have been used, as well as the mix of detached, multi-family and apartment housing called for in the model assumptions. For leased assets, the schedule and various steps in the planning, design and construction of facilities are the same as if they were owned by the Government of Nunavut, except that certain aspects of implementation varies.

The GNWT normally issues requests for proposals to acquire leased facilities. Requests for proposals include general specifications on the space required, location, standards of construction and maintenance expected, lease terms, northern involvement and a sample lease agreement.

Each proposal is evaluated against a number of weighted criteria, including design, northern and local content, cost and location. When a lease has been awarded, the proponent may hire consultants and contractors to design and construct the buildings. The Government may reserve the right to approve the design and to participate in the inspection process during construction. Over the term of the lease, the owner is responsible for operations and maintenance, including the payment of taxes and insurance. Where practical, utilities (heating fuel, electricity and water) are paid by the tenant, rather than the owner.

Infrastructure and Population Changes

In assessing the incremental costs of population growth projected under the NIC model for the Government of Nunavut, three types of project changes have been considered from the standpoint of costing:

Changes in project scope

These changes concern projects which are already included in the GNWT Capital Plan or the Capital Needs Assessment, but which need to be changed to suit the incremental requirements resulting from establishment of the Government of Nunavut. In most cases this means a facility would be increased in size and the incremental costs identified would comprise the difference between the revised cost and the original project cost.

Change in project timing

These changes concern projects which are already included in the GNWT Capital Plan or the Capital Needs Assessment, but which must be done earlier than originally planned due to the establishment of the Government of Nunavut. In the case of these projects, the incremental costs would be the cost of financing the projects from their new dates of construction to the original planned dates, as expressed in terms of net present value.

New project

These changes concern projects which are required only because of establishment of the Government of Nunavut and were not anticipated in the GNWT capital plan or the Capital Needs Assessment. The total costs of these projects are incremental costs. There are some projects which involve a combination of changes in project scope and changes in project timing. Incremental costs for these projects are calculated accordingly.

Certain types of infrastructure are specially sensitive to population increments. In communities of the size found in Nunavut, an increase of only 200 to 300 people might create a need for entirely new facilities, rather than expansion of existing facilities. Examples of this kind of facilities are schools, water supply systems (reservoirs), solid waste disposal sites, staff housing, and office buildings.

Other types of facilities may be expanded in stages to accommodate increments of several hundred people in the community, including health and social service facilities, cultural facilities, recreational play space, and air and marine transportation facilities.

Some other types of facilities are not considered sensitive to community population increments of several hundred people, including court houses, municipal office buildings and the Legislative Assembly building.

Incremental Major Infrastructure Projects

Appendix E illustrates infrastructure projects that will be needed in relation to the incremental population growth resulting from establishment of the Government of Nunavut consistent with the March 31, 1995 proposed model.

Appendix F shows all new projects (i.e., projects which would not have occurred in the 1996/97 - 2015/16 planning horizon without division of the NWT) for schools, cultural, justice, health and social services, and air and marine transportation facilities. New projects costing more than \$100,000 for municipal buildings, water/sewage and solid waste programs are taken into account. Appendix G shows all capital projects greater than \$2 million currently proposed for Nunavut regardless of division.

6. Financial Analysis: Total and Incremental Costs

How Capital Estimates Have Been Developed

The cost estimates for the incremental infrastructure needed to address the incremental growth have been developed on the basis of current GNWT Capital Standards and Criteria, using current and recent costs for comparable projects and community construction cost indices.

Costing Methods

As noted previously, infrastructure that is required for Nunavut will be required at different times over the 20-year period from 1996/97 to 2015/16. For the Government of Nunavut infrastructure required for each scenario, the total costs have been calculated in actual (1996) dollars, and have been discounted by means of a present value formula. Present value is an accepted method to properly bring the benefits of expenditures in future years - - - for example, on infrastructure projects - - - into today's values. An 8% discount rate (net of inflation) has been used in the present value calculation.

20 - Year Profile of Total and Incremental Infrastructure Costs

The following pages present graphs profiling the year-by-year flows of total funding for infrastructure and associated O&M from 1996/97 to 2015/16 for all Nunavut communities under each of the three capital scenarios. The top graph in each scenario shows overall capital and O&M funding identified for all 25 Nunavut communities regardless of territorial division.

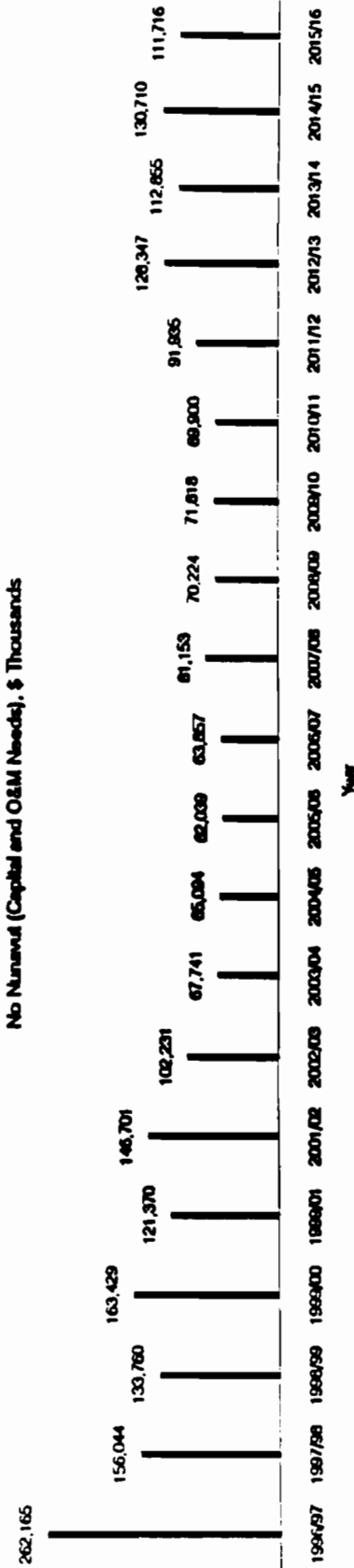
The middle graph in each scenario shows the incremental funding for the 11 communities involved in the NIC model for Government of Nunavut establishment.

Under all three scenarios, the greatest annual infusions of incremental funding would be required in 1997/98 and 1998/99.

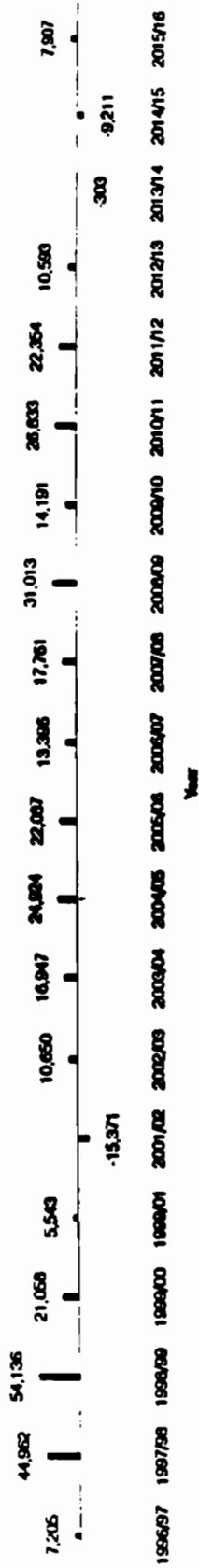
The middle graphs also show "negative" incremental funding in certain years under each scenario. In Scenario 1 (Iqaluit as capital), there is negative incremental funding in 2001/02, 2013/14, and 2014/15. In Scenario 2 (Rankin Inlet as capital) and Scenario 3 (Cambridge Bay as capital), there is negative incremental funding in 2001/02. These do not represent "losses" to the Government of Nunavut, but show that funding for infrastructure required to meet incremental growth needs has been moved ahead to earlier years in order for the work to be carried out when required.

Nunavut Incremental Cost - All 25 Communities
 Scenario 1: Iqaluit as Capital

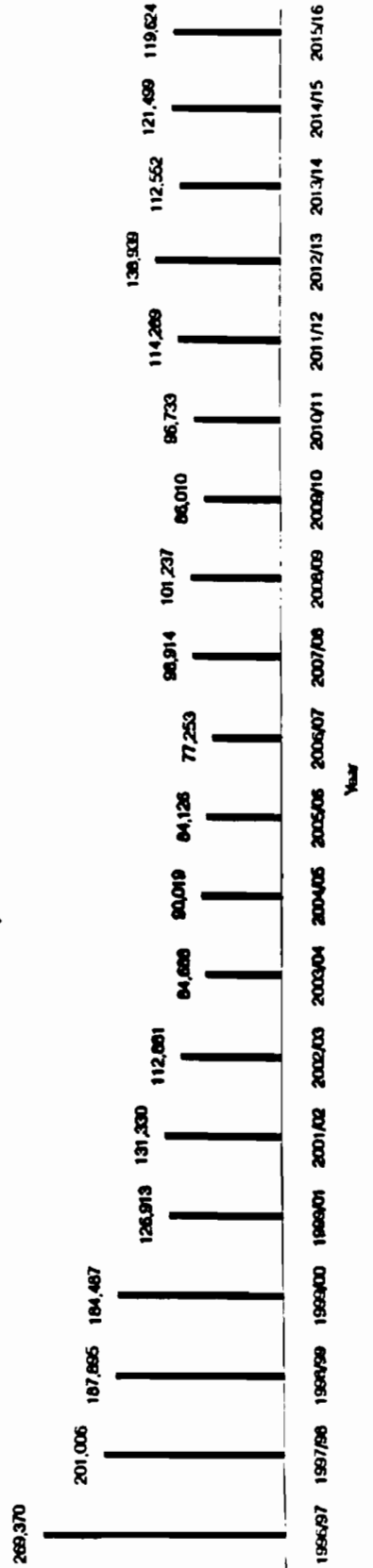
July 31, 1995



Incremental Capital and O&M Needs, \$ Thousands

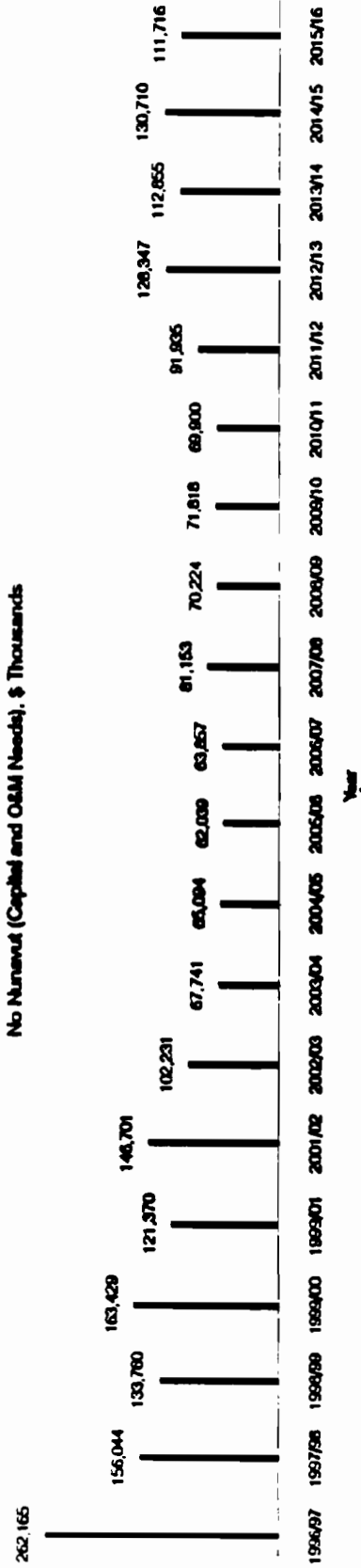


Total Capital and O&M Needs, \$ Thousands



Nunavut Incremental Cost - All 25 Communities
 Scenario 2: Rankin Inlet as Capital

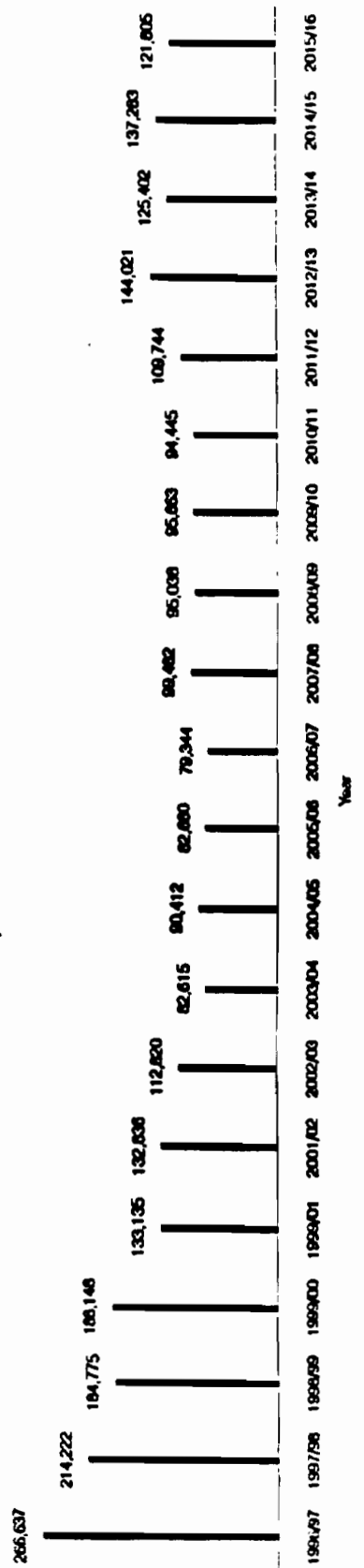
July 31, 1985



Incremental Capital and O&M Needs, \$ Thousands

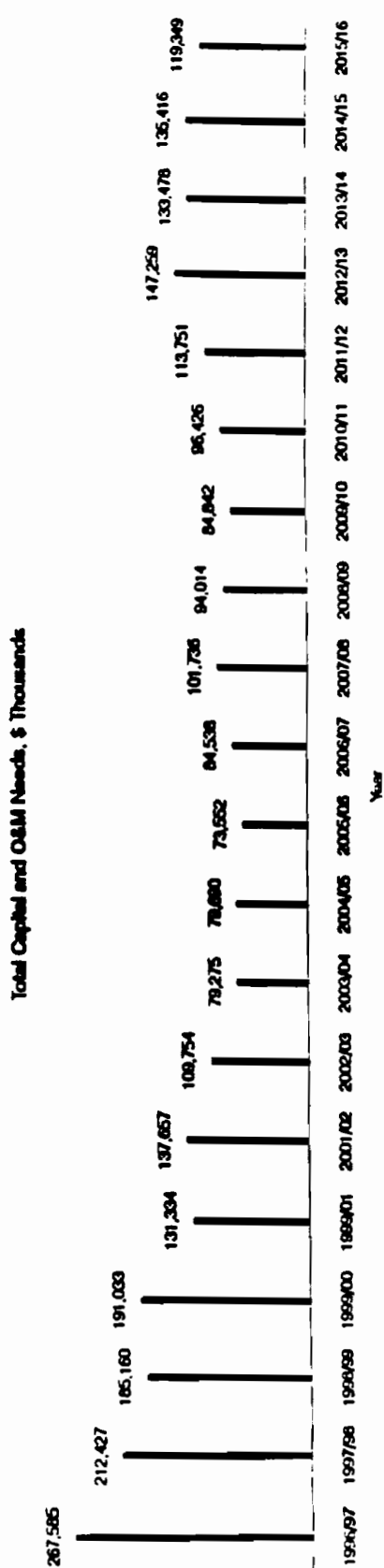
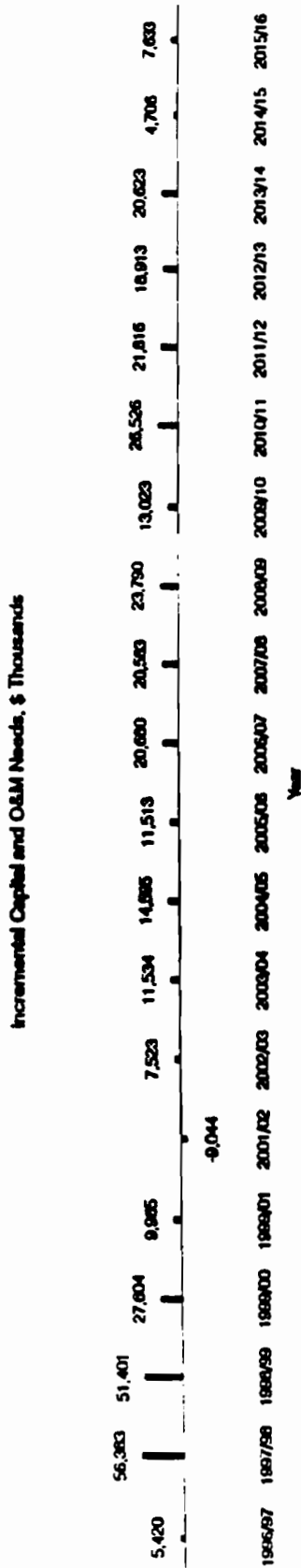
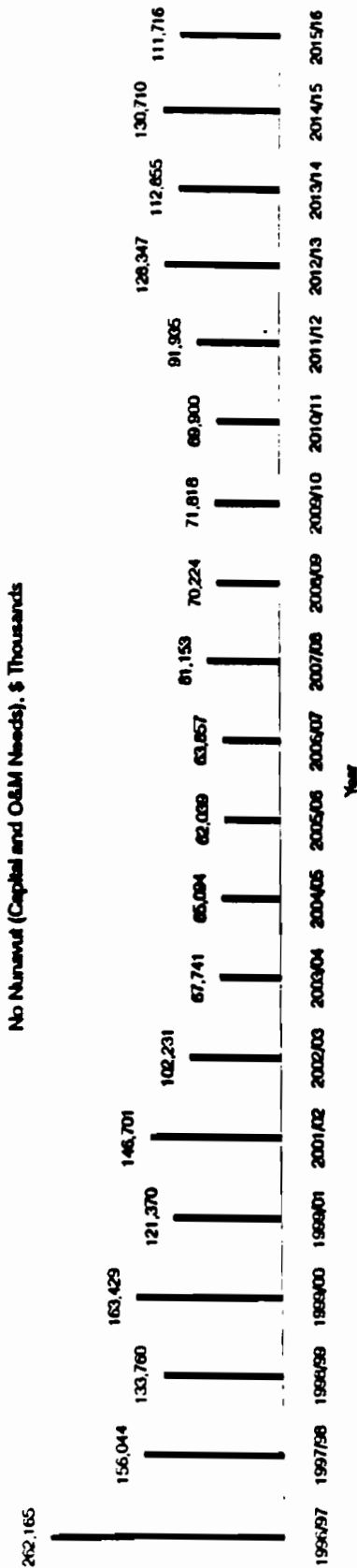


Total Capital and O&M Needs, \$ Thousands



Nunavut Incremental Cost - All 25 Communities
 Scenario 3: Cambridge Bay as Capital

July 31, 1986



Total and Incremental Costs

The incremental costs, from 1996/97 to 2015/16, of the incremental growth projected from the NIC proposed model of the Government of Nunavut are as follows:

	Total	Present Value (1996)
Scenario 1 (Iqaluit)	\$326,700,000	\$188,400,000
Scenario 2 (Rankin Inlet)	\$377,400,000	\$207,000,000
Scenario 3 (Cambridge Bay)	\$365,200,000	\$199,500,000

The incremental costs for each of the infrastructure components are presented in Appendix H.

O&M Costs - Government of Nunavut Assets

O&M costs includes the costs of repairs, scheduled maintenance and utilities (heat, electricity, water delivery and sewage disposal) for Government of Nunavut-owned assets. O&M costs do not include items such as insurance, payments of grants in-lieu of property taxes, etc.

For the purposes of this report, O&M costs have been treated in the same manner as capital cost estimates. O&M costs have been determined only for the incremental component of each project and presented in 1996 dollars.

Maintenance and Repairs

The estimates are based on historical repair costs and include a component for scheduled maintenance as determined within the GNWT Maintenance Management System. The labour rates used in the analysis are called "fully burdened" rates and represent the equivalent cost of contracted labour. For vehicles, the maintenance costs also include the cost of fuels.

The maintenance estimates do not include the costs of custodial services for assets owed by the Government of Nunavut, such as schools. Custodial services are generally provided through program delivery. Program delivery costs are not included in this report.

Utilities

Estimates of utility costs are based on historic consumption levels and costs for similar existing facilities. Current utilities rates have been used; therefore, there is no allowance in the costs for utility rate increases.

Utility costs for staff housing and office space have been included in the lease costs for these facilities, except where the tenants in staff housing pay for utilities directly under the "user pay" program.

O&M Costs for Municipal Buildings

Estimated O&M costs for municipal buildings have been based on standard factors incorporated in the GNWT Municipal Operating Assistance Policy.

O&M Costs for Solid Waste Disposal

Estimated O&M costs have been based on standard factors in the GNWT Municipal Operating Assistance Policy.

O&M Costs for Land Development

Estimated O&M costs for the roads, drainage and street lighting constructed as part of land development projects have been based on standard factors in the GNWT Municipal Operating Assistance Policy.

O&M Costs not included in this Report

This report has focussed on the incremental O&M costs associated directly with the physical upkeep of infrastructure. Operating costs associated with the delivery of programs supported by the infrastructure have not been included in this report. For example, O&M costs for regular repairs, scheduled maintenance, and utilities to schools have been included, but O&M costs such as teachers' salaries, school supplies, and student transportation services, have not. Some typical program O&M cost items not included, are:

- staff salaries and benefits;
- consumable program needs, such as school text books, video, and audio systems;
- contracted services for programs (for example, consultants);
- general office supplies; and
- workstations (including computers).

The GNWT has committed itself to research and identify the program O&M costs related to the incremental infrastructure resulting from establishment of the Government of Nunavut.

Infrastructure Utility Costs

The infrastructure assessment includes three basic types of utility services infrastructure: water/sewage services, petroleum products, and electrical power.

The growth in population forecast for each community impacts directly on the capacity of these utility services and the capital investment in new infrastructure. For each utility, the rate structure, subsidy programs and source of funds are factors in determining the "incremental" costs resulting from the establishment of the Government of Nunavut.

In general, it has been assumed that any infrastructure costs that could be included in the rate base, without increasing the rates, are not incremental costs. Only those costs that would result in a rate increase have been considered incremental. For the purposes of calculating the utility cost for all new infrastructure, the current rates have been used.

Water/Sewage Services

Infrastructure may include water reservoirs, treatment plants, truck fill stations, lagoons, tank truck and buried water/sewer pipe distribution/collection systems. The fixed infrastructure is funded by the GNWT and the costs are not recovered in the rates charged to the users. The capital and O&M costs for the water and sewer tank trucks used in those communities without piped services - - -the majority---, are funded in the rate base. It is assumed that the growth in demand for these services will cover the cost of any additional trucks needed and therefore these costs are not considered incremental. The full capital costs of all other infrastructure, however, is considered incremental, and is not included in the rate base.

Under the GNWT Water and Sewage Services Subsidy Program, private and commercial users are subsidized by the GNWT. The increase in volumes would result in a corresponding increase in the cost of this subsidy program. These costs have not been calculated and are not included in this report.

Petroleum Products

The GNWT is responsible for the supply and distribution of heating and diesel fuels, automotive gasoline and aviation fuels in most Nunavut communities. The GNWT owns the bulk fuel facilities in all except one community, and contracts for local delivery. The GNWT or the contractor may own the fuel delivery trucks, depending on the community. The selling price for the fuel does not recover GNWT investment and inventory financing. The price does include the operation and maintenance of the facilities, purchase of privately owned trucks and the maintenance of both GNWT and privately owned trucks.

For the purposes of incremental costs, it has been assumed that all growth in O&M costs would be recovered in prices charged and that all capital costs, including new trucks, would be incremental. The one exception to this approach would be at Cambridge Bay, where the fuel facilities are privately owned and the price of fuel includes a "capital recovery" component. The inventory financing costs allow the bulk purchasing of fuel during the annual resupply, which is drawn down over 12 months. The inventory financing costs include the costs of accounts receivable and are estimated at an average of \$1.4 million (present value) for each scenario. These costs are not included in the assessment of incremental infrastructure costs.

Electrical Power

All costs of electrical power generation and distribution, and the approved rate of return, are recovered in the rate base. The NWT Power Corporation (NWTPC) has projected possible impacts on the rates at each community, but the study is preliminary. The NWTPC currently has an application for a new rate structure before the NWT Public Utilities Board and, until a decision is made on this application, cannot forecast with certainty the implication of Nunavut on customer rates. In the long term, an increase in loads resulting from Nunavut could improve plant efficiency and tend to lower the cost of service.

There is a subsidy program in place that subsidizes the cost of power for all private homeowners and renters and certain businesses in Nunavut. This program is funded by the GNWT as owner of the NTPC. The growth in Nunavut would increase the cost of the subsidy program. These costs have not been calculated and would be dependent on the changes in electrical rates.

7. Comparison of GNWT Incremental Cost Analysis with Government of Canada Analysis

As part of the Price Waterhouse Management Consultants costing study, the Public Works and Government Services (PWGSC) undertook an analysis of the incremental growth and costs resulting from the NIC model for the Nunavut Government, and provided its estimates to NIC on March 10, 1995. The GNWT approach to estimating incremental growth and costs has differed from that of STET in several important aspects, including the following:

- the GNWT study has used a 20 year planning horizon; the PWGSC study used a five year horizon;
- the GNWT study is based on 1996 dollars; the PWGSC study is based on 1994 dollars;

- the GNWT study has presented incremental costs in present value;
- the GNWT study has based its cost estimates on project-specific costs of infrastructure in Nunavut communities; the PWGSC study relied on a unit cost approach, using broad planning assumptions;
- the GNWT study considered a lease approach for estimating the costs for the Nunavut Legislative Assembly building and for Government of Nunavut staff housing and offices; the PWGSC study considered capital costs;
- the GNWT study included infrastructure-related O&M cost estimates; the PWGSC study did not; and
- the PWGSC study did not include cost estimates for some infrastructure programs addressed in the GNWT study, including cultural facilities, social services facilities, courts and correctional facilities, and air and marine transportation facilities.

Some of the differences between this study and the study completed prior to March 31, 1995, by PWGSC are related to the severely compressed time frame for the first study. There was not sufficient time available for this work to be accomplished jointly by the GNWT and PWGSC under the Joint Infrastructure Technical Working Group. Also, there was not time to get into the same level of detail as the recent GNWT review.

8. Conclusions

This study has identified the incremental infrastructure necessary for the three capital scenarios and the proposed organizational structure for the Nunavut Government. Also, this report presents estimates of the incremental costs, from 1996/97 to 2015/16, of the infrastructure needed in Nunavut to establish the Government of Nunavut in accordance with the organizational model proposed by the NIC in its report of on March 31, 1995, "Footprints in New Snow". The report has identified the incremental costs in both total dollars (1996 dollars shown in the year of construction), and in dollars discounted by present value calculations to 1996, for each of the three capital scenarios advanced by the NIC.

It is important to note that the GNWT considers these estimates to be Class D estimates, net of inflation, developed using current design and construction costs, and factoring in GNWT northern community construction cost indices. Class D is a preliminary estimate, due to limited or no project site information, indicating the approximate magnitude of the cost of a proposed project based on the client's broad requirements (Class D estimates were, also, provided in the initial study by PWGSC).

The incremental costs of O&M directly required for the maintenance of the infrastructure

have been included in these cost calculations; however, program O&M costs associated with the delivery of programs supported by the infrastructure have not been included. These latter costs, in the view of the NIC, represent an additional burden which must be considered within the context of the Nunavut Political Accord. The GNWT is committed to further work to identify the appropriate program O&M costs associated with incremental Nunavut infrastructure.

9. Recommendations

To meet the incremental infrastructure required for establishment of the capital of Nunavut and recommended organizational structure for the Nunavut Government, the NIC recommends the following:

The incremental infrastructure identified in this study and summarized in the attached appendices be provided as proposed over the 20 year planning horizon from 1996/97 to 2015/16; and

The capital and operations and maintenance funding identified in the study for the incremental infrastructure be provided by the Government of Canada consistent with the government's commitments and obligations under the Nunavut Agreement and the Nunavut Political Accord.

10. The Next Steps

The NIC considers the estimates in this report to provide a sound guide to the overall forecasting and costing of infrastructure requirements in the period leading up to division, and - - - for the Government of Nunavut - - - in the period after division up to 2015/16. Several outstanding issues need to be resolved by the stakeholders before detailed infrastructure project planning may be undertaken, including the following:

- approval of the capital site for Nunavut by the Federal Government;
- concurrence on the size of the Government of Nunavut public service and the distribution of Government of Nunavut jobs among Nunavut communities;
- concurrence with population assumptions (including average family size, number of Government employees per family, secondary employment growth rates, the degree of local and Nunavut-hired Government staff);

- concurrence with the appropriateness of a 20 year planning cycle, from 1996/97 to 2015/16;
- concurrence with the reasonableness of incremental cost definitions; and,
- concurrence with the recommended implementation schedule for establishment of the Government of Nunavut after 1999.

APPENDIX A

**REQUEST FROM NUNAVUT
IMPLEMENTATION COMMISSION**

(April 24, 1995)

July 31, 1995

August 21, 1995

Technical Requirements of the Nunavut Implementation

Commission regarding Nunavut Infrastructure

BACKGROUND

As part of the mandate of the Nunavut Implementation Commission, the Commission is required to identify and recommend the infrastructure needs for the Capital and organizational structure of the Nunavut Government, and to recommend the construction schedule. Before this task could be undertaken the Commission needed to undertake two other important tasks;

1. - Recommend the organizational design of the Government.
2. - Recommend the Capital options for the Government.

At the Feb. 24 th meeting of the Commission in Iqaluit, approval was given to the design model for the Government. Based on this model the Commission was able to identify the specific new Nunavut Government positions that would be established and located in both the Capital and the Regional and Auxiliary Regional Centers proposed in the organizational structure.

It was, also, agreed that the infrastructure needs of the Nunavut Government would be identified for the organizational model applied to three remaining potential Capital locations; Iqaluit, Rankin Inlet, and Cambridge Bay.

SPECIFIC INFRASTRUCTURE REQUIREMENTS.

The following is a summary of the specific infrastructure information requirements of the Commission.

1. - To identify the new infrastructure required for the establishment of the Nunavut Government.
2. - To identify the Capital cost of the new infrastructure and the annual funding to operate and maintain the infrastructure.

3. - To identify the existing infrastructure that needs to be replaced or expanded earlier than necessary to meet the impact of the establishment of the Nunavut Government.
4. - To identify the incremental cost associated with the early expansion or replacement of existing infrastructure and the annual operation and maintenance costs associated with expansion.
5. - To identify the annual cost to lease, operate and maintain the new staff housing and office space required to establish the Nunavut Government.

The scope and quality of programs and services of the Nunavut Government are to be the same as the scope and quality of programs and services of the Government of the NWT. Therefore, for the purpose of identifying the infrastructure needs, the current capital standards and criteria of the GNWT are to be used for identifying and costing the infrastructure needs.

TIME TABLE

To facilitate a submission to the Federal Cabinet in the Fall of 1995 the Commission made the commitment to produce a comprehensive report by the end of March 1995. One of the chapters in this report was to address the infrastructure needs of the new Nunavut Government and the associated Capital and operation and maintenance costs.

RESPONSIBILITIES

The Commission neither had the time nor the necessary technical expertise to properly identify and cost the infrastructure. As part of the planning process for Nunavut, a Joint Technical Infrastructure Working Group co-chaired by Public Works and Government Services Canada and the Department of Public Works and Government Services in the GNWT was established.

The Commission believed that this Working Group would be the appropriate organization to identify and recommend the infrastructure and the associated costs. Price Waterhouse, the company retained by the Commission to undertake a financial study of the Nunavut Government contacted representatives on the Working Group to obtain this analysis and input.

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As a result of the extremely tight timetable provided by the Commission for this exercise it was not possible to complete all of the requirements and both the chapter in the report and the appendices reflect the current state of this work and the requirements to complete the exercise. The Commission believes that the work will be completed over the next two months .

It is the desire and expectation for this work to be completed and refined jointly by the Federal and Territorial members of the Infrastructure Working Group.

APPENDIX B

TABLE 1 - NEW POSITIONS WITH GOVERNMENT OF NUNAVUT

TABLE 2 - INCREMENTAL POPULATION GROWTH PROJECTIONS

July 31, 1995

TABLE 1: NEW POSITIONS WITH GOVERNMENT OF NUNAVUT

REGION/ Community	Capital Location Scenario		
	Iqaluit	Rankin Inlet	Cambridge Bay
BAFFIN			
Iqaluit	99	2.5	2.5
Pangnirtung	80	41	41
Pond Inlet	77	53	37
Cape Dorset	67	0	8
Igloolik	93.5	61.5	66.5
Sub-total Baffin	416.5	158	155
KEEWATIN			
Rankin Inlet	33.5	216	-3
Arviat	55	76	27
Baker Lake	28	99	17
Sub-total Keewatin	116.5	391	41
KITIKMEOT			
Cambridge Bay	29	15	255
Coppermine	33	36	97
Gjoa Haven	5	0	52
Sub-total Kitikmeot	67	51	404
TOTAL	600	600	600

TABLE 2: POPULATION PROJECTIONS FOR ESTABLISHMENT OF GN

SCENARIO 1 - IQALUIT as Capital

REGION/ Community	New Positions	Population							
		Base 1991	Without 1999	Additional 1999	With 1999	Without 2009	With 2009	Without 2019	With 2019
BAFFIN									
Iqaluit	99	3552	4,311	328	4,637	5,491	5,907	6,995	7,524
Pangnirtung	80	1135	1,387	263	1,651	1,783	2,121	2,291	2,728
Pond Inlet	77	974	1,180	254	1,434	1,501	1,823	1,908	2,318
Cape Dorset	67	961	1,142	221	1,363	1,417	1,691	1,758	2,097
Igloolik	93.5	936	1,142	308	1,450	1,465	1,860	1,879	2,385
KEEWATIN									
Rankin Inlet	33.5	1706	2,113	110	2,223	2,761	2,905	3,607	3,795
Arviat	55	1323	1,618	181	1,799	2,082	2,315	2,678	2,977
Baker Lake	28	1186	1,418	92	1,510	1,773	1,889	2,217	2,362
KITIKMEOT									
Cambridge Bay	29	1116	1,360	96	1,455	1,741	1,863	2,228	2,385
Coppermine	33	1059	1,286	109	1,395	1,640	1,779	2,091	2,268
Gjoa Haven	5	783	976	16	992	1,285	1,307	1,692	1,720
Total	600			1,976					

SCENARIO 2 - RANKIN INLET as Capital

REGION/ Community	New Positions	Population							
		Base 1991	Without 1999	Additional 1999	With 1999	Without 2009	With 2009	Without 2019	With 2019
BAFFIN									
Iqaluit	2.5	3552	4,311	8	4,319	5,491	5,502	6,995	7,009
Pangnirtung	41	1135	1,387	135	1,522	1,783	1,956	2,291	2,514
Pond Inlet	53	974	1,180	175	1,355	1,501	1,722	1,908	2,190
Cape Dorset	0	961	1,142	0	1,142	1,417	1,417	1,758	1,758
Igloolik	61.5	936	1,142	203	1,345	1,465	1,725	1,879	2,212
KEEWATIN									
Rankin Inlet	218	1706	2,113	711	2,824	2,761	3,690	3,607	4,821
Arviat	78	1323	1,618	250	1,869	2,082	2,404	2,678	3,092
Baker Lake	99	1186	1,418	328	1,744	1,773	2,181	2,217	2,727
KITIKMEOT									
Cambridge Bay	15	1116	1,360	49	1,409	1,741	1,804	2,228	2,309
Coppermine	36	1059	1,286	119	1,405	1,640	1,791	2,091	2,284
Gjoa Haven	0	783	976	0	976	1,285	1,285	1,692	1,692
Total	600			1,976					

SCENARIO 3 - CAMBRIDGE BAY as Capital

REGION/ Community	New Positions	Population							
		Base 1991	Without 1999	Additional 1999	With 1999	Without 2009	With 2009	Without 2019	With 2019
BAFFIN									
Iqaluit	2.5	3552	4,311	8	4,319	5,491	5,502	6,995	7,009
Pangnirtung	41	1135	1,387	135	1,522	1,783	1,956	2,291	2,514
Pond Inlet	37	974	1,180	122	1,302	1,501	1,655	1,908	2,105
Cape Dorset	8	961	1,142	26	1,168	1,417	1,449	1,758	1,798
Igloolik	66.5	936	1,142	219	1,361	1,465	1,746	1,879	2,239
KEEWATIN									
Rankin Inlet	-3	1706	2,113	-10	2,103	2,761	2,748	3,607	3,590
Arviat	27	1323	1,618	89	1,707	2,082	2,196	2,678	2,825
Baker Lake	17	1186	1,418	56	1,474	1,773	1,843	2,217	2,305
KITIKMEOT									
Cambridge Bay	255	1116	1,360	840	2,199	1,741	2,816	2,228	3,604
Coppermine	97	1059	1,286	319	1,606	1,640	2,047	2,091	2,611
Gjoa Haven	52	783	976	171	1,147	1,285	1,510	1,692	1,989
Total	600			1,976					

POPULATION PROJECTIONS

	Population 1991 Census	Growth Rate (% per yr)
BAFFIN		
Iqaluit	3552	2.45
Pangnirtung	1135	2.54
Pond Inlet	974	2.43
Cape Dorset	961	2.18
Igloodik	936	2.52
KEEWATIN		
Rankin Inlet	1706	2.71
Arviat	1323	2.55
Baker Lake	1186	2.26
KITIKMEOT		
Cambridge Bay	1116	2.50
Coppermine	1059	2.46
Gjoa Haven	783	2.79

Employer	Multiplier Factor	Household Size	Spouse Factor	Staff Hired From:	
				Within Comm.	Outside Nun.
GN	1.00	3.45	1.10	25.0%	50.0%
Private	0.30	3.45	1.10	25.0%	50.0%
Federal	0.10	3.45	1.10	25.0%	50.0%
Municipal	0.00	3.45	1.10	25.0%	50.0%
Other	0.00	3.45	1.10	25.0%	50.0%
Total / Average	1.40	3.45	1.10	25.0%	50.0%

Household
Size

From Within Nunavut	4.2000
From Outside Nunavut	2.7000
Average	3.4500 (Household Size Within x % Within)+(Household Size Outside x % Outside)

Overall Population Increase =

$$\text{GN Jobs} \times 3.293182 \text{ (Household Size} \times \text{Multiplier Factor} \times \text{Outside Hire} / \text{Spouse Factor)}$$

APPENDIX C

GNWT INFRASTRUCTURE

IN SUPPORT OF

PROGRAMS IN NUNAVUT

July 31, 1995

CONTENTS

Schools

College Program

Cultural Facilities

- Library Services
- Museums & Heritage
- Language Bureau
- Television & Radio Services

Justice

- Court Services
- Corrections Services

Municipal Buildings

- Parking Garages
- Maintenance Garages
- Community Offices
- Fire Halls
- Fire Protection

Recreational Facilities

- Additional Facilities
- Above Ground Pools and Pool Enclosure
- Curling Rinks
- Gyms
- Halls
- Arenas
- Open Play Space

Health & Social Services Facilities

- Health Centres and Stations
- Hospitals
- Facilities for Elderly & Handicapped Persons
- Facilities - Residential Care, Alcohol and Drug
- Family Violence Shelters
- Residential Care - Children

Water Supply and Treatment

Water Distribution and Sewage Collection

Sewage Treatment and Disposal

Solid Waste Management

Vehicles - Road Maintenance Equipment

Land Development

CONTENTS

Air Transportation Facilities

- Airport Buildings
- Airport Earthworks & Electrical
- Airport Miscellaneous
- Airport Vehicles & Equipment

Marine Transportation Facilities - Community Wharves

Petroleum Products

SCHOOLS

Program Description

Program Objectives

Deliver kindergarten to grade 12 (K-12) school programs to all Northwest Territories children of school age. A focus on distance education and transfer of senior secondary grades to the communities, has provided the Department an opportunity to provide a uniform level of educational service to all students no matter where their residency is.

Capital Facilities

Schools: primary (K-3); elementary (4-6); junior high (7-9); senior high (10-12) or combination thereof.

Equipment, furnishings and playground equipment.

School residences fall under the Schools Program. With the advent of grade extensions to the communities, the Department is gradually removing itself away from large student residences or the creation of new student residences. Only in cases where clear justification can be established will new school residences be built.

Criteria

As governed by the Education Act, schools are provided in recognized communities in the NWT having at least 10 students.

Location, stability of community, projected school population and cost of alternatives are all taken into account in determining the nature and scale of facilities to be provided.

Capacities of schools are calculated on a weighting of 22 pupils per classroom (including kindergarten at a full time equivalence), and an adjusted weighting of 11 or 22 pupils for specialty teach space.

COLLEGE PROGRAM

Program Description

Program Objectives

Provide continuing education programs to adults, in particular, literacy upgrading, personal development, and skill training leading to employment. Offer vocational and post secondary courses tailored to the specific needs of the north. Delivery courses in response to community and business demands.

Capital Facilities

Education buildings, furnishings and equipment, student residences. Includes Community Learning Centres (CLC's) and regional campus facilities.

Criteria

Courses are offered in communities where requested and where the Government of the Northwest Territories determines that there is sufficient demand for programs, or in centralized regional campuses where established infrastructure can best respond to educational needs.

This program may use dedicated space or it may be in joint-use facilities with other programs. Refer to the Department's Capital Standards and Criteria.

The division of Arctic College into two distinct entities in 1995 has created needs for both an eastern and western college.

Standards

Refer to the Department of Education, Culture and Employment Capital Standards and Criteria. Facility standards will be project specific; developed to serve the defined

LIBRARY SERVICES

Program Description

Program Objectives

To meet the informational, educational and recreational needs of Northwest Territories' residents by means of library computerized online and CD-ROM databases, information networks, books, periodicals, reference materials, audio and video cassettes.

Capital Facilities

Computer workstations, terminals, communication lines, modems, communication application and operation software, online and CD-ROM databases; renovation and expansion (including start-up collections); shelving, photocopying equipment, televisions, VCRs, tape recorders, other specialized library equipment and furnishings.

Criteria

The Department of Education, Culture and Employment recognizes six categories of libraries and/or library construction/expansion projects:

- (a) territorial facility, of which there is one, owned and operated by GNWT,
- (b) regional facility,
- (c) combined community library facility,
- (d) stand alone community facility,
- (e) leasehold facility,
- (f) expansion/replacement of existing facilities.

The department has developed detailed operating criteria for each category of library facility. Demonstration of need, confirmation of community support, the quality and adequacy of the proposed facility, and projections of capital cost, operating cost and operating revenues are among the factors which the department considers in reviewing applications for capital funds.

The department has developed detailed criteria for library furniture and equipment grants. Factors considered are generally parallel to the ones mentioned above.

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MUSEUMS & HERITAGE

Program Description

Program Objectives

Interpret and preserve the cultural heritage of the Northwest Territories. Provide professional, technical and financial support to other agencies which share these objectives to assist them in developing infrastructure and programs.

Authority

The Historical Resources Act authorizes the GNWT to establish museums and provide for the administration, preservation and maintenance of historic places and museums.

The Heritage Services Policy provides for a museum operation at the Prince of Wales Northern Heritage Centre, for the protection of significant heritage buildings, and for support for community heritage initiatives.

Cabinet has directed that capital support be provided to land claim authorities to help establish facilities for Aboriginal cultural institutes.

Capital Items

The Prince of Wales Northern Heritage Centre is the only museum owned and operated by the Government of the Northwest Territories. Capital funds are required for maintaining, upgrading and expanding the facility to meet continuing and new needs. Specialized equipment is required to meet the needs of the professional programs housed at the Prince of Wales Northern Heritage Centre. Capital development funds are used to commission studies related to the planning of community museums and heritage facilities.

New and existing community heritage facilities are supported through the provision of capital funds for planning, construction, maintenance and enhancement of those facilities, and for the purchase of specialized equipment.

LANGUAGE BUREAU

Program Description

Program Objectives

Meet the needs of the Legislative Assembly, of GNWT departments, and of the people of the NWT for language interpreting, translating and communication services. Provide facilities for interpreter training.

Capital Facilities

Interpreting and translating equipment. Three general classes of facilities are provided: permanent, portable and transportable.

Criteria

Permanent Simultaneous Interpretation System (SIS) facilities are established in locations where there are permanent training facilities.

At least one portable SIS booth is provided for each region of the Northwest Territories. Additional portable booths are purchased based on the number of interpreters on staff and the level of usage of existing booths.

At least one transportable SIS unit is provided for each language in each Region of the NWT. Additional transportation units are purchased where demand for usage exceeds 60% of time.

Standards

Permanent Simultaneous Interpretation Systems (Physical Facilities) Guide (Canadian General Standards Board).

Portable Simultaneous Interpretation Systems (Physical Facilities) Guide (Canadian General Standards Board).

Electroacoustic Performance of Simultaneous Interpretation Systems Guide (Canadian General Standards Board).

A standard of 6 interpreters per booth and where the demand for usage exceeds 50% of the time.

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TELEVISION & RADIO SERVICES

Program Description

Program Objectives

Bring public broadcast services, both radio and television, to Northwest Territories communities not served by the Canadian Broadcasting Corporation (CBC) and satisfy Government of the Northwest Territories needs for video and public television programming, and creation of multimedia distance learning resources.

Capital Facilities

Reception and rebroadcast systems for radio and television.

Distance learning and production facilities.

Criteria

CBC provides public broadcast services in communities larger than 500. This program serves communities not served by CBC, provided that the commercial power supply is adequate to run the equipment.

In the case of video production facilities, broadcast quality production equipment conforming with Canadian broadcast standards when warranted by potential savings over cost of rental to meet the needs of government departments and agencies. Studios are provided when warranted by potential savings over cost of rental of studio. Further investment in these areas will be considered only after a cost-benefit analysis.

In the case of distance learning (multimedia) production facilities, production equipment and authoring tools sufficient to meet the requirements of government departments and agencies, including colleges and divisional boards of education.

Standards

Department of Education, Culture and Employment specifications cover a standard package of essential equipment which meets Federal standards for satellite receive and rebroadcast equipment.

TELEVISION & RADIO SERVICES

Video equipment must meet standards set out in the "Engineering Standards and Practices Guide" of the Canadian Broadcasting Corporation.

Computer equipment and software must meet standards set by the Department of Education, Culture and Employment to ensure compatibility, reliability, and reasonable time to obsolescence.

COURT SERVICES

Program Description

Program Objectives

Provide facilities needed for operation of the NWT court system.

Capital Facilities

Courthouses.

Criteria

Courthouses are placed where needed, according to level of activity; generally, at the administrative centres of more populated regions and districts.

Standards

Department of Justice has developed detailed standards for the planning and design of court facilities.

CORRECTIONS SERVICES

Program Description

Objectives

Provide for the safe custody, detention and rehabilitation of youth and adult sentenced offenders, and youths and adults remanded in custody.

Capital Facilities

Minimum, medium and maximum security correctional facilities (correctional centre, remand centre, youth treatment centre).

Criteria

The Department has developed Standards and Criteria for Adult Correctional Centres, Young Offender Centres and Community Correctional Centres.

Standards

The department contracts consultants in correctional planning to translate program requirements into spatial needs. Standards are based on the documents listed below.

- GNWT Institutional Operations Manual
- Canadian Criminal Justice Association "Manual of Standards"
- Federal Exchange of Service Agreement
- Community Corrections contract for Community Residential Centres
- Provincial Standards Manuals
- Corrections Act and Regulations
- Corrections and Conditional Release Act (Canada)
- Prisons and Reformatories Act (Canada)
- Transfer of Offenders Act (Canada)
- Fine Options Act and Regulations
- Young Offenders Act (Canada and NWT)
- Executive Council Directives
- GNWT Standards and Criteria for Territorial Corrections Facilities

PARKING GARAGES

Program Description

Program Objectives

To provide communities with buildings for proper storage and maintenance of municipal mobile equipment.

Capital Facilities

Parking garages

Criteria

Parking Garages:

Parking garages available only to non tax-based communities as basic municipal infrastructure.

Parking spaces are provided for each piece of road maintenance equipment, and for water and sewage vehicles. Older vehicles which have been replaced and written-off, but kept in service, are not eligible.

The size and number of parking bays required in each community is determined by the number of vehicles to be sheltered, which in turn, is determined by population.

Generally, parking bays are "double deep", large enough to store any two vehicles other than a grader. A grader takes an entire bay. The term "parking bay" as used in this report refers to a double deep bay, unless noted otherwise.

Space for pick-up and garbage trucks will not be funded.

Existing garages may house 1 or 2 vehicles per bay (i.e. they may be single or double deep). Where detailed information about existing garage sizes is absent, it is assumed that the bay space now available is sufficient to shelter all of the road maintenance, water and sanitation vehicles now used in the community. In such cases, it is considered that additional space will be needed to shelter any vehicles currently warranted, but not yet provided.

Standards

Parking Garage: Standard 1 - 4.0 x 9.0 m = 45.0 sq.m;
Standard 2 - 10.0 x 16.0 m = 160.0sq.m

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MAINTENANCE GARAGES

Program Description

Program Objectives

To provide communities with buildings for proper maintenance of municipal mobile equipment.

Capital Facilities

Maintenance garages:

All communities may be eligible for funding. A maintenance garage is basic municipal infrastructure.

Generally, communities with a population of greater than 125 and less than 2,500 are eligible for a Standard 1, whereas communities with a population greater than 2,500 are eligible for a Standard 2.

Standards

Maintenance Garage:	Standard 1	1st Floor	10.0 x 16.0 m	= 160 sq.m
		Mezzanine	4.0 x 10.0 m	= <u>40</u> sq.m
				200 sq.m
	Standard 2	1st Floor	15.0 x 16.0 m	= 240 sq.m
		Mezzanine	15.0 x 4.0 m	= <u>60</u> sq.m
				300 sq.m

COMMUNITY OFFICES

Program Description

Program Objectives

Provide community governments with office space.

Capital Facilities

Community office buildings.

Criteria

One office building is provided to each community. New office space is constructed if none exists.

Existing office space is not replaced unless deemed unsafe or beyond economic repair in accordance with established criteria.

A community office may be built as a separate facility or complexed with other community facilities as long as the criteria governing this decision are satisfied.

The decisions to build or upgrade existing office space, to lease, or to construct a stand-alone building or complex with another program, are based on an analysis of the relative cost-effectiveness of the alternatives.

The amount of office space provided is determined as follows:

<u>Population</u>	<u>Gross Area (m²)</u>	<u>Category</u>
125-500	217 = 411	Standard 1
500 -1000	265 = 509	Standard 2
1000 -2500	313 = 1426	Standard 3
2500 - 5000	370 = 2213	Standard 4

Communities with a population greater than 5000 will be considered on a case by case basis.

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COMMUNITY OFFICES

Standards

In accordance with established Standard Area Standards, the four sizes of office buildings qualify for some or all areas including: council chambers, meeting room, mayor's office, senior administrative officer's office, general office and reception, copy/stationery room, lobby/coffee/coat room areas, entry vestibule, washrooms, janitor's closet, mechanical/electrical room, staff offices.

Parking space is provided for cars, trucks, snowmobiles and other ATVs in accordance with established Parking Space Standards.

Office building designs and construction are governed by all National Building Codes and by various Territorial Acts.

FIRE HALLS

Program Description

Program Objectives

Provide communities with buildings for proper storage for fire trucks and with facilities needed to train volunteer fire fighters.

Capital Facilities

Firehalls

Criteria

One firehall is provided to a community when the population exceeds 100 people. In smaller communities a fire truck parking bay may be provided in a parking garage.

Standards

Four standards have been established based on community population, 10 year population forecast from the scheduled completion date, and the number and size of the fire suppression mobile equipment as funded under the Mobile Equipment Capital Program. The Department will maintain flexibility for extraordinary needs.

Population < 100	Parking Garage Standard 1 (45 m ²)
100 < Population < 1000	Firehall Standard 2 (146 m ²)
1000 < Population < 2500	Firehall Standard 3 (200 m ²)
2500 < Population < 5000	Firehall Standard 4 (450 m ²)

Communities with a population of greater than 5000 will be considered on a case by case basis.

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FIRE PROTECTION

Program Description

Program Objectives

Provide communities with equipment for adequate fire protection.

Capital Facilities

- Fire trucks
- Truck mounted dry chemical fire extinguishers

Criteria

In communities where the population is less than 100:

- 1 dry chemical fire extinguisher mounted on a 3/4 ton truck.

In communities of 100 or more:

- 1 triple combination pumper truck.

Communities with over 1,000 people may be eligible to receive two triple combination pumper trucks or a 1050 1GPM fire pumper where the community has an existing piped water and hydrant system. The NWT Fire Marshall determines if there is need for more than one unit considering the population, and the size and cost of any large buildings in the community.

Standards

Dry chemical extinguisher:	136 kg
Fire truck:	4,500L water tank, pump rate 2,840L/min at 1,030 kPa.

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RECREATION ADDITIONAL FACILITIES

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities, in Northwest Territories communities.

Capital Facilities

This program summary report deals with facilities which the Department of Municipal & Community Affairs (MACA) classifies as "additional" (as distinct from "basic") facilities.

Additional indoor facilities may include:

- Recreation Additional Facilities
- Curling Rinks

Criteria

Priorities for curling rinks are determined by MACA in consultation with communities, based on:

- community's priorities
- community's population
- existing and projected use patterns
- climate.

Communities are eligible for major additional facilities, based on population. The maximum contribution for every project will be:

\$400,000 for the first 1,000 people;
\$200 per person for the next 1,000 people; and
\$100 per person for any additional people.

Standards

Projects are carried out in accordance with program guidelines.

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ABOVE GROUND POOLS & POOL ENCLOSURE

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities, in Northwest Territories communities.

Capital Facilities

This Above Ground Pool & Pool Enclosure program deals with facilities which the Department of Municipal and Community Affairs (MACA) classifies as "basic" facilities.

Basic facilities include:

- Community Recreation Planning
- Gym
- Community hall
- Arena
- Open play space
- Above Ground Pool and Pool Enclosure

The community government is expected to contribute to each project an amount as identified in the Municipal Capital Assistance Policy for Basic Infrastructure.

Criteria

All communities which have populations larger than the minimum levels listed below are eligible to receive assistance to construct basic recreational facilities.

QUALIFICATION STANDARDS FOR BASIC FACILITIES

<u>Population</u>	<u>Above Ground Pool Enclosure</u>
150 - up	Yes

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CURLING RINKS

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities, in Northwest Territories communities.

Capital Facilities

This program summary report deals with facilities which the Department of Municipal & Community Affairs (MACA) classifies as "additional" (as distinct from "basic") facilities.

Additional indoor facilities may include:

- Recreation Additional Facilities
- Curling Rinks

Criteria

Priorities for curling rinks are determined by MACA in consultation with communities, based on:

- community's priorities
- community's population
- existing and projected use patterns

Population criteria are listed below.

QUALIFICATION STANDARDS FOR ADDITIONAL FACILITIES

<u>Population</u>	<u>Sheets</u>	<u>Curling Rink</u>	
		<u>Stand Alone m²</u>	<u>Complexed</u>
500 - 3000	2	596	554
3000 - 6000	4	1062	1020
6000 - 12000	6		
12000 - +	8		

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GYMS

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities, in Northwest Territories communities.

Capital Facilities

This gym program deals with facilities which the Department of Municipal & Community Affairs (MACA) classifies as "basic" facilities.

Basic facilities include:

- Community Recreation Planning
- Gym
- Community hall
- Arena
- Open play space
- Above Ground Pool and Pool Enclosure

The community government is expected to contribute to each project an amount as identified in the Municipal Capital Assistance Policy for basic infrastructure.

Criteria

All communities which have populations larger than the minimum levels listed below are eligible to receive assistance to construct basic recreational facilities.

QUALIFICATION STANDARDS FOR BASIC FACILITIES

<u>Population</u>	<u>Gym Class Size m²</u>
50 - 125	Com. Assem. 220
126 - 250	Primary 376
251 - 600	Junior 426
600 - up	Secondary 556

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GYMS

Notes

- Gym sizes given are net fixed spatial standards.
- A gym, with separate access, may be provided as part of a school, but funding for gym will not be duplicated in both Education and MACA Programs.
- Facilities may be combined into a recreation complex if beneficial from a program and economical perspective.

HALLS

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities in Northwest Territories communities.

Capital Facilities

This Hall program deals with facilities which the Department of Municipal & Community Affairs (MACA) classifies as "basic" facilities.

Basic facilities include:

- Community Recreation Planning
- Gym
- Community hall
- Arena
- Open play space
- Above Ground Pool and Pool Enclosure

The community government is expected to contribute to each project an amount as identified in the Municipal Capital Assistance Policy for basic infrastructure.

Criteria

All communities which have populations larger than the minimum levels listed below are eligible to receive assistance to construct basic recreational facilities.

QUALIFICATION STANDARDS FOR BASIC FACILITIES

<u>Population</u>	<u>Hall Class Size m²</u>
50 - 400	None
401 - 600	Medium 391
600 - up	Large 478

Notes

- Hall sizes given are net fixed spatial standards.
- Facilities may be combined into a recreation complex if beneficial from a program and economical perspective.

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ARENAS

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities, in Northwest Territories communities.

Capital Facilities

This Arena program deals with facilities which the Department of Municipal & Community Affairs (MACA) classifies as "basic" facilities.

Basic facilities include:

- Community Recreation Planning
- Gym
- Community hall
- Arena
- Open play space
- Above Ground Pool and Pool Enclosure

The community government is expected to contribute to each project an amount as identified in the Municipal Capital Assistance Policy for basic infrastructure.

Criteria

All communities which have populations larger than the minimum levels listed below are eligible to receive assistance to construct basic recreational facilities.

QUALIFICATION STANDARDS FOR BASIC FACILITIES

<u>Population</u>	<u>Arena Class Size</u>	<u>CSR's</u>	<u>m²</u>
50 - 250	Outdoor		
251 - 600	Medium		1539
600 - up	Large		2004
> 10,000	Competition		2683
> 20,000	Third large		2004

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ARENAS

Notes

- Arena sizes given are net fixed spatial standards.
- Facilities may be combined into a recreation complex if beneficial from a program and economical perspective.

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OPEN PLAY SPACE

Program Description

Program Objectives

Foster public participation in leisure time sports and other recreational and social activities, in Northwest Territories communities.

Capital Facilities

This Open Play Space program deals with facilities which the Department of Municipal & Community Affairs classifies as basic infrastructure.

The community government is expected to contribute to each project an amount as identified in the Municipal Capital Assistance Policy for basic infrastructure.

Criteria

Open play space: each neighbourhood and "natural community" (recognized community within a larger community) is provided with outdoor facilities. Population standards are:

- Community play space: 1/1000 people. Size, community playfield: 568 m²
- Neighbourhood play space: 1/150 people. Size, community playground: 114 m²
- Outdoor Recreation: 1/3000 people.

HEALTH CENTRES & STATIONS

Program Description

Program Objectives

Provide appropriate facilities for the delivery of community health programs including primary care and public health services, in NWT communities that do not have a major health facility.

Capital Facilities

The Department of Health & Social Services & Hospital/Health Boards operate 44 community health centres (two are leased facilities) and eight health stations (two are leased). In addition there are many ancillary buildings which are located in various communities.

Criteria

Population and federal health program requirements have historically been the primary determinants for constructing health centres/stations in the NWT. As the overall NWT population is growing it can no longer be the sole determinant for providing community health facilities. The health status, service needs, cultural orientation, geographical location and distance from regional and/or Territorial referral centres will be the key determinants for providing community health facilities. The community health centre/station will be designed to meet the existing and future needs of the community plus address future technological innovation.

The current criteria for the provision of a community health centre or station are based on population size as follows:

Health Centres & Stations

<u>Community Population</u>	<u>Catchment</u>	<u>Type of Facility</u>	<u>Typical Gross Size (sq.m)</u>
Less than 250	0	Health Station	130 - 135
250 - 1000	0	Health Centre	480 - 490
1000 - 2000	1000	Health Centre	550 - 600

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HEALTH CENTRES & STATIONS

Standards

The health centre or station will generally comprise basic space elements. There are specific program and design guidelines for each space. A 5% design contingency will accommodate any increase in spaces to meet specific local service requirements. The community health centre/station will be designed to meet the existing and future health service needs.

The development of multi-use spaces in the community health centres/stations as a means of accommodating the increasing services (birthing, visiting medical specialist and teams as well as offices for Social Services functions) will be considered in future designs. In future, technological innovation and the possible introduction of distance medicine services requires health centres and stations to be designed with the flexibility to handle the system requirements.

Historically, health centres have had various types of staff accommodation integral or as an adjunct to the facility. All future health centres and stations will be constructed (renovated) with a single 35 m² unit to accommodate relief staff. Staff accommodation will be provided through the GNWT housing pool. Staff accommodation in the existing health centres will be phased out, as facilities are renovated, and replaced by pool or private housing in the community.

HOSPITALS

Program Description

Program Objectives

Provide Territorial and/or regional health facilities which serve as referral centres and have the necessary institutional programs and services, and consultant specialist services to support community based primary care health services.

Capital Facilities

The inventory of territorial and regional hospitals/referral centres and ancillary buildings (warehouses, staff accommodation, and other structures) is detailed in the table following.

Criteria

Territorial (referral) hospital/health centres may be provided where there is an identified need and a minimum population base (total catchment area) in excess of 10,000. A regional hospital/referral centre may be located in a community with a population in excess of 2,500 and a catchment population of up to 10,000.

The major health facilities will be sized according to need and the range of programs/services which will be delivered. The chart below reflects the nationally used allocation of beds per 1,000 population. This is a standard on which health institutions have historically been designed. In the NWT other criteria including demographics, geography, culture and health status dictate what programs/services and, ultimately, the type of facility and the number of beds which are required. Health services should be delivered, where feasible and appropriate, in the NWT and as close to the resident's home as feasible.

HOSPITALS

Standard Guidelines For Hospital Bed Planning (Beds Per 1,000 People)

<u>Type of Care</u>	<u>Immediate</u>	<u>Catchment</u>	<u>Remote</u>
Acute	4.5	0.6	0.7
Rehabilitation	0.2	0.1	
Psychiatric	0.4	0.2	
Tuberculosis	0.25	0.1	
Chronic/Extended	1.3	1.3	

Current acute beds in the NWT exceed the national standard. Chronic/extended care beds within regional health facilities are approximately equal to the national standard.

The major facilities service both community residents and, to varying degrees, the additional catchment population.

Standards

The Department of Health and Social Services does not presently have space standards for major health facilities (hospitals/referral centres). Historically, major health facilities have been designed using national recognized space standards (90 m² per hospital bed) and guidelines for acute care facilities. The Department of Health and Social Services will use national guidelines as a basis for developing an NWT standard for program areas which will reflect the unique health service requirement of a northern referral centre.

Major health facilities are constructed in accordance with building standards or other regulatory requirements which prevail for special purpose health delivery spaces/areas.

HEALTH/SOCIAL SERVICE FACILITIES - ELDERLY & HANDICAPPED PERSONS

Program Description

Program Objectives

Provide for the accommodation needs of elderly and handicapped persons.

Capital Facilities

- personal care facilities
- group homes for handicapped adults

Criteria

Needs are determined according to population, community submissions, and assessments made by department staff or consultants.

For senior citizen/personal care facilities, a proposal is developed by the community which reflects the needs assessment data. The proposal is reviewed by the Housing and Services for Aged & Handicapped Committee and approval is given based on the number of units requested, the care requested (independent living to 24 hour supervision), the availability of community support services such as homecare, and the overall firm commitment from elders of their intention to move into the facility when completed and at least 50% occupancy is expected in the first year of operation.

For group homes for handicapped adults, a regional needs assessment is completed which considers not only people residing in the NWT but those in southern institutions. A decision to build a facility is made based on the needs of the clients identified (physically and/or mentally handicapped) and the availability of community support services (e.g. life skills training). The average size of such facilities is 6-8 beds and clients are moved to the facility gradually to allow for optimal integration and compatibility. It is expected facilities would attain at least 50% occupancy in their first year of operation.

HEALTH/SOCIAL SERVICE FACILITIES - ELDERLY & HANDICAPPED PERSONS

Standards

Standards for group homes are listed below:

- No more than 2 persons per bedroom
- Single room floor area of 100 sq.ft., 800 cubic feet of space and 7 feet, 6 inches as shortest horizontal dimension
- Double rooms require 160 sq.ft., with 10 ft as shortest horizontal dimension
- Each bedroom must have a window
- Toilet, washbasin, and shower or bathtub for every 4 residents
- Staff office
- Secure storage room
- Living area - 50 sq.ft. per resident
- Laundry room
- Storage
 - outdoor equipment
 - furniture and decorations (200 sq.ft.)
 - food (200 sq.ft.)
 - linen storage (150 sq.ft.)

Vehicles are being purchased for group home projects and will follow the same standards for replacement as those developed for the Department of Public Works and Services.

HEALTH/SOCIAL SERVICES FACILITIES - RESIDENTIAL CARE, ALCOHOL & DRUG

Program Description

Program Objectives

Provide for the rehabilitation of persons afflicted by addiction to alcohol, drugs and solvents.

Provide for prevention of and education on community mental health problems.

Capital Facilities

treatment centres: Applies only to alcohol and drugs

minor renovations: Applies to Residential Treatment Centres & Community Alcohol & Drug Projects.

Criteria

The minimum quantitative measure to define the level of service afforded to any community of target population based on approved program requirements.

Level of service is dictated by population figures for individual regions. Need is calculated by using the national standard for treatment beds plus special provision for higher alcohol consumption in the Northwest Territories and National Native Alcohol and Drug Abuse Program standards for native populations. Need for alcohol treatment facilities is currently calculated as 1.0 beds/2,083 population plus an additional 1 bed/455 native persons. The calculated criteria are to be distributed on a 1:1 ratio between treatment centres and halfway houses. Alcohol, Drugs and Community Mental Health Services are delivered through community contribution funding. The recipient of funding in each community is referred to as a project. There is allocated replacement needs capital funding to assist renovations of project facilities to meet the following standards.

HEALTH/SOCIAL SERVICES FACILITIES - RESIDENTIAL CARE, ALCOHOL & DRUG

Standards

The minimum acceptable quality definitions to which facilities will be constructed to ensure the safety of workers engaged in their construction.

- Northern Native Alcohol and Drug Abuse Program
- Department of Public Works and Services Construction Standards
- 50 m²/bed for treatment centres

HEALTH/SOCIAL SERVICES FACILITIES - FAMILY VIOLENCE SHELTERS

Program Description

Program Objectives

This program provides for minor renovations of Family Violence Shelters.

Capital Facilities

None. Funds are allocated by project for the renovation or upgrade of existing facilities.

Criteria

Needs are identified by priority by the Executive Directors, who operate the shelters, in consultation with the Department of Health & Social Services. Projects will be evaluated and approved in accordance with the following criteria:

- a. service capability of the facility:
- b. age and condition of existing facility;
 1. very poor condition/poses threat to safety.
 2. poor condition/does not pose a threat to safety.
 3. relatively good condition/does not pose threat to safety.

Standards

Family violence shelters will be renovated/upgraded as required to provide a safe, healthy and functional environment from which to deliver programs/services. There may be components which are minor code upgrade, however, the overall project is primarily related to minor renovation.

All renovations and upgrades are performed according to applicable building and fire codes, applicable by-laws, and relevant GNWT standards.

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HEALTH/SOCIAL SERVICES FACILITIES - RESIDENTIAL CARE - CHILDREN

Program Description

Program Objectives

To provide residential programs for children in the care and custody of the Superintendent of Child Welfare for whom placement in a substitute family home is inappropriate.

Capital Facilities

- group homes
- assessment and treatment centres
- vehicles

Criteria

Needs are determined according to population, community submissions, and assessments made by department staff or consultants.

Need for residential service facilities for children is currently calculated at 13 beds/1,000 population of children 12-17 years of age.

Standards

Minimum standards for residential service facilities are listed below:

- no more than two (2) children per bedroom;
- 6.5 m²/child in single rooms, 4.5 m²/child in double occupancy bedrooms;
- location of group home to facilitate community involvement;
- space for staff administrative work;
- 50 square feet/child in the living area;
- indoor activity space;
- 1 toilet, washbasin and shower for every four (4) children;
- 150-200 square feet for the laundry area;
- 200 square feet for furniture and equipment storage.

HEALTH/SOCIAL SERVICES FACILITIES - RESIDENTIAL CARE - CHILDREN

For residential service facilities caring for mentally or physically handicapped children, Canada Mortgage and Housing Corporation (CMHC) standards for housing the disabled would govern construction.

9-passenger mini-vans are being purchased for residential service facilities, and follow the same standards for replacement as those developed for the Department of Public Works and Services.

WATER SUPPLY & TREATMENT

Program Description

Program Objectives

Provide adequate quantities of safe water for all public uses.

Capital Facilities

Water intakes, water treatment facilities, main water supply pumphouses, water storage reservoirs and associated pumping facilities.

Water transmission mains are included in the Water Distribution and Sewage Collection sub-program.

Criteria

Water supply is provided to all municipal governments.

Standards

Water supply facilities are designed to provide at least 90 Lcd (litres per capita per day) for trucked water systems and up to 225 Lcd for piped water systems to the maximum population expected to be served within a design lifespan of 20 years.

The minimum facilities needed to supply water which is safe for public consumption may include:

- (a) either year-round intakes in a natural source, or year-round intakes in a large raw water reservoir and facilities for filling the reservoir from a natural source each summer, and
- (b) a combination pumphouse and truck fill station, equipped with chlorination and fluoridation systems, and
- (c) stored treated water for firefighting and other recognized potential emergencies in volumes determined as per established criteria.

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WATER SUPPLY & TREATMENT

Other governing standards to include:

- Guidelines for Canadian Drinking Water Quality (Health and Welfare Canada),
- Water and Energy Conservation Alternatives for the North,
- Public Health Act
- American Waterworks Association and Canadian Standards Association standards applicable to municipal water systems, and
- License conditions and other orders of the NWT Water Board.

SEWAGE TREATMENT AND DISPOSAL

Program Description

Program Objectives

Provide sewage treatment and disposal facilities as needed for protection of public health and the environment.

Capital Facilities

Sewage lagoons, sewage sump pits, sewage treatment plants, outfall lines.

Criteria

Basic level of sewage services required by a municipal government in order to provide a safe, reliable system.

More advanced treatment facilities may be provided, if warranted by local conditions.

Septic tanks or leach pits may be provided, if they are acceptable considering local soil, drainage, water supply and townsite development conditions.

Standards

All facilities are governed by:

- Public Health Act
- Environmental Protection Act
- Northwest Territories Waters Act (Canada)

WATER DISTRIBUTION & SEWAGE COLLECTION

Program Description

Program Objectives

Provide systems for distribution of water and collection of sewage, as needed to protect public health and to provide acceptable living standards in Northwest Territories communities.

Capital Facilities

Piped water distribution and sewage collection systems, including treated water transmission mains; water pumping, heating and circulation stations; sewage pumping stations; and sewage transmission mains.

Criteria

The Department of Municipal and Community Affairs will fund the most cost effective design alternative. The alternatives considered are to include trucked options.

Standards

- Water and Energy Conservation Alternatives for the North
- Public Health Act
- American Waterworks Association
- Canadian Standards Association standards applicable to municipal water and sewage systems

SOLID WASTE MANAGEMENT

Program Description

Program Objectives

Provide communities with facilities for management of solid waste (includes garbage, hazardous and bulky wastes), to safeguard public health and the environment, and to avoid aesthetic nuisance.

Capital Facilities

A minimum objective for NWT community solid waste management is to provide, in most cases, a "modified landfill" facility, in which waste accumulations are periodically covered with earth. Other disposal facilities using different methods can be provided if warranted by special circumstances or economic advantage.

Solid waste collection vehicles are provided separately, under the Department of Municipal and Community Affairs (MACA) Mobile Equipment program.

Criteria

One modified landfill (or alternate system, if warranted) is provided to each community.

Standards

MACA standards for the selection, design and operation of landfill sites take into account the following factors:

- (a) public health safety and acceptability standards
- (b) environmental protection standards
- (c) conformance to community planning standards
- (d) provision of safe, convenient and efficient operations
- (e) cost-effective selection of site and operations methods
- (f) 20 year planning horizon
- (g) separation distance from Airports/Airstrips
- (h) location and availability of cover material

ROAD MAINTENANCE EQUIPMENT

Program Description

Program Objectives

Provide communities with equipment needed to maintain roads. Summer maintenance includes gravelling, grading and maintaining drainage culverts. Winter maintenance includes plowing and removal of snow as needed to maintain safe passage.

Capital Facilities

Standard pick-up trucks, dump trucks, front-end loaders, bulldozers, motor graders.

Criteria

The basic equipment fleet for each community is determined by population size using a design horizon three years into the future. Additional equipment is provided based on road lengths. Basic equipment allowances are shown below.

USUAL EQUIPMENT ALLOWANCES

<u>Unit</u>	Population	
	<u><100</u>	<u>>100</u>
Pick-up	0	1
Dump Truck	1	1 (or more)
Front-end Loader	1	1
Bulldozer	1	1
Grader	0	1

ROAD MAINTENANCE EQUIPMENT

Standards

GNWT provides stock units. Standards of acceptance and principal optional features are as follows:

Pick-up Truck:	3/4 ton, two or four wheel drive
Dump Truck:	single axle, 6m ³ (8 yd ³)
Front-end Loader:	63 KW (85 HP) to 101 KW (135 HP)
Bulldozer:	123 KW (165 HP)
Motor Grader:	101 KW (135 HP)

LAND DEVELOPMENT

Program Description

Program Objectives

Provide developed land for residential, commercial, industrial, institutional and recreational purposes within non-tax-based communities.

The primary focus of the program is to provide a two year supply of residential lots. The program then provides, where necessary, lots needed for commercial, industrial, institutional or recreational uses.

Capital Facilities

Raw and graded land for development and the construction of roads within a land development area. Grading may involve some or all of: clearing, lot stabilization, and drainage improvements.

Water and sewage service mains and sub-mains are included where piped services exist.

Criteria

Projects must conform to community plans. It is intended to furnish each community with a three year supply of lots to accommodate normal growth according to the approved standards and criteria.

Standards

Lot sizes - residential:

0.054 ha or larger (trucked 24m x 30m, piped 18m x 30m)

Acts and regulations governing land use and zoning.

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AIRPORT BUILDINGS

Program Description

Program Objective

To provide for the major rehabilitation/restoration, expansion, and replacement of airport passenger shelters, air terminal buildings, garages, and other airport buildings. This subprogram also includes the provision of new air terminal buildings and airport passenger shelters at existing airports where these facilities currently do not exist as well as the construction of new airport passenger shelters and air terminal buildings as part of new airport development projects.

Capital Facilities

Airport buildings which will be rehabilitated, restored, replaced, expanded and provided include the following:

- passenger cargo shelter, air terminal building, operations building, community airport radio station
- parking garage, maintenance garage
- field electrical building
- navigational aid building(s) for GNWT navigational aids only
- other buildings, as deemed required.

Criteria

Criteria for the rehabilitation, restoration, replacement, expansion and provision of new airport buildings are based on federal and territorial life cycle management practices and standards, operational requirements, changes in population, socio-economic needs and critical aircraft.

AIRPORT BUILDINGS

Standards

Airport buildings are governed by standards in Federal legislation, regulations, codes and authorities, and by those established by the Departments of Transportation, Public Works & Services and Municipal and Community Affairs relative to buildings.

Legal authority for airport buildings under this program is provided in the following legislation, regulations, codes and authorities:

- Public Health Act and Regulations,
- Fire Prevention Act and Regulations,
- Electrical Protection Act and Regulations,
- Petroleum Products Act,
- Boiler and Pressure Vessels Act and Regulations,
- National Building Code of Canada, 1990,
- National Fire Code,
- Aeronautics Act (Canada) and Air Regulations,
- Canadian Electrical Code,
- Canadian Plumbing Code,
- Canadian Oil Installation for Oil Burning Equipment Codes.

AIRPORT EARTHWORKS & ELECTRICAL

Program Description

Program Objectives

To provide for the replacement, re-construction, upgrading and construction/installation of new airport civil surfaces, airfield electrical systems and other equipment.

Capital Facilities & Equipment

Airport civil surfaces, airfield electrical systems and related equipment which will be installed, replaced, upgraded, reconstructed, or provided include the following:

- airport surfaces (gravel/paved) and embankments
- airport access and service roads
- airfield lighting including runway, taxiway and apron edge lighting, threshold identification lights, runway end identification lights, rotating/strobe beacons, hazard beacons, illuminated windsock(s) and other lighting aids and equipment
- approach and navigational equipment (i.e., Precision Approach Path Indicator (PAPI), Differential Global Positioning System (DGPS)
- electrical power

Criteria

Criteria for the upgrading, replacement, reconstruction/installation, and construction of new airport earthworks, airfield electrical systems and related equipment are based on Federal and territorial life cycle management practices and standards, operational requirements and changes in population, socio-economic needs and critical aircraft.

The "critical aircraft" for a specific airport is defined as that aeroplane, of all the aeroplanes the airport is intended to serve, which has the most demanding operational requirements with respect to movement area dimensions, pavement bearing strength and other physical characteristics at that airport.

AIRPORT EARTHWORKS & ELECTRICAL

Standards

Airport earthworks, airfield electrical systems and related equipment are governed by standards in Federal legislation, regulations, codes and authorities and by those established by the Departments of Transportation, Public Works & Services and Municipal and Community Affairs relative to earthworks/pavement, electrical systems and related equipment.

The basic Department of Transportation standard is that all airports should satisfy Transport Canada certification requirements.

Federal legislation and regulations cover the certification, design and operation of all airports in Canada.

Legal authority for airport earthworks, electrical systems and related equipment is provided in the following legislation, regulations, codes and authorities:

- Aeronautics Act (Canada) and Air Regulations,
- Electrical Protection Act and Regulations,
- Canadian Electrical Code,

AIRPORT MISCELLANEOUS

Program Description

Program Objectives

To provide airport planning studies, airport boundary and lot surveys, airport signage, fencing, and other extraordinary items.

Capital Facilities/Equipment

Airport miscellaneous includes the following:

- airport planning studies
- run-up pads
- airport boundary and lot surveys
- airport signage
- airport fencing
- other extraordinary items

Criteria

Criteria for the provision of airport miscellaneous are based on federal and territorial life cycle management practices and standards, operational requirements and changes in population, socio-economic needs and critical aircraft.

Standards

Airport miscellaneous are governed by standards in Federal legislation, regulations, codes and authorities and by those established by the Departments of Transportation, Public Works & Services and Municipal and Community Affairs.

Legal authority for airport miscellaneous items under this program is provided in the following legislation, regulations, codes and authorities:

- National Building Code and Regulations,
- Aeronautics Act (Canada) and Air Regulations.

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AIRPORT VEHICLES & EQUIPMENT

Program Description

Program Objectives

To provide for the purchase of new or replacement vehicles and equipment required for the maintenance of airport facilities.

Capital Equipment

New or replacement airport vehicles and equipment which will be provided for the maintenance of airport facilities include the following:

- self propelled grader
- crawler tractor
- snowblower
- front end loader
- compactor, either drum, wobbly - wheeled or vibratory
- brush cutter/mover
- high speed drag
- runway sweeper
- sand spreader
- runway dye marker
- decelerometer
- runway line marker
- cargo vehicles such as pick-up truck, crew-cab, panel, van, platform/stake/rack/plow and dump truck, truck tractor and tank bodies and other vehicles and maintenance equipment, as deemed required.

NOTE: In many cases, airports are maintained using equipment and vehicles provided for joint use, for both airport and municipal maintenance. Joint use equipment, vehicles and garaging are provided by the Department of Municipal and Community Affairs. The Department of Public Works and Services provides aviation refuelling equipment and tankage, both on and off - airport.

AIRPORT VEHICLES & EQUIPMENT

Criteria

Criteria for the replacement and provision of new airport vehicles and equipment are based on Federal and territorial life cycle management practices and standards, operational requirements and changes in critical aircraft.

Airport vehicle and equipment requirements at Territorial airports are a function of the air transportation needs of the population, both in the specific community and the area generally, and the operational characteristics of the scheduled "critical aircraft" provided by the carrier to meet those needs.

The "critical aircraft" for a specific airport is defined as that aeroplane, of all the aeroplanes the airport is intended to serve, which has the most demanding operational requirements with respect to movement area dimensions, pavement bearing strength and other physical characteristics at that airport.

Standards

Airport vehicles and equipment are governed by standards in Federal legislation, regulations, codes and authorities and by those established by the Departments of Transportation, Public Works & Services and Municipal and Community Affairs relative to vehicles and equipment.

MARINE TRANSPORTATION FACILITIES - COMMUNITY WHARVES

Program Description

Capital Facilities

Currently, the GNWT is responsible for the provision and upgrading of local marine facilities throughout the NWT. The facilities which have been developed and are maintained by DOT, range from small floating or fixed wharves in predominantly inland/freshwater communities to large scale harbours with rubble-mound breakwaters in the coastal communities.

Community marine infrastructure consists of any structure not naturally occurring which provides improvements to local or commercial marine operations in a settlement in the NWT. The Federal government, commercial interests and individual citizens have constructed fixed or floating wharves in selected communities in the past.

July 31/95

PETROLEUM PRODUCTS

Program Description

Program Objectives

Provide for storage dispensing of bulk fuels to meet community needs.

Capital Facilities

- storage tanks
- fuel dispensing equipment
- resupply piping
- delivery vehicles

Criteria

Tankage is constructed to provide sufficient storage for a 10 year forecasted consumption increase.

Forecasting

For tankage capacities, the previous 5 years' average percent increase in sales is applied to the first 3 future years thence 3% for the remaining 7 years; with a 15% safety factor.

Land Reserves

Land is reserved surrounding the bulk fuel storage facility to accommodate a minimum 20 years projected expansion for the facility. Depending on the size to meet this minimum, standard reserve sizes will be used i.e. 100m x 100m, 100m x 80m, 60m x 120m.

New Delivery Equipment

Where there is a long-term delivery contract in place, the delivery vehicles are supplied by the contractor and are not included in the GNWT Capital Program.

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APPENDIX D
SPECIAL APPROACHES TO CONSTRUCTION

July 31, 1995

APPROACHES TO CONSTRUCTION OF CAPITAL PROJECTS PUBLIC WORKS AND SERVICES

There are a number of special approaches used by Public Works and Services to deliver capital projects. All of these approaches use procedures to ensure that:

- northern and local workers and businesses are used;
- local room and board is used;
- northern consultants are employed;
- compensation for the high cost of northern operation is provided; and
- on specific projects, training programs are included.

These special approaches are as follows:

1. Public Tender

Contracts are tendered publicly and the contract award is based on the lowest price after adjustment for the Business Incentive Policy. The Business Incentive Policy adjustment discounts the bid according to the amount of local and northern benefit that the bidder intends to provide. The actual use of local and northern workers and businesses is monitored throughout the contract.

Variations of the Public Tender

- Public tender with nominated subcontract(s). Tender documents state that certain components of the work are to be subcontracted to local suppliers or contractors;
- Public tender with the stipulation that capable and available local labour must be used and non-local labour must be approved in advance.

2. Invited Tender

This is a competitive tender where only qualified local or regional contractors are invited to bid. Contractors from outside the community or region are not permitted to bid. It normally applies to small projects and to projects that can provide important opportunities for regional economic development. For invited competitive tenders over \$30,000, approval of the Deputy Minister of Public Works and Services is required.

3. Sole-Source Contracts

Sole-Source Contracts are awarded to one contractor directly without competition. Acceptable circumstances of sole-source contracts are outlined in the Government of the Northwest Territories (GNWT) Contract Regulations and are:

- construction is urgently required and delay would be injurious to the public interest; or
- only one party is available and capable of performing the contract; or
- the contract does not exceed \$1,000 in value.

4. Negotiated Contracts

Negotiated Contracts are awarded to one contractor directly without competition although there may be other contractors available and willing to do the work. Reasons for negotiated contracts are:

- the contractor is a new northern or local company which does not yet have the experience and business skills to secure the contract on a competitive basis; or
- the award is made to a northern or local company due to special circumstances, usually associated with maximizing local and northern involvement or training.

In order to undertake a negotiated contract:

- the initial decision to negotiate a contract requires Executive Council approval;
- the company must be northern owned and the majority of shareholders must be local;
- the contractor is required to use 100% northern and local subcontractors, equipment and labour except where specifically approved by the Minister of Public Works and Services;
- the GNWT may support the payment of a premium as a result of the negotiation of contracts, where the economic development and social benefits defined in the company's business plan equal or exceed the premium to be paid.

It is important to note the differences between the "negotiated" contract approach and the "sole-source" contract approach.

5. Construction Management Approach

Normally, construction contracts require the contractor to take the financial risk for completing the work. The contractor is responsible for his own profit or loss. When the GNWT wants to take greater control of the work particularly to increase local training and employment, or the use of local materials, the Construction Management approach may be used.

The Construction Management approach gives the GNWT more control over working procedures, particularly local involvement. However, the GNWT also assumes greater financial risk.

A construction manager is hired by the GNWT. The construction manager tenders for labour, materials and services separately to achieve the maximum northern and local involvement. Several different contract approaches could be used for these subcontracts, including sole-source, invitational and negotiated tenders. The construction manager also handles payment control, contract administration, accounting and other management aspects of the project.

The criteria for the construction management approach are:

- projects should be smaller and of simpler construction where the potential for local involvement is greater;
- a joint committee may be established composed of community and government representatives to monitor the project.
- the construction manager must have the experience and ability to work with local residents in isolated northern communities;
- the community must indicate its willingness to support this approach;
- it is generally used in smaller communities where local contractors are not available to undertake the project.

6. Special Arrangements

Typically, the GNWT has a consultant prepare drawings that are tendered. This provides maximum control over the finished product. However, other approaches can be used.

- **Design/Build** - Proposals are requested from contractors to provide both the design drawings and the construction. Submissions are based on performance requirements designated by the GNWT. This approach favours larger construction companies, reduces GNWT control over the finished product and reduces the opportunity for standardized design.

Lease Back to the GNWT - A local business may wish to finance the development of a project and lease it back to the GNWT, making a return on the investment over time. This approach is used for offices and warehouses, but is seldom used for public buildings like schools or health centres. Before proceeding with a lease back project, the local business is assessed by the GNWT to determine if it has the expertise and capacity to handle all aspects of such a venture, including the management of the leased premises.

7. Authority Agreements

A community government could also request the authority to manage any phase of a project. Most authority agreements are to manage construction, but design and planning can be considered.

Project management authority is given to the community in varying degrees. Depending on the complexity of the project and the experience of the community council, projects are turned over at any point from planning to construction. The community may engage consulting services for planning or design or they may enter into construction contracts. This approach is often implemented according to the Municipal Capital Assistance Policy. The community is expected to follow existing government policies, procedures and directives (Business Incentive Policy, security, training, northern and local involvement, tender advertising, etc.) when awarding contracts.

Communities undertaking this approach are selected on the basis of capability, willingness and financial involvement. The first step is for the community to formally indicate a willingness to participate. Then the community is assessed by the GNWT through the Departments of Municipal and Community Affairs and Public Works and Services for their capability to undertake partial or full management. The community then signs an agreement with the GNWT that sets out the terms and conditions.

8. Summary

A large variety of project delivery approaches are available. The approach can be tailored to the business, training and employment needs of each community and the specific opportunities available in a particular project.

APPENDIX E

INCREMENTAL INFRASTRUCTURE PROJECTS:

LIST OF TYPICAL PROJECTS

July 31, 1995

GN Office/Administrative

- . office space leases
- . tenant improvements

GN Staff Housing

- . lease costs
- . furniture

Schools

- . school equipment
- . school furniture
- . school playground equipment

Cultural Facilities

- . territorial library
- . information network
- . language bureau facility
- . territorial museum (culture and heritage)

Health/Social Service Facilities

- . Health and Social Services Centres
- . Addictions Facilities
- . Child Welfare Facilities
 - Adolescent treatment centres

Justice (Courts, Corrections)

- . courthouse(for Nunavut Supreme and Territorial Courts)
- . youth treatment centre
- . remand unit

Municipal Buildings

- . community offices
- . maintenance garages
- . parking garages
- . fire halls/fire fighting equipment

Water Systems

- . water supply (including reservoirs, water treatment plants)

Sewage Systems

- . sewage lagoons

July 31, 1995

Solid Waste Disposal

- . disposal sites

Vehicles

- . GN vehicles
- . POL vehicles
- . municipal fire trucks
- . municipal gravel trucks

Land Development

- . developed lots for GN infrastructure and staff housing
- . developed lots for residential housing for new persons in "multiplier jobs" (Federal government, municipal government, private sector)
- . costs for roads, drainage, street lighting, and piped-service connections

Air Transportation Facilities

- . airport relocations
- . airport runway extensions
- . airport runway paving
- . air terminal building expansions
- . airport apron/runway upgrades

Marine Transportation Facilities

- . harbour enhancements
- . resupply wharf construction

Bulk Fuel

- . bulk fuel storage tanks

July 31, 1995

APPENDIX F
NEW INFRASTRUCTURE PROJECTS
SCENARIOS 1, 2, AND 3

July 31, 1995

NEW PROJECTS

1. Legislative Assembly

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Iqaluit:</i>	<i>Rankin Inlet:</i>	<i>Cambridge Bay:</i>
<ul style="list-style-type: none"> • Lease (1999 to 2009) \$427,000 • Tenant Improvements \$1,209,000 in 1998/99 • Permanent Building \$18,963,000 in 2009 	<ul style="list-style-type: none"> • Lease (1999 to 2009) \$467,000 • Tenant Improvements \$1,180,000 in 1998/99 • Permanent Building \$18,507,000 in 2009 	<ul style="list-style-type: none"> • Lease (1999 to 2009) \$493,000 • Tenant Improvements \$1,257,000 in 1998/99 • Permanent Building \$18,721,000 in 2009

2. Department of Education, Culture and Employment

A. Schools

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Pond Inlet:</i>	<i>Pond Inlet:</i>	<i>Pond Inlet:</i>
<ul style="list-style-type: none"> • Ulaajuk School \$1,823,000 	<ul style="list-style-type: none"> • Ulaajuk School \$994,000 	<ul style="list-style-type: none"> • Ulaajuk School \$820,000
	<i>Rankin Inlet:</i>	<i>Cambridge Bay:</i>
	<ul style="list-style-type: none"> • Primary Addition \$2,409,000 	<ul style="list-style-type: none"> • New School \$7,394,000
	<i>Arviat:</i>	<i>Coppermine:</i>
	<ul style="list-style-type: none"> • Qitiglik School \$990,000 	<ul style="list-style-type: none"> • Kugluktuk School \$2,604,000
	<i>Baker Lake:</i>	<i>Gjoa Haven:</i>
	<ul style="list-style-type: none"> • Ilitsijaqturvik School \$1,898,000 	<ul style="list-style-type: none"> • School Expansion \$1,845,000

B. Cultural Facilities

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Iqaluit:</i>	<i>Rankin Inlet:</i>	<i>Cambridge Bay:</i>
<ul style="list-style-type: none"> • Library \$552,000 • Info. Networks \$529,000 • Language Bureau \$619,000 • Culture & Heritage \$5,949,000 	<ul style="list-style-type: none"> • Library \$564,000 • Information Networks \$541,000 • Language Bureau \$632,000 • Culture & Heritage \$6,075,000 	<ul style="list-style-type: none"> • Library \$575,000 • Information Networks \$552,000 • Language Bureau \$645,000 • Culture & Heritage \$6,200,000

NOTE In addition to being new, all these projects must be constructed by FY 98/99, to be ready for the new Nunavut Government in FY 1999/00.

3. Department of Justice

A. Courts, Corrections

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Iqaluit:</i> <ul style="list-style-type: none"> • Youth Treatment Centre \$2,160,000 • Security Upgrade - BCC \$500,000 	<i>Rankin Inlet:</i> <ul style="list-style-type: none"> • New Courthouse * \$8,048,000 • Security Upgrade - BCC \$500,000 • 16-Bed Remand Unit \$6,507,000 <i>Iqaluit:</i> <ul style="list-style-type: none"> • Youth Treatment Centre \$2,160,000 	<i>Cambridge Bay:</i> <ul style="list-style-type: none"> • New Courthouse * \$8,557,000 • Security Upgrade - BCC \$500,000 • 16-Bed Remand Unit \$6,933,000 <i>Iqaluit:</i> <ul style="list-style-type: none"> • Youth Treatment Centre \$2,160,000

NOTE: In addition to being new, all projects noted with an asterisk (*) must be constructed by FY 98/99, to be ready for the new Nunavut Government in FY 1999/00.

4. Department of Health and Social Services

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
Health Care Centres		
Iqaluit \$266,000	Rankin Inlet \$5,291,000	Igloolik \$281,000
Pangnirtung \$279,000	Arviat \$266,000	Cambridge Bay \$4,126,000
Pond Inlet \$294,000	Baker Lake \$266,000	Coppermine \$288,000
Cape Dorset \$272,000		Gjoa Haven \$320,000
Igloolik \$281,000		
Total \$1,392,000	Total \$5,823,000	Total \$5,015,000
Alcohol & Drug Treatment Centre \$2,600,000	Alcohol & Drug Treatment Centre \$2,600,000	Alcohol & Drug Treatment Centre \$2,600,000
Adolescent Treatment Centre \$1,600,000	Adolescent Treatment Centre \$1,600,000	Adolescent Treatment Centre \$1,600,000

NOTE: In addition to being new, all these projects must be constructed by FY 1998/1998, to be ready for the new Nunavut Government in FY 1999/00.

5. Department of Transportation

A. Air Transportation

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
	<i>Rankin Inlet:</i> <ul style="list-style-type: none"> • Apron Expansion \$1,200,000 • Precision Approach Landing System* \$1,360,000 	<i>Cambridge Bay:</i> <ul style="list-style-type: none"> • Precision Approach Landing System \$2,500,000 • Runway Extension* \$1,000,000 • Runway Paving \$5,000,000

B. Marine Transportation

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
	<i>Rankin Inlet:</i> <ul style="list-style-type: none"> • Harbour Enhancement \$400,000 <i>Baker Lake:</i> <ul style="list-style-type: none"> • Harbour Enhancement \$560,000 	<i>Cambridge Bay:</i> <ul style="list-style-type: none"> • Harbour Development \$500,000 <i>Coppermine:</i> <ul style="list-style-type: none"> • Harbour Improvement \$350,000

NOTE: In addition to being new, all projects with an asterisk (*) must be constructed by FY 98/99, to be ready for the new Nunavut Government in FY 1999/00

6. Department of Municipal and Community Affairs
(not including those projects less than \$100,000)

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Iqaluit</i>	<i>Pangnirtung</i>	<i>Pangnirtung</i>
• Sewage \$428,000	• Water Supply \$169,000	• Water Supply \$169,000
• Solid Waste \$105,000	• Sewage \$383,000	• Sewage \$383,000
<i>Pangnirtung</i>	<i>Pond Inlet</i>	<i>Cape Dorset</i>
• Water Supply \$472,000	• Municipal Buildings \$1,307,000	• Sewage \$260,000
• Sewage \$757,000	<i>Igloolik</i>	<i>Igloolik</i>
<i>Pond Inlet</i>	• Municipal Buildings \$1,251,000	• Municipal Buildings \$1,251,000
• Municipal Buildings \$1,309,000	• Water Supply \$189,000	• Water Supply \$248,000
<i>Cape Dorset</i>	<i>Rankin Inlet</i>	<i>Arviat</i>
• Water Supply \$676,000	• Municipal Buildings \$1,185,000	• Water Supply \$3,000,000
• Sewage \$655,000	• Water Supply \$1,572,000	<i>Baker Lake</i>
<i>Igloolik</i>	• Solid Waste \$381,000	• Sewage \$110,000
• Municipal Buildings \$1,251,000	<i>Arviat</i>	<i>Cambridge Bay</i>
• Water Supply \$584,000	• Water Supply \$3,000,000	• Municipal Buildings \$2,205,000
• Sewage \$747,000	<i>Baker Lake</i>	• Water Supply \$978,000
<i>Arviat</i>	• Water Supply \$102,000	• Sewage \$2,575,000
• Water Supply \$3,000,000	• Sewage \$657,000	• Play Space \$147,000
<i>Baker Lake</i>	<i>Coppermine</i>	<i>Coppermine</i>
• Sewage \$180,000	• Municipal Buildings \$1,279,000	• Municipal Buildings \$1,279,000
<i>Cambridge Bay</i>		• Sewage \$686,000
• Water Supply \$105,000		<i>Gjoa Haven</i>
• Sewage \$127,000		• Sewage \$399,000
<i>Coppermine</i>		
• Municipal Buildings \$1,279,000		

APPENDIX G

**MAJOR NUNAVUT INFRASTRUCTURE PROJECTS
FOR EACH NUNAVUT SCENARIO**

July 31, 1995

LARGE (Greater than \$2 Million) CAPITAL PROJECTS

1. Department of Education, Culture and Employment

A. Schools

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Iqaluit</i>	<i>Pond Inlet</i>	<i>Pond Inlet</i>
• Elementary \$6,377,000	• Primary \$6,383,000	• Primary \$6,383,000
• Junior High \$9,738,000	<i>Igloolik</i>	<i>Igloolik</i>
<i>Pond Inlet</i>	• Attaguttaluk \$10,240,000	• Attaguttaluk \$10,240,000
• Primary \$6,383,000	<i>Coppermine</i>	<i>Cambridge Bay</i>
<i>Cape Dorset</i>	• Kugluktuk \$5,426,000	• Illhakvik \$9,385,000
• Pitseolak \$11,014,000	<i>Cambridge Bay</i>	<i>Arviat</i>
<i>Igloolik</i>	• Illhakvik \$2,382,000	• Qitiqlik \$2,655,000
• Attaguttaluk \$10,240,000		
<i>Coppermine</i>		
• Kugluktuk \$6,158,000		
<i>Rankin Inlet</i>		
• Primary \$3,366,000		
<i>Arviat</i>		
• Qitiqlik \$3,234,000		
<i>Baker Lake</i>		
• Illitsijaqturvik \$4,166,000		
<i>Cambridge Bay</i>		
• Illhakvik \$3,090,000		

B. There are no Cultural Facilities in the "no Nunavut" scenario.

2. Department of Transportation

A. Air Transportation

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Cape Dorset</i> <ul style="list-style-type: none"> • Relocate Airport \$5,200,000 		
<i>Pond Inlet</i> <ul style="list-style-type: none"> • Upgrade Airport \$2,600,000 		

B. Marine Transportation - All projects less than \$2 million

3. Department of Justice

Courts, Corrections

Scenario #1 Iqaluit as Capital	Scenario #2 Rankin Inlet as Capital	Scenario #3 Cambridge Bay as Capital
<i>Iqaluit:</i> <ul style="list-style-type: none"> • Courthouse \$8,224,000 • 65-bed Correctional Centre \$32,155,000 • Renovate BCC \$6,508,000 • 12-bed Women's Centre \$2,850,000 • 8-bed Community Correction Centre \$2,000,000 	<i>Iqaluit:</i> <ul style="list-style-type: none"> • 65-bed Correctional Centre \$32,155,000 • Renovate BCC \$6,508,000 • 12-bed Women's Centre \$2,850,000 • 8-bed Community Correction Centre \$2,000,000 	<i>Iqaluit:</i> <ul style="list-style-type: none"> • 65-bed Correctional Centre \$32,155,000 • Renovate BCC \$6,508,000 • 12-bed Women's Centre \$2,850,000 • 8-bed Community Correction Centre \$2,000,000

4. Department of Municipal and Community Affairs

Scenario #1 Iqaluit as Capital		Scenario #2 Rankin Inlet as Capital		Scenario #3 Cambridge Bay as Capital	
<i>Iqaluit</i>		<i>Iqaluit</i>		<i>Iqaluit</i>	
• Water Supply	\$27,827,000	• Water Supply	\$27,794,000	• Water Supply	\$27,749,000
• Sewage	\$8,362,000	• Sewage	\$7,944,000	• Sewage	\$7,944,000
• Arena	\$4,000,000	• Arena	\$4,000,000	• Arena	\$4,000,000
<i>Arviat</i>		<i>Arviat</i>		<i>Arviat</i>	
• Water Supply	\$12,500,000	• Water Supply	\$12,500,000	• Water Supply	\$12,500,000
<i>Pangnirtung</i>		<i>Pangnirtung</i>		<i>Pangnirtung</i>	
• Water Supply	\$3,940,000	• Water Supply	\$3,637,000	• Water Supply	\$3,637,000
• Sewage	\$4,188,000	• Sewage	\$3,814,000	• Sewage	\$3,814,000
<i>Pond Inlet</i>		<i>Pond Inlet</i>		<i>Pond Inlet</i>	
• Water Supply	\$3,869,000	• Water Supply	\$3,776,000	• Water Supply	\$3,863,000
<i>Iglolik</i>		<i>Rankin Inlet</i>		<i>Rankin Inlet</i>	
• Water Supply	\$2,251,000	• Water Supply	\$2,627,000	• Sewage	\$3,313,000
<i>Rankin Inlet</i>		• Sewage		<i>Cambridge Bay</i>	
• Sewage	\$3,335,000	<i>Baker Lake</i>	\$3,330,000	• Sewage	\$4,137,000
		• Sewage	\$2,401,000		

APPENDIX H

NUNAVUT INCREMENTAL GROWTH

**. SUMMARIES OF INCREMENTAL COST
(PRESENT VALUE)**

. 20-YEAR CASH FLOW SUMMARIES

July 31, 1995

NUNAVUT INCREMENTAL GROWTH

SCENARIO #1 IQALUIT as Capital
COMMUNITY: ALL

INFRASTRUCTURE	INCREMENTAL COST
Legislative Assembly	\$9,927,000
GN Office/Administrative	\$42,247,000
GN Staff Housing	\$39,726,000
GN Staff Housing Furniture	\$7,875,000
Schools	\$12,388,000
Cultural Facilities	\$8,089,000
Health Facilities	\$7,230,000
Justice (Courts, Corrections)	\$21,851,000
Municipal Buildings	\$2,366,000
Recreational Facilities	\$782,000
Water Systems	\$6,713,000
Sewage Systems	\$2,281,000
Solid Waste Disposal	\$421,000
Vehicles	\$2,303,000
Land Development	\$12,178,000
Air Transportation	\$5,158,000
Marine Transportation	\$0
Bulk Fuel Storage	\$8,821,000
Power Supply	\$0
TOTAL	\$188,356,000

Notes:

1. All costs are in present value in \$1996.
2. Vehicles include GN vehicles, POL vehicles, municipal fire trucks and gravel trucks.
3. Land Development costs are for GN, Federal/municipal and private sector staff housing needs, GN institutional needs and private residential needs.

NUNAVUT INCREMENTAL GROWTH

SCENARIO #2 RANKIN INLET as Capital
COMMUNITY: ALL

INFRASTRUCTURE	INCREMENTAL COST
Legislative Assembly	\$9,954,000
GN Office/Administrative	\$41,725,000
GN Staff Housing	\$45,761,000
GN Staff Housing Furniture	\$7,929,000
Schools	\$8,839,000
Cultural Facilities	\$8,050,000
Health Facilities	\$13,136,000
Justice (Courts, Corrections)	\$31,334,000
Municipal Buildings	\$2,517,000
Recreational Facilities	\$124,000
Water Systems	\$4,117,000
Sewage Systems	\$2,462,000
Solid Waste Disposal	\$800,000
Vehicles	\$2,311,000
Land Development	\$14,243,000
Air Transportation	\$5,780,000
Marine Transportation	\$597,000
Bulk Fuel Storage	\$7,512,000
Power Supply	\$0
TOTAL	\$206,991,000

Notes:

1. All costs are in present value in \$1996.
2. Vehicles include GN vehicles, POL vehicles, municipal fire trucks and gravel trucks.
3. Land Development costs are for GN, Federal/municipal and private sector staff housing needs, GN institutional needs and private residential needs.

NUNAVUT INCREMENTAL GROWTH

SCENARIO #3 CAMBRIDGE BAY as Capital
COMMUNITY: ALL

INFRASTRUCTURE	INCREMENTAL COST
Legislative Assembly	\$10,310,000
GN Office/Administrative	\$42,565,000
GN Staff Housing	\$37,841,000
GN Staff Housing Furniture	\$8,049,000
Schools	\$13,553,000
Cultural Facilities	\$8,298,000
Health Facilities	\$12,463,000
Justice (Courts, Corrections)	\$32,253,000
Municipal Buildings	\$4,115,000
Recreational Facilities	\$83,000
Water Systems	\$2,984,000
Sewage Systems	\$2,819,000
Solid Waste Disposal	\$466,000
Vehicles	\$2,396,000
Land Development	\$8,868,000
Air Transportation	\$7,730,000
Marine Transportation	\$685,000
Bulk Fuel Storage	\$3,980,000
Power Supply	\$0
TOTAL	\$199,458,000

Notes:

1. All costs are in present value in \$1996.
2. Vehicles include GN vehicles, POL vehicles, municipal fire trucks and gravel trucks.
3. Land Development costs are for GN, Federal/municipal and private sector staff housing needs, GN institutional needs and private residential needs.

**TABLE 2 NUNAVUT INFRASTRUCTURE - INCREMENTAL COST (\$1996)
SCENARIO 2 RANKIN INLET AS CAPITAL**

Category	Total	Present Value	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
ALL COMMUNITIES																							
TOTAL	377,416	206,990	4,472	58,176	51,015	24,719	11,766	(13,865)	10,589	14,874	25,318	20,641	15,487	18,329	24,814	23,845	24,545	17,809	15,674	12,547	6,573	10,088	
CAPITAL	118,585	96,015	4,472	58,176	50,111	9,202	(3,969)	(29,800)	(5,084)	14,874	25,318	20,641	15,487	18,329	24,814	23,845	24,545	17,809	15,674	12,547	6,573	(5,138)	
O&M and Annual	258,833	110,975	0	5	904	15,517	15,754	15,941	15,673	14,874	14,702	14,876	14,842	14,931	14,781	15,010	15,163	15,027	15,318	15,268	15,268	15,226	
Office	93,732	41,725	0	0	4,587	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	
Capital (Const. & TI)	4,587	3,754	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Annual (Lease, Rent)	89,144	37,970	0	0	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	
Municipal Buildings	6,349	2,517	0	0	961	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	
Capital	5,022	2,065	0	0	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	402	
O&M	1,327	452	0	0	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
Staff Housing (O&M-Lease)	107,433	45,781	0	0	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	6,320	
Education	11,470	6,639	0	590	5,945	2,600	(91)	(1,436)	4,163	(1,995)	3,330	(214)	4,208	(4,927)	(4,183)	3,759	5,942	4,205	520	(33)	(5,200)	(3,473)	
Capital	6,304	8,969	0	590	8,945	56	(285)	(1,840)	4,043	(1,886)	3,121	(530)	3,896	(5,367)	(4,450)	3,638	5,717	3,980	13	(540)	(5,707)	(3,960)	
O&M	5,166	1,970	0	0	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204	
Health / Social Services	18,831	13,136	697	7,571	1,584	680	581	581	581	581	581	581	581	581	581	581	581	581	581	581	581	581	
Capital	9,962	8,932	697	7,571	1,584	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
O&M	8,869	4,204	0	0	581	581	581	581	581	581	581	581	581	581	581	581	581	581	581	581	581	581	
Recreation Play Space	159	124	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	
Cultural Facilities	10,702	8,050	667	3,524	3,588	203	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	
Capital	7,812	6,819	667	3,524	3,588	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
O&M	2,890	1,231	0	0	1,941	(4,424)	(27,488)	(8,237)	785	791	1,306	808	808	808	808	808	808	808	808	808	808	808	
Justice(Courts, Corrections)	28,863	31,334	1,981	35,528	18,818	1,941	(4,424)	(27,488)	(8,237)	785	791	1,306	808	808	808	808	808	808	808	808	808	808	
Capital	9,138	21,355	1,981	35,528	17,852	(252)	(6,617)	(29,800)	(10,239)	(21)	(15)	500	0	0	0	0	0	0	0	0	0	0	
O&M	19,825	9,980	0	0	787	2,193	2,193	(112)	(589)	(523)	(123)	1,870	1,569	(50)	(1,871)	2,503	3,067	45	93	(678)	(2,437)	(1,772)	
Water Systems (Cap)	5,053	4,117	73	282	1,843	2,251	(2)	(112)	(569)	1,368	1,768	546	(111)	(46)	(387)	(363)	(20)	28	28	(775)	(1,128)	(1,217)	
Sewage Systems (Cap)	1,164	2,462	99	110	149	168	59	531	833	1,368	1,768	546	(111)	(46)	(387)	(363)	(20)	28	28	(775)	(1,128)	(1,217)	
Solid Waste Systems (Cap)	455	600	0	32	401	225	3	206	(206)	0	0	206	0	0	412	(206)	(206)	(206)	(206)	(206)	(206)	(206)	
Legislative Assembly	30,293	9,954	0	0	1,221	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	
Capital (Const. & TI)	19,728	5,811	0	0	1,221	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Annual (Lease, Rent)	10,565	4,143	0	0	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	
Bulk Fuel Storage	10,650	7,512	0	723	5,892	3,980	(658)	(400)	(3)	0	336	2,129	(3,841)	(3,784)	2,571	2,443	(292)	(55)	(139)	(421)	274	1,795	
Capital	10,650	7,512	0	723	5,892	3,980	(658)	(400)	(3)	0	336	2,129	(3,841)	(3,784)	2,571	2,443	(292)	(55)	(139)	(421)	274	1,795	
Power Supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Air Transportation	9,121	5,780	0	0	30	1,543	2,333	1,203	483	843	1,163	553	483	(117)	473	483	423	(727)	(97)	(397)	213	233	
Capital	2,560	2,989	0	0	30	1,480	2,050	770	50	410	630	20	(50)	(600)	(10)	0	(60)	(1,060)	(430)	(630)	(20)	0	
O&M	6,561	2,791	0	0	83	283	433	433	433	433	533	533	533	483	483	483	483	333	333	233	233	233	
Marine Transportation	1,280	597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Capital	960	484	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
O&M	320	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Vehicles	4,494	2,311	0	0	675	828	197	132	249	(170)	55	186	915	(64)	(69)	417	363	15	(62)	189	728	(88)	
Capital	2,475	1,449	0	0	675	740	72	3	120	(305)	(65)	70	795	(190)	(185)	310	240	(120)	(190)	70	605	(170)	
O&M	2,019	861	0	0	88	125	129	129	129	135	120	118	120	126	116	107	123	135	129	119	122	82	
Staff Housing Furniture (Cap)	13,244	7,929	0	0	6,822	0	0	0	0	0	0	0	0	0	6,822	0	0	0	0	0	0	0	
Blank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Land Development	23,027	14,243	955	9,817	224	138	591	151	676	595	2,099	202	205	3,651	1,110	424	256	328	713	305	310	277	
Capital-Residential	8,518	7,737	280	8,191	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Capital-Non-residential	10,794	5,006	674	1,621	40	0	453	10	535	436	1,928	1	4	3,438	884	170	0	72	456	32	36	1	
O&M	3,715	1,499	0	5	137	138	138	141	141	157	171	201	201	213	228	254	256	256	257	273	274	274	



Staff Housing: Nunavut Government

*A Supplementary Report of the
Nunavut Implementation Commission*

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**Nunavut Hivumukpalianikhaagut Katimayit
Nunavut Implementation Commission
Commission d'établissement du Nunavut**

September 14, 1995

The Hon. Ron Irwin,
Minister,
Department of Indian Affairs and
Northern Development,
Ottawa, Ontario

The Hon. Nellie Cournoyea,
Government Leader,
Government of the Northwest Territories,
Yellowknife, NWT

Mr. Jose Kusugak,
President,
Nunavut Tunngavik Inc.,
Iqaluit, NWT

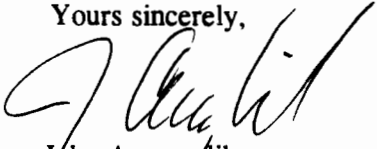
Dear Mr. Irwin, Ms. Cournoyea, and Mr. Kusugak,

On behalf of the Nunavut Implementation Commission (NIC), I am writing further to my letter of August 17, 1995, concerning work of the Commission supplementary to its earlier report, "Footprints in New Snow".

At this time I am pleased to supply you with a supplementary report of the Commission entitled "Staff Housing - Nunavut Government". This report expands on the recommendations in our March 31, 1995 comprehensive report. The Commission believes that the availability of adequate and affordable housing for government staff will be most important for the Nunavut Government.

The Commission would be pleased to discuss this report with you, or any other work of the Commission, at a convenient time.

Yours sincerely,



John Amagoalik,
Chairperson

STAFF HOUSING - NUNAVUT GOVERNMENT

**A SUPPLEMENTARY REPORT OF THE NUNAVUT
IMPLEMENTATION COMMISSION**

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Staff Housing - Nunavut Government

I Background

The Commission believes that a supply of adequate housing at affordable prices is essential for the effective delivery of the Nunavut Government's programs and services by the staff of the Government. Past experience both in the NWT and elsewhere in Canada has shown that inadequate and or crowded housing creates a broad range of problems including;

- increased physical and mental health problems.
- inadequate school performance associated with lack of adequate sleep and/or adequate quiet space to do homework.
- increased absenteeism at work.

These problems detract both from staff performance on the job and the education of the future workforce.

II Other Factors

The Commission, also, believes that there are other key factors which must be taken into account that are unique to the north and Nunavut.

1. The severity of the climate dictates that most people spend much more time indoors than anywhere else in Canada.
2. The general lack of a private housing market in most Nunavut Communities and the lack of accommodation to rent or purchase.
3. The major reliance on social housing is most Nunavut communities.
4. The existing major shortfall in available social housing in Nunavut .(approximately 1800 units)
5. The elimination of Federal capital funding for new social housing and the reduction in funding for operating and maintaining existing rental social housing.

III Other Issues

The Commission is fully aware of the position and philosophy of both the Government of the NWT and the Federal Government regarding staff housing in the North.

For many years both Governments provided a broad range of support for housing its employees throughout the communities in the NWT. Substantial financial resources have been provided to build, lease, operate, maintain and manage staff housing programs. In recent years both Governments have been attempting to withdraw from both the responsibility and the high costs of housing in those communities where a viable private market could be developed.

The Commission fully understands this background and the important financial implications associated with Government owned, operated, maintained and managed staff housing. The Commission is, also, committed to work towards the same long range intent of having both the individuals and the private sector meet the housing needs in the North to the fullest extent possible. The Commission fully believes, however, that a supply of adequate and affordable housing will be essential for the staff of the Nunavut Government and that the Government must have the appropriate programs and financial support in place to ensure housing is available.

IV Principles

In light of the importance of housing and the above factors, the Commission believes that the Nunavut Government must have a well defined Government staff housing strategy and policy.

The key principles guiding this strategy and policy are:

1. Government employees whether recruited locally or from outside the community should be treated fairly and equitably.
2. Nunavut Government staff housing policies and programs should support the ability of the Government to attract, retain and promote staff.
3. The Nunavut Government should support the eventual development of private housing markets in all communities which will ensure a supply of adequate and affordable rental and home ownership accommodation.

4. The Nunavut Government should support the supply of housing in a manner which encourages viable private sector opportunities for Nunavut companies, co-operatives, development corporations and individuals to develop, own and (operate where applicable) housing to meet both the rental and purchase market.
5. The Nunavut Government's staff housing policies and programs should be closely integrated with an overall housing strategy for Nunavut to meet the needs of all levels of Government, claimant organizations, social housing recipients, the private sector and the public at large.

V Approach

To ensure there is adequate and affordable housing available for Nunavut employees to rent or own, the Commission believes there should be appropriate Government policies and programs in place.

A. Lease of Accommodation

To meet the needs of employees that desire to rent their accommodation there should be leased staff housing available. Leasing can be achieved in two basic ways:

1. **Straight lease**
 - (a) - Nunavut Government leases from a private building owner.
 - (b) - Nunavut Government sub-leases to staff and collects the rent.
 - (c) - Nunavut Government provides full property management.
2. **Rental Guarantee**
 - (a) - Nunavut Government guarantees the difference between the Nunavut Government rents and the private building owner's rent.
 - (b) - The Building Owner enters into leases with the employees and collects the rent.
 - (c) - The Building owner provides property management.

The Commission believes a rental guarantee is the best approach because:

- 1.- It establishes a normal landlord to tenant relationship.
- 2.- It requires the private building owner to assume a normal private sector property management role.
- 3.- It decreases direct dependency on Government.
- 4.- It encourages both landlord and tenant responsibility and accountability.

The attached discussion paper prepared by the Department of Public Works and Services, GNWT, outlines in some detail a possible framework and key planning assumptions for leasing both office space and staff housing in Nunavut.

The following is a summary of the key leasing assumptions for staff housing:

1. Accommodation standards
 - Nunavut Government
2. Lease type
 - net lease
3. Lease term - existing housing - 5 years
 - new housing - 20 years
4. Land
 - Nunavut Government reserves the land.
5. Planning schedule
 - 2 years
6. Return of equity
 - current rate of interest for a first mortgage.
7. Equity by the builder.
 - minimum - 15%
8. Construction standards
 - Nunavut Government.
9. Acquisition of Leased accommodation.
 - (a) Leased accommodation provided primarily through public proposal calls.
 - (b) Under certain limited circumstances and within strict criteria, some accommodation may be acquired through negotiation. For negotiated leases the owner must be 100% northern and local and 100% of contractors, sub-contractors, consultants, suppliers and labour must be northern and local.
10. Options to purchase
 - the leases and rental guarantee agreements for single and multifamily units should be structured to permit purchase options by the tenants.
11. Proposal calls will be structured to encourage bids from both the small property owner of an existing housing unit to Northern firms capable of providing and managing multiple housing units.

B. Purchase of Accommodation

To meet the needs of staff who want to purchase or build their own home, there needs to be appropriate Government assistance available.

For most Nunavut communities at this time there is only limited private housing that is both available or affordable.

For employees who want to acquire their own home there should be financial support available that is basically equivalent to the support provided to employees who wish to rent their accommodation. An appropriate vehicle to achieve this objective could be a down payment assistance program.

1. Employee Home Ownership Down Payment Program.

(a) The main elements of the Program could be as follows:

- The employee must be eligible for bank financing.
- The employee provides a five percent (5%) downpayment.
- The Government would provide a forgivable loan of twenty percent (20%) of the cost of the home.
- The loan would be forgiven over a 15 year period.
- The employee assumes a bank mortgage for 75% of the cost of the house.
- A ceiling for the cost of the home would be established based on the cost to construct a 3 bedroom, 1200 sq. ft. home in each Nunavut community.
- The employees pay for their own utilities and maintenance.
- To provide security and reduce risk, employees under this program will be eligible for a Government Buy Back Plan which would buy back their housing unit at ninety percent (90%) of the appraised value if they have not been able to find a buyer.

(b) The benefits of the Program would be;

1. The Government employee benefits in that they build up equity in property they own while assuming approximately the same costs as a Government employee in rented accommodation.
2. The Program would encourage employees to build new homes thereby adding to the housing supply in each community and stimulate the development of a market economy.
3. Home ownership would encourage stability in the Nunavut Government workplace.
4. Home ownership will encourage employee pride in their housing and encourage personal responsibility in the economical use of water, electricity and fuel.

(c) Cost

The Government of the NWT has had considerable experience in developing and implementing various home ownership programs through the NWT Housing Corporation . Based on this experience the cost per unit for a downpayment program is illustrated in appendix A. This preliminary costing indicated that the subsidy per housing unit for a 20% loan forgivable over 15 years would be in the range of approximately \$30,00 to \$34,000.

(d) Program Introduction

The Nunavut Government will come into being on April 1, 1999. During the first year of operation considerable time will be spent on establishing the headquarters organization in the Capital, and relocating staff to new regional and auxiliary regional offices. As part of this initial organizational activity approximately 3/4 of the staff will be relocated, promoted and/or recruited from outside their new home community. Initially, therefore, the Commission believes these employees will be primarily interested in rental accommodation. This will allow them to become accustomed to their jobs, to their new community and to the Nunavut Government. After the phase in period the Commission believes the level of interest in the home-ownership option will steadily increase and it is important that the Nunavut Government be in a position to respond with appropriate programs.

For 1999-2000 the first year of the new Government, the primary focus should be on the provision of rental accommodation with the preferred option being the Rental Guarantee approach.

VI Summary

The Commission has concluded that a supply of adequate and affordable housing for Nunavut Government Employees will be essential for the effective operation of the Government. The Commission, also, supports the long term objective of both the Government of the NWT and the Federal Government to develop a private housing market in the North and to encourage both personal and private sector responsibility regarding housing.

APPENDIX A

BAFFIN REGION

Community	Maximum construction costs	5% down payment	Financing 10% per month	20% forgivable loan	maximum mortgage	assisted financing @ 10%	financing savings w/loan per year
Iqaluit	154,900	7,745.00	1,316.28	30,980.00	116,175	1,039.17	3,325.32
Cape Dorset	150,000	7,500.00	1,274.64	30,000.00	112,500	1,006.30	3,220.08
Pangnirtung	152,800	7,640.00	1,298.44	30,560.00	114,600	1,025.08	3,280.32
Pond Inlet	153,200	7,660.00	1,301.84	30,640.00	114,900	1,027.77	3,288.84
Iglolik	153,500	7,675.00	1,304.39	30,700.00	115,125	1,029.78	3,295.32

KITIKMEOT REGION

Community	Maximum construction costs	5% down payment	Financing 10% per month	20% forgivable loan	maximum mortgage	assisted financing @ 10%	financing savings w/loan per year
Cambridge Bay	159,500	7,975.00	1,355.37	31,900.00	119,625	1,070.03	3,424.08
Coppermine	160,600	8,030.00	1,364.72	33,120.00	120,450	1,077.41	3,447.72
Gjoa Haven	167,100	8,355.00	1,419.95	33,420.00	125,625	1,121.02	3,587.16

KEEWATIN REGION

Community	Maximum construction costs	5% down payment	Financing 10% per month	20% forgivable loan	maximum mortgage	assisted financing @ 10%	financing savings w/loan per year
Arviat	153,000	7,650.00	1,300.14	30,600.00	114,750	1,026.42	3,284.64
Baker Lake	152,800	7,640.00	1,298.44	30,560.00	114,600	1,025.08	3,280.32
Rankin Inlet	154,900	7,745.00	1,316.28	30,980.00	116,175	1,039.17	3,325.32

June 19, 1995

DEPARTMENT OF PUBLIC WORKS AND SERVICES
NUNAVUT INFRASTRUCTURE
PLANNING ASSUMPTIONS
OFFICE SPACE AND HOUSING

A. GENERAL

1. Lease vs Own

The policy is to lease office space and housing rather than construct as government owned assets. This approach:

- avoids the large expenditure of capital funds by government
- encourages long term private sector development
- encourages the construction of additional office, residential and commercial leased space on "spec", in conjunction with the government space.
- provides flexibility in meeting needs.

2. Leasing Process:

a) Public Request For Proposal (RFP)

Requests for proposals (RFP) are issued through advertisements in northern papers and posted notices in the affected communities. The RFP includes general specifications on the space required, location, standards of construction, and maintenance, lease term, northern preference policy and a sample lease document.

All proposals are evaluated on certain weighted criteria which may include:

COMPONENT	WEIGHT (%)
Costs	50
Quality of Accommodation	35
Northern/Local involvement	5
Proponent's experience	5
Schedule	5
	100%

In evaluating the cost component, preference is given for local/northern involvement under the business Incentive Policy (BIP). This is in addition to the separate evaluation criteria for "Northern/Local Involvement.

b) Negotiated Leases

In certain situations, the Cabinet may authorize a negotiated lease in lieu of public RFP. This is a means to maximize the local benefits to the community in terms of business development, job creation and training opportunities.

Negotiated contracts usually have special criteria designed to achieve these objectives.

- 100% northern suppliers, consultants and contractors must be used.
- Total northern/local ownership.
- Proponent must have certain equity in the project (15% minimum).
- Costs must be reasonable.

With respect to negotiated lease costs, a number of assumptions are required:

- Development Costs: Includes a construction estimate, interim financing, project management, legal and mortgage fees and a structural reserve.
- Return on Equity: Generally, the rate of interest of the (first) mortgage is considered a reasonable interest rate for the return on equity.
- Financing: The landlord is expected to shop for competitive financing. The long term Government lease is considered excellent security for most lenders. The lease usually includes rent adjustment clause to compensate for changes in mortgage interest rates.
- The term of the mortgage to be the same as the lease term or longer.
- Base Rents: Are calculated as the amount necessary to secure the mortgage and to pay a return on equity.
- Equity: A minimum of 15% equity is required. This may be increased, depending on the mortgage lender's debt coverage ratio (DCR), which is a cushion against decreases in net operating income (NOI) to assure the lender that the borrower can continue to service the debt. For example, with a 1.2 DCR, the lender will require the borrower's NOI to be sufficient to meet mortgage payments plus a cushion of 20%. Since the developer's equity investment is not subject to a DCR, the GNWT may wish to assist the developer to maximize his equity participation thereby decreasing the NOI (i.e. mortgage amount x DCR) required by the lender. This may be achieved by paying a higher rate of return on equity or through low interest loans. For example, if equity participation can be increased from 15% to 25%, the mortgage amount can be decreased from 85% to 75% and the rent could be reduced by 12%, i.e., $(.85 \times 1.2) - (.75 \times 1.2) = 1.07 - 0.9$.

3. Lease Types

There are two general types of leases used:

- (a) **Gross Lease:** Used for short term leases (less than 5 years) and the rents include a fixed base and operation and maintenance (O&M) costs. Taxes and some of the utility costs, i.e. heating fuel, may be allowed an escalation to "actual" costs, otherwise the rents are fixed for the full term.
- (b) **Net Lease:** Used for long term leases (over 5 years) where a fixed base rent is paid plus an adjustable O&M rent. The O&M rent is usually estimated for the first year and the escalation in the second year is capped at 10%. In the third year O&M rent is based on actual costs. Annual adjustments are done.

O&M may include:

- taxes
- insurance
- maintenance
- janitorial
- utilities
- overhead/administration

4. Lease Terms:

There are a number of factors that influence the term (years) of the lease. Generally, except for some special, short term projects, the leased infrastructure is required in the long term, i.e. 10 years or longer. However, there are reasons for leasing these facilities on short terms, if short term leases can be implemented. For example, with office space, programs and government organizations are frequently changed/consolidated/expanded with resulting impacts on office space. Short term leases provide the flexibility in office inventory needed to accommodate these changes. The short term lease can be renewed without relocating staff, can be replaced with more suitable space, can be downsized or dropped from the inventory completely.

Short term leases are generally practical only where there is a surplus of existing facilities on the "market", or there is a well developed market to support long term investments "on spec" i.e. without long term lease guarantees in place. The result is that most leased infrastructure must be built new and require long term leases to enable the projects to be financed over a reasonable period of time (20 years). Such long term commitments remove the flexibility in managing the inventory makeup and therefore special considerations may be included in the lease terms. For example:

- The option to acquire additional space adjacent to the existing lease at some time in the future. This requires the building be designed to accommodate an expansion and that land be available and reserved for this purpose.

- A variation on the above, is to require additional space to be constructed at the same time, to be placed on the private market, but the government holds an option on future use. There may be a premium associated with this.

5. Lease Costs

Many of the factors above impact directly on lease costs. In addition, there are other considerations for reducing the cost of leasing.

a) Land

In some communities, there may be little or no land available for commercial development. In some cases, undeveloped land may be "reserved" by certain developers and not available to competitors. When calling for build/lease proposals, it is important that suitable land be available to all potential proponents. If there is a shortage of land, the government may wish to reserve a lot(s) and make available, through leasing to the selected proponent. This should be optional, as a developer may already have partially developed or undeveloped land or require more land for a larger or a different type of development.

b) Advance Planning

The RFP must be issued well ahead of the date when the facility is required. The RFP process in itself can be quite lengthy, allowing time for advertising, evaluation of proposals and award. For design/build projects, the proponent must be allowed sufficient time to prepare the proposal, identify land, review financial arrangements, investigate construction costs etc. Most communities are served through an annual resupply and the award needs to be scheduled in consideration of the time it takes to order materials to dockside. Rushed or "Fast Tracked" projects initiated late in the season always result in higher costs. Most contractors and consultants have committed their resources to other projects by this time and a premium must be paid to attract contractors and to expedite the process.

A typical Schedule for a small office building required by April 1, 1999 in the Eastern Arctic might be:

<u>Task</u>	<u>By</u>
- Client confirms needs	July - 1997
- Issue RFP	Aug. - 1997
- Receipt of Proposals	Oct. - 1997
- Evaluation & Award	Dec. - 1997
- Design/Design review	Mar. - 1998
- Awarding of Sub-Contracts for materials & construction	Apr. - 1998
- Materials to dockside	July - 1998

- Construction starts Sept - 1998
- Occupancy Apr. - 1999

d) Construction Standards:

Considered along with inspection services, commissioning and long term O & M, this can be a difficult matter to address. Developers generally tend to construct to minimum standards. It is difficult to develop lease terms that hold the landlord responsible for long term O&M costs, and it is usually in the tenant's best interest to define the performance standards in the RFP, and to have the owner demonstrate the standards will be met. Air quality, energy efficiency and general quality of construction are relatively easy to define and monitor. It is very difficult to change these after construction and therefore sufficient time must be allowed in the design/design review process to accomplish this.

Leases are generally limited to 20 years and this should be recognized when setting standards that are factors in the life of the building.

e) Lease to Own:

Most developers are interested in an immediate return on investment, and are not too concerned with a potential profit 20 year's away. Therefore, a lease which provides that ownership revert to the government at termination, may be a method to reduce lifetime costs while satisfying the developer's need for an early return. While annual rents may be considered high, acquiring ownership of an asset in good condition at the end of the lease, reduces these costs in the long term.

The government may elect to "resell" the asset at that time for revenue, sell with a leaseback, or continue to use for government programs.

If lease to own is being considered, then the design and construction standards should be established accordingly ie. for a longer life building.

B. OFFICE SPACE

1. Office Space Standards:

The GNWT "Office Allocation Standards Directive will be used to determine general office space needs for all government departments and agencies. Key features of these standards include:

- Generally "open concept" approach with closed offices for certain managers, and for meeting rooms and special areas.
- Growth space is provided in the open area.

- Space is provided for "approved " positions only.

2. Tenant Improvement Standards:

Offices are usually leased with floor coverings, ceiling, lighting and HVAC installed. The "Fitups" to suit individual tenants are funded separately from the rent as government Capital projects. This includes partitions, workstation electrical services, extensions modifications of HVAC to suit office layouts, signage etc.

Standards are provided for this work.

Tenant improvements (TI) are funded separately from the lease payments because:

- It allows space to be leased prior to completing the detailed planning of layouts. Proponents cannot submit realistic competitive bids that include T.I. before the building has been designed and the exact layouts are known.
- Offices will usually be renovated/altered several times over the term of a lease. If the T.I. are owned by the landlord, renegotiation of the lease and rents would be required each time renovations are required.
- It is uneconomic to amortize the cost of T.I. over the length of a long term lease and pay in the rents, when the T.I. have an average life of only about 7 years.

Although planned and funded separately, it is more cost effective if the T.I. can be constructed at the same time as the building, using the same contractor(s). For general office space, the RFP may request unit price quotes for T.I. even though the T.I. still have not been designed. This is usually accomplished by requesting, for example:

- \$/linear feet of partition
- \$/ office door installed

Once the lease has been awarded and the building has been designed, the office layouts can be designed and actual T.I. determined. Avoid negotiating the cost of T.I. as a change order to the lease or as a separate, new contract.

At occupancy the T.I. are paid out in full as a capital cost and monthly rent payments commence.

C. HOUSING

1. Standards:

The standards for area (M²) construction, finishes and appliances will be those established by the NWT HC for public housing programs.

For staff housing, some minor upgrades are permitted. These may include additional carpeting and upgraded finishes.

2. Type of Units:

The demand for certain types/sizes of accommodation depends largely on the government policies of subsidization, home ownership and user pay. Where the policies are established to encourage private ownership, market development and user pay, then smaller, more efficient multi-family units are preferred over large, single family housing.

The policies should be established prior to determining the housing mix.

3. User Pay (Utilities):

The housing should be designed to permit the tenants to pay for their own utilities either immediately or at some future time, where practical. Usually, this means:

	BY TENANT	BY LANDLORD
a) Apartments:		
Electrical	X	
Heat		X
Water		X
b) Row Housing		
Electrical	X	
Heat	X	
Water	X	
c) Detached/Duplex		
Electrical	X	
Heat	X	
Water	X	

The utilities should be designed to permit the utility company/agency to invoice the tenant directly, and not require the landlord or other third party to read internal meters and issue secondary invoicing. This is consistent with the objective of future private ownership of the units.

4. Rental Guarantees Agreements:

As a move towards a total private housing market, head lease agreements between the government and the landlord should facilitate day to day contact between the landlord and the tenant and the government should be at "arms length" from the tenant. The government role is to "guarantee" that the landlord has sufficient potential revenue to

service any debt and provide a return on investment and thereby enable reasonably priced project financing. The government does not have to be involved in the day to day property management, and the use of an "Rental Guarantee Agreement" is an approach to achieving this objective.

With a Rental Guarantee Agreement the government:

- arranges to acquire housing units over a specified term (maybe short term or up to 20 years)
- establishes the rents to be charged to tenants
- identifies eligible tenants to the landlord
- pays rent on vacant units when there are no eligible tenants.
- pays the difference between the guaranteed rent and the tenant rent.

The Landlord:

- screens and accepts tenant candidates identified by the government
- collects and administers security deposits
- handles move-ins and move-outs
- collects the rents and handles all tenant relations
- operates and maintains the property
- invoices the government for any shortfall between economic rent and the tenant's rent, and for vacant units
- is responsible for unpaid tenant rent and tenant damage collection

Rental guarantee arrangements are more likely to be effective if all government housing within the community is managed the same way. These arrangements are more likely to succeed in regional centres where housing owners are knowledgeable and have landlord experience. From the tenant's perspective, the arrangement is less desirable than the conventional government staff housing program in that security deposits are collected and rent is payable monthly in advance. However, there are advantages to tenants in that tenant issues can be more effectively promoted where the tenant has control over the payment of rent.

5. Contracted Property Management

Where conventional leases are used in lieu of rental guarantees, the government may contract for the property management services. The contractor provides the same services as the landlord for an rental guarantee agreement and compensation would be a percentage of the rents collected. This type of contract may be used for housing owned or leased by the government and effectively puts the government at "arms length" from the housing tenants. It is not as effective as the rental guarantee in moving towards a private market because the landlord still has a relatively "care-free" lease and does not have the incentive to manage the property as efficiently as possible.

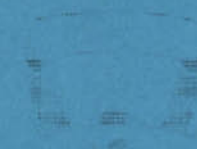
This approach is most suitable where there is already a number of leased housing units and the leases require property management to be provided by the government.

6. General:

There are general practices which facilitate the move to private markets:

- a) **Rent Collections:** Both the rental guarantee and contracted property management approaches require the tenant to pay rent directly to the landlord or property manager, monthly, as opposed to having automatic payroll deductions. This is the only method used on a private market.
- b) **Rent Timing:** Rents are paid monthly, in advance. ie. rents are paid on the first of the month rather than at the end of the month as in GNWT payroll deductions.
- c) **Damage Deposits:** The tenant places a refundable deposit at occupancy. The deposit may be paid over a period of months to avoid the hardship of paying both rent and deposit at occupancy.
- d) **Furniture:** Rental accommodation may be supplied only with the usual appliances (refrigerator and range) with the tenant supplying all other furniture. This may be privately owned furniture or furniture rented from the landlord or other agency. Current GNWT policy provides GNWT owned furniture at a nominal monthly rental.
- e) **Rent Scale:** In many communities, the full cost of housing may exceed the tenant's ability to pay and some subsidy programs are required. These programs should be structured so that the tenant does have some incentive to reduce costs. For example;
 - the rent should vary according to the size and type of unit. A good mix must be available to rent.
 - user pay utilities, aided with utility subsidy programs
 - damages are the responsibility of the tenant.
- f) **Options to Purchase:** The government may structure long term leases and rental guarantee agreements for single and multi-family housing to permit purchase options by the tenants. This approach is particularly suitable for duplexes and rowhouse type multi-family units provided that future private ownership of individual units is considered when selecting land, designing the building and utility services, placing the financing and structuring the lease agreements.

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*Implementation Schedule and
Decentralization Costs and Savings:
A Supplementary Report of the
Nunavut Implementation Commission*

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**Nunavut Hivumukpalianikhaagut Katimayit
Nunavut Implementation Commission
Commission d'établissement du Nunavut**

September 14, 1995

The Hon. Ron Irwin,
Minister,
Department of Indian Affairs and
Northern Development,
Ottawa, Ontario

The Hon. Nellie Cournoyea,
Government Leader,
Government of the Northwest Territories,
Yellowknife, NWT

Mr. Jose Kusugak,
President,
Nunavut Tunngavik Inc.,
Iqaluit, NWT

Dear Mr. Irwin, Ms. Cournoyea, and Mr. Kusugak,

On behalf of the Nunavut Implementation Commission (NIC) I am pleased to provide you with the final draft of the Supplementary Report entitled "Implementation Schedule and Decentralization Costs and Savings". This Supplementary Report is in response to the additional information requested in your letter of May 4, 1995.

The NIC appreciated that it is important that the Government of Canada, the GNWT and Nunavut Tunngavik Incorporated receive the supplementary reports as soon as possible for your review and analysis. We, therefore, are providing it to the three parties in an untranslated final draft form. We do so with the understanding that it will remain confidential to the three parties until the final, translated report is submitted.

I would like to elaborate briefly on the implementation schedule outlined in this report. The schedule identifies that the recommended organization structure and all staff will be in place by the end of the 1999 - 2000 fiscal year. This schedule depends on several key factors.

.../2

1. The Interim Commission and a small core of senior officials will need to be in place well before 1999 to undertake important planning and preparations for implementation of the new government.
2. When the capital is selected and the overall design of the Nunavut Government is approved, the Commission understands the GNWT will begin making changes to its structure to facilitate a smooth transition to the new Nunavut Government.
3. Successful implementation of a comprehensive and extensive training strategy and programs will be most important both in terms of preparing staff for their new responsibilities and achieving the recommended levels of Inuit employment in 1999.

In addition it is fully recognized that each transfer and decentralization initiative associated with the location of offices and staff in communities outside of the capital should have a training component. The exact nature of these specific training programs cannot be determined until detail are available on the positions to be filled through recruitment, and the skills and experience required for each position are clearly defined. Experience has shown that this specific training could be most important in achieving an increased level of both local and Nunavut based employment in the government. If the implementation schedule needs to be extended somewhat beyond the 1999 - 2000 fiscal year to achieve this important objective the Commission believes such an extension to the schedule would be desirable.

The Commission would be pleased to discuss this report with you, or any other work of the Commission, at a convenient time.

Yours sincerely,



John Amagoalik,
Chairperson

ORGANIZATION OF THE NUNAVUT GOVERNMENT

Implementation Schedule and Decentralization
Costs and Savings

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IMPLEMENTATION SCHEDULE AND DECENTRALIZATION COSTS AND SAVINGS

PART I. BACKGROUND

The Commission in its Comprehensive Report, "Footprints in New Snow" to the Department of Indian Affairs and Northern Development, Government of the Northwest Territories and Nunavut Tunngavik Incorporated concerning the establishment of the Nunavut Government, recommended a highly decentralized organizational structure.

The Commissions key objectives in recommending a highly decentralized structure are;

1. to ensure decision making is as close as possible to the people being served in order to promote the greatest degree of accountability to the electorate;
2. to ensure the number of headquarters staff in the capital is kept to a minimum level to minimize major impact on the capital community; and
3. to ensure that territorial government employment is shared with as many communities as reasonably possible.

The main organizational components of this structure are;

1. the establishment of relatively small headquarters located in the capital for the legislative and executive functions of the Nunavut Government and all its departments;
2. the establishment of departmental regional offices and several auxiliary regional offices in 10 communities throughout the Baffin, Keewatin and Kitikmeot Regions;
3. the location of semi-autonomous boards and agencies in regional offices and auxiliary regional offices;
4. the location of several departmental headquarters functions in regional offices and auxiliary regional offices;

In addition to this decentralized organizational structure, the Commission has recommended that one community not become both the capital for Nunavut and the regional office for its particular administrative region. This recommendation

promotes achievement of the three key objectives of the organizational model.

The recommended structure has important implications for the implementation schedule for the new Nunavut Government beginning in 1999. It has implications associated with staffing of the Nunavut Government and with its costs, both one time and ongoing costs.

Before addressing these implications it is important to identify the key components of change from the existing organizational structure of the GNWT;

1. establishment of the headquarters of the Nunavut Government in the capital of either Rankin Inlet, Iqaluit or Cambridge Bay;
2. relocation of the existing regional office to another community in the same administrative region from the selected capital community;
3. relocation of some existing regional office departments to auxiliary regional offices within the same administrative region;
4. location of some headquarters functions in regional offices and auxiliary regional offices;
5. location of some semi-autonomous boards, agencies, commissions and corporations in regional offices and auxiliary regional offices; and
6. decentralization of some headquarters positions to regional offices and auxiliary regional offices.

The net human resources requirements associated with these decentralization components for each of the three capital options are as follows;

REGION - COMMUNITY	Capital Location Scenario		
	Iqaluit	Rankin Inlet	Cambridge Bay
BAFFIN			
Iqaluit	99	2.5	2.5
Pangnirtung	80	41	41
Pond Inlet	77	53	37
Cape Dorset	67	0	8
Igloolik	93.5	61.5	66.5
Sub-total Baffin	416.5	158	155
KEEWATIN	33.5	216	-3
Rankin Inlet	55	76	27
Arviat	28	99	17
Baker Lake	116.5	391	41
Sub-total Keewatin			
	29	15	255
KITIKMEOT	33	36	97
Cambridge Bay	5	0	52
Coppermine	67	51	404
Gjoa Haven			
Sub-total Kitikmeot			
TOTAL	600	600	600

This summary reflects that, except for the capital community in the capital options of Rankin Inlet and Cambridge Bay, the net increase in territorial staff for any community is under 100 positions. For the Rankin Inlet capital option, Rankin Inlet would grow by 216 territorial government positions. For Cambridge Bay as capital option, Cambridge Bay would grow by 255 territorial government positions.

Although there is moderate territorial government staff growth in several of the mid sized communities in Nunavut, the decentralized model eliminates the major impact on the capital that would be associated with a centralized government structure.

For the purpose of assessing the implications, these six components of the recommended organizational structure can be reduced to three broad categories:

1. establishment of the headquarters for the Nunavut Government in the capital and the location of some headquarters functions and semi-autonomous boards and agencies in regional offices.

2. relocation of the regional office from the capital to another community in the region; and
3. relocation of some regional departmental offices to other regional offices or auxiliary regional offices in the same region.

PART II. REQUIREMENTS

To implement the organizational structure of the Nunavut Government there are both one time and ongoing requirements.

1. One time requirements

a. Personnel

recruitment and relocation of government employees.

-advertising for employment

-job interviews

-removal of employees, their dependents and personal effects from the point of hire or relocation.

-severance benefits for employees unable or unwilling to relocate

b Staff Training

training for local staff to take advantage of job opportunities associated with decentralization

c. Facilities, Equipment and Vehicles

(a) Nunavut Government Staff

- office tenant improvements
- office furniture and equipment
- communication systems
- computer systems and software
- vehicles

(b) -Population Growth

-new or expanded facilities to meet the population growth associated with the organizational structure.

2 Ongoing Requirements

a. Nunavut Government Staff

- provision of leased office space
- provision of leased staff housing
- medical and dental
- vacation travel assistance
- settlement allowances
- communications - operations
- travel -operations

b. Population Growth

- operation and maintenance of new or expanded facilities to meet the population growth associated with the organizational structure.

PART III. IMPACTS

The nature of the impacts will vary to some degree for each of the three broad categories of organizational change.

1. Headquarters in the Capital

Seventy five percent of employees for the headquarters operation in the capital will be hired, relocated or promoted from outside the capital from other Nunavut communities, the western arctic, and other regions in Canada.

As the total headquarters staff in the capital is projected to be approximately 380 positions, all of the preceding one time and ongoing requirements will apply. For the location of some headquarters functions and semi autonomous boards and agencies, in regional offices, and auxiliary regional offices, the requirements are basically the same as for the headquarters positions of the new Nunavut Government as the positions are not now located in Nunavut. The impact of these positions will be limited, however, as the number of positions associated with each function and semi-autonomous board and agency are not large.

2. Relocation of the Regional Office from the Capital

The relocation of the regional office from the capital to another community in the region will involve a relatively large existing organization and staff already located in Nunavut in the same region. If Iqaluit becomes the capital, this is particularly relevant as the existing Baffin Regional Office in Iqaluit is much larger than the regional offices in Rankin Inlet and Cambridge Bay. Except for the replacement of staff who are unable or unwilling to relocate, the move will largely involve moving existing

regional office staff. New office space and staff housing will be required in the new regional office community but moving the regional office will free up an equivalent amount of office space and staff housing for headquarters staff of the government to be located in the capital.

3. Relocation of some Regional Department Offices /Semi-Autonomous Boards and Agencies.

The relocation of some regional departmental offices to other regional offices or auxiliary regional offices in the same region basically has the same characteristics of the regional office relocation outside the capital. Again, the organizational changes involve existing offices and staff within the same region in Nunavut. The scale of the moves will be smaller because of the fewer positions involved and because several of the auxiliary regional offices already exist and will only require expansion.

PART IV. IMPLEMENTATION SCHEDULE - MAJOR FACTORS

Each of the categories of the organizational structure will involve proper planning and scheduling to implement the new Nunavut Government with no major disruption in programs and services delivery to the people of Nunavut. There are several positive factors, however, that will facilitate this process:

1. At least initially all of the laws, policies, programs, services, and procedures of the existing Territorial Government serving Nunavut will apply unchanged to the Nunavut Government. There will not be a requirement initially to develop and implement new laws, policies and procedures as part of the transfer process.
2. The existing staff of the GNWT in the regional and community offices in Nunavut will make up a large percentage of the work force of the new government. Transfer to the new government should not be a dramatic change for most of these employees.
3. Since the inception of the GNWT there have been several transfers of program and service responsibility and authority from the federal government beginning with the major transfer of authority for provincial type programs and services in 1969. The most recent devolution was the transfer of responsibility for all "A" airports from Transport Canada to the GNWT, announced in June of this year. As a result, the current GNWT and many of its employees at headquarters and the regional level have been heavily involved in both planning and implementing

these transfers in both the western and the eastern arctic. This knowledge and experience will greatly assist the process of implementing the Nunavut Government.

- 4 The GNWT has, also, been heavily involved over many years with various initiatives to decentralize programs and services. The GNWT has directly related experience in:

- establishment of new regional offices and sub-offices;
- transfer of headquarters functions to regional offices;
- transfer of semi-autonomous boards and agencies to communities outside the capital;
- transfer of program and service delivery authority and responsibility to regional offices.

The most recent examples of decentralization initiatives (since 1993) include:

- transfer of the Marine Services Division from Yellowknife to Fort Simpson;
- establishment of an Arctic College Headquarters in Iqaluit for the east and in Fort Smith for the west;
- transfer of Health Insurance Services from Yellowknife to Rankin Inlet and Inuvik;
- transfer of the Petroleum Products Division from Yellowknife to Rankin Inlet and Fort Simpson;
- transfer of the Public Utilities Board from Yellowknife to Hay River.

Through these transfers and several other decentralization initiatives over the past 10 years, the GNWT has acquired considerable directly related expertise and experience regarding decentralization. This knowledge and experience should be of significant assistance to the Nunavut Government.

PART V. SCHEDULE FOR TRANSFER FROM THE GNWT.

It will be most important to the Nunavut Government to ensure that establishment of its headquarters and its

decentralized organizational structure is effectively planned and implemented. Although the Nunavut Government will come into being April 1, 1999 a smooth transition will require considerable planning to take place prior to 1999. Once the overall organizational structure for the new government and its headquarters have been approved, the Commission understands that the GNWT will begin making changes that will both compliment and facilitate a smooth transition in 1999.

It is expected, also, that the Interim Commissioner and a small core of senior officials will be in place well before 1999 and will play an important role in planning and implementation.

The Commission believes that with this amount of planning and co-operation, the actual time-table for implementing the approved organizational structure, including the headquarters in the capital, should be able to be fully accomplished, with all staff hired and in place, within a year or so of the official take over April 1, 1999. There is every reason to believe that the headquarters structure and all regional organizational changes can be implemented largely over the 1999-2000 fiscal year.

As outlined previously there are several key components involved with the implementation schedule.

To illustrate the appropriate time frame and sequencing for each of the key organizational components the Commission has selected the Iqaluit as capital scenario. In the Commission's supplemental report on choosing a capital, Iqaluit received the best overall rating for being selected as capital of Nunavut. Rather than producing three separate sequencing and scheduling models, one for each capital model, the Commission has decided that for illustrative purpose, only one capital option would be outlined in detail. The material that follows is therefore, based on Iqaluit as the capital with the recommended organizational structure associated with this Capital option.

With the Iqaluit capital model, new auxiliary regional offices in the Baffin Region are to be established in Pond Inlet, Cape Dorset and Pangnirtung. This will require the relocation of existing regional office staffs of the departments involved now located in Iqaluit and the recruitment of new staff to fill vacancies that will be created as a result of staff being unable to relocate.

The relocation of these existing regional departmental offices to the new auxiliary regional offices in the Baffin Region will need to take place early in 1999 - 2000 fiscal

year to free up both staff housing and office space for the headquarters staff of Nunavut Government departments and agencies to be located in Iqaluit.

The Coppermine auxiliary regional offices in the Kitikmeot Region and Arviat and Baker Lake auxiliary regional offices in the Keewatin Region can be established, with staff relocated and recruited, later in the 1999 - 2000 fiscal year, as these Offices will not influence the logistics associated with the relocation of offices out of Iqaluit and the establishment of the Nunavut Government headquarters in Iqaluit. Also, auxiliary regional offices already exist in each of these communities under the GNWT and, therefore, the challenges of the moves and are fewer in number than for the new Baffin region offices.

For planning purposes it has been assumed that 50% of the staff in the existing regional offices will be able and willing to be relocated to the new auxiliary regional offices. The balance of staff required will be recruited.

1. Baffin Regional Office.

With Iqaluit becoming the Capital and headquarters location for the Government of Nunavut, the Baffin Regional Office is to be relocated from Iqaluit to Igloolik.

In addition to one major regional program department, the Commission has recommended that the regional office of the Executive and Intergovernmental Affairs, Human Resources and the Finance and Administration Regional Departments be located in the regional office for the Baffin Region. These regional departments will play an important planning and coordinating role in the relocation of the regional departmental organizations and staff, and recruitment for the auxiliary offices in Cape Dorset, Pond Inlet and Pangnirtung. The relocation of these departmental offices to Igloolik should, therefore, be scheduled to follow the completion of the moves to the auxiliary regional offices in the Baffin Region.

2. Headquarters and Capital of Nunavut

The build up of the headquarters for the Nunavut Government in the capital will involve approximately 380 positions. All of these positions will be new to Iqaluit. It is estimated that 25% of the positions will be filled by GNWT headquarters employees in Yellowknife. The remaining 75% will be recruited from other Nunavut communities, the Western Arctic and from elsewhere in Canada.

As indicated previously the Interim Commissioner and a small core of senior staff representing all of the Nunavut Government departments and the Legislative Assembly are expected to be in place well before April 1999; the actual recruitment of the balance of the 380 positions for the headquarters will be recruited over the first year of operation. The actual relocation of staff from outside Iqaluit will be phased to coincide with the relocation of the existing regional office to Igloolik and to the three new auxiliary regional offices in the Baffin Region. This will avoid the requirement for any significant short term duplication of office space and staff housing in Iqaluit.

3. Location of some Headquarters Functions in Regional Offices and Auxiliary Regional Offices.

The location of some headquarters functions that the Commission has recommended can operate out of a regional office or auxiliary regional office involves a total of 101.5 positions. However, there are no more than 16 positions being located or relocated to a community for any one particular function. None of these moves, therefore, although important, create major problems and can be accomplished throughout the later part of the 1999 - 2000 fiscal year once the headquarters operation of each department and the required staff are largely in place in Iqaluit.

These headquarters functions can continue to be provided from Yellowknife or the regional office where they are now located. With a co-operative and co-ordinated approach to division the GNWT is expected to modify the existing GNWT organization where possible to facilitate the approved organizational structure and model for Nunavut. The provision of these functions from Yellowknife until the transfers can take place should, therefore, not pose large difficulties.

Exceptions to this schedule would be the transfer of Petroleum Products to Arviat and the establishment of the Culture, Language, Elders and Youth Office in Igloolik.

The Petroleum Products transfer is within the Keewatin Region and should be closely co-ordinated with the relocation of regional departmental offices to the auxiliary regional offices in the Region.

Establishment of the Culture, Language, Elders and Youth Office in Igloolik should be co-ordinated closely with the establishment of this new department headquarters in Iqaluit.

For planning purposes, it has been assumed that 25% of the staff now occupying positions in the existing headquarters divisions in Yellowknife will take up positions in Nunavut. The balance of 75% of the positions will be filled through recruitment.

4. Location of Semi-Autonomous Boards, Agencies, Commissions and Corporations in Regional Offices and Auxiliary Regional Offices.

The recommended location of semi-autonomous boards, agencies, commissions and corporations in regional offices and auxiliary regional offices all involve relatively small numbers of positions except for the Nunavut Board of Education. The establishment of the Nunavut Board of Education and its headquarters operation in Rankin Inlet should coincide with the build up of the headquarters operation of the government in Iqaluit to ensure a close co-ordination with the Department of Education.

Similarly the Nunavut Systems Corporation regional office in Rankin Inlet and Cambridge Bay need to be in place at the same time the Nunavut Systems Corporation is put in place in Iqaluit. It will be important to ensure the Nunavut Government communications and computer systems are up and running to meet the ongoing needs of the Government.

The other semi-autonomous boards, agencies, commissions and corporations can be put in place near the end of the 1999 - 2000 fiscal year. Prior to their establishment in the recommended locations their services will continue to be provided from the existing locations in Yellowknife and Hay River.

For planning purposes it has been assumed that 25% of the staff now located in Yellowknife and Hay River will be prepared to relocate. The balance will take up positions in Nunavut.

5. Schedule

The recommended transfer schedule is reflected in the attached bar chart (APPENDIX A). With proper preparations and a common commitment to co-operation and co-ordination between the new Nunavut Government and the GNWT, this schedule can be met over a period of approximately one year. To fulfill these organizational goals over a one year period will involve virtually the full time commitment of many of the senior and middle management staff of the Nunavut Government at the headquarters and regional levels. The ongoing delivery of Nunavut Government programs and services

will largely fall to the staff at the community and regional level as the senior staff and the newly elected Cabinet, will be preoccupied with simply putting the new structure and its personnel in place.

With the significant organizational and staff moves associated with implementing the decentralized structure for the Nunavut Government, there will be the immediate creation of many new jobs. For the residents of Nunavut communities this will create substantial new employment opportunities. It will be essential, therefore, that the appropriate training programs be developed and in place to prepare Nunavut residents to take advantage of these employment opportunities.

The Government of the NWT's recent experience with decentralization strongly supports the need for virtually every decentralization initiative to include appropriate training programs specifically designed to compliment the decentralization plans. Although development and implementation of training programs for each decentralization initiative lengthens the transfer schedule the benefits are increased local hiring and a more effective and productive employees. Also, the success rate of employees will be higher. It is important, therefore, that the schedule for transfer take into account the need for specific training programs and the time to carry them out effectively.

With these realities in mind, the Government of Nunavut may desire to spread the above organizational changes, staffing and any associated training over a one to two year period. This would both allow more time for planning and implementation of the new structure and allow for the new Government to have time to address matters related to the ongoing provision of Nunavut Government programs and services to the people of Nunavut.

This somewhat more drawn out approach might, also, ensure that more Nunavut residents will be able to take advantage of the employment opportunities generated by the new decentralized structure.

PART VI. BENEFITS OF THE RECOMMENDED DECENTRALIZED ORGANIZATIONAL STRUCTURE

The Commission has recommended a highly decentralized organizational structure to achieve a broad range of benefits. These benefits include;

1. increased employment opportunities for local residents unable or unwilling to relocate outside their home community;
2. decrease in social assistance costs in several communities;
3. improved local business economy to meet the service and contracting needs of the territorial government and its employees;
4. eventual decrease in social problems and the costs associated with high unemployment;
5. acceleration of the territorial government's objective of achieving a government workforce which is representative of the population through easier access to government job opportunities in home communities; and
6. eventual reduction in the cost of recruiting and relocation through increased local hire and lower staff turn over rates.

The GNWT has been a strong advocate of the benefits of decentralization and has justified the additional one time costs and operating costs to achieve longer term social and economic benefits for the residents in many Northern communities. These initiatives have been undertaken by the GNWT over at least the past 10 years. Decentralization clearly has had broad Legislative Assembly, Ministerial, Cabinet, Legislative Assembly, and community support as it has been a priority over the life of at least three separate NWT Legislative Assemblies.

During the community tours of the Commission in December 1994 and January 1995, hamlet council members and individual residents reinforced the positive benefits of decentralization and the importance of both continuing and expanding its scope.

The Commission's proposal for a highly decentralized government has been sensitive to the one time costs and additional operational costs that would be incurred before longer term benefits could be achieved and quantified in financial terms. It was partly for these reasons that major priority was placed on limiting the number of Nunavut departments and keeping the number of headquarters positions in the capital to the lowest level possible. A reduced number of departments and relatively small headquarters will offset some of the short term added costs of implementing a highly decentralized structure, while fully recognizing that there are one time and ongoing cost associated with

the creation of two territories where one territory existed before.

PART VII. FINANCIAL COSTS AND SAVINGS

The public infrastructure needed to implement the headquarters structure in the capital and the proposed organization at the regional level is being presented in a separate report by the Commission. That report will identify both the infrastructure needs and the associated costs for all three capital options recognizing that a comparison of needs and costs may be a factor in the selection of the capital.

The overall costs associated with creating and running the Nunavut Government were outlined in the Commission's report of March 31st 1995, "Footprints in New Snow". With the assistance of Price Waterhouse Management Consultants costs regarding the establishment of the headquarters in the capital and implementation of the proposed decentralization organization structure were identified in the report.

Additional costs and savings of the decentralized organization structure as compared to a centralized headquarters and regional structure were not covered in the March 31, 1995 report; they are being addressed in this supplementary report.

For illustrative purposes, only the additional costs and savings associated with the Iqaluit capital scenario will be considered for reasons described previously.

1. ADDITIONAL COSTS

(a) Relocation of the Regional Office in Iqaluit, and establishment of Auxiliary Regional Offices in the Baffin, Keewatin, and Kitikmeot Regions

The relocation of the regional office from Iqaluit to Igloolik, and the relocation of some regional departments to new auxiliary regional offices in the Baffin Region, Keewatin, and Kitikmeot Regions will result in some additional one time and ongoing costs.

To determine some order of magnitude of the additional costs requires an estimate of the percentage of the existing regional staff who would be prepared or able to relocate to the new Baffin Regional Office or the auxiliary regional offices.

For this cost projection it has been assumed that approximately 50% of the existing staff would relocate. The remaining 50% would be recruited. Of those recruited it is assumed that 25% would be hired locally and 75% from outside the community.

(b) Establishment of the Nunavut Government Headquarters and transfer of some Headquarters functions and boards, agencies, commissions and corporations.

The establishment of the headquarters for the Nunavut Government in Iqaluit and the transfer of some headquarters functions and semi-autonomous boards, agencies, commissions and corporations to the regional offices and auxiliary regional offices in Nunavut will, also, result in some additional one time and ongoing costs.

For this cost project it has been assumed that approximate 25% of the positions would be filled by GNWT employees in Yellowknife. The remaining 75% would be recruited. Of those recruited it is assumed that 25% would be hired locally and 75% from outside the community.

(c) Other assumptions.

For the purpose of identifying in a preliminary manner the additional costs associated with the decentralized structure several key assumptions were established. These assumptions are:

(d) Ongoing Additional Costs

Operation and Maintenance

- (i) Additional costs of leasing offices and staff housing are directly related to the construction cost indices for each community.
- (ii) Additional settlement allowance costs are based on the current GNWT policy and allowances established for each community.
- (iii) Additional medical and dental travel costs are based on:
 - (a) an average of one trip per household per year to receive medical and/or dental treatment outside the home community; and
 - (b) current regular air fares.

(iv) Additional vacation travel costs are based on:

- (a) the current GNWT Vacation travel assistance policy and rates for two holiday trips per year.
- (b) an average staff family size of 3.5 persons.

(e) One Time Additional Costs

Capital

- a. Additional office tenant improvement costs are directly related to the construction cost indices for each community.

Operation and Maintenance

- a. Additional staff housing furniture costs are related to the costs of shipping and handling.
- b. Additional removal costs for relocation and new employees are based on:
 - (1) the current regular air fares;
 - (2) an average staff family size of 3.5 persons; and
 - (3) the current GNWT average removal costs.
- c. Additional recruitment costs are based on:
 - (1) the current GNWT average recruitment costs; and
 - (2) an average staff member family size of 3.5 persons.

Additional decentralization one time and ongoing costs, that can be estimated at this point, are outlined in Appendix B. In summary form the decentralization costs are:

Ongoing Cost

Annual O&M costs	\$2,275,000
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One Time Cost

1. O&M costs	\$1,244,000
2. Capital costs	<u>533,000</u>
3. Total one time costs	\$1,777,000

In addition to these costs, there will be additional costs associated with;

1. Staff travel - O&M
2. Communications - capital and O&M
3. Staff training related to decentralization - O&M
4. Severance pay - territorial government staff -O&M

(f) Staff Travel Costs.

With the establishment of auxiliary regional offices and the location of some departmental headquarters functions and some semi-autonomous boards and agencies in these communities, there will be some additional travel costs associated with the operation of the Nunavut Government. During the transition stage during the first year travel costs will likely be approximately 20% higher than the ongoing cost of travel. Ongoing travel costs are estimated to be approximately 10% higher to support the decentralized structure with the current state of communications technology and systems in the North. With the development of a new and comprehensive approach to communications technology for Nunavut, however, a fundamental objective is to reduce a broad range of government travel costs related to both the internal operation of the Government and the delivery of programs and services. In time, it is expected that travel costs can be substantially reduced through greater use of a broad range of communication tools from computers to video communication.

(g) Communication Costs

To function effectively the auxiliary regional offices will require the same standard and quality of communications, facilities and services (e.g. computer equipment) as the three regional offices in Nunavut. There will be one time costs for the installation of facilities and equipment in each auxiliary regional office. There will also be annual costs associated with maintenance of the equipment and facilities and the costs of the actual communication services.

As the Commission is recommending a new and comprehensive approach to Communications Technology for the new Government of Nunavut in concert with meeting private sector communication needs it is premature to attempt to identify any additional communication costs associated with a decentralized structure of government.

(h) Staff Training - Decentralization

Two of the major reasons for a highly decentralized organizational structure are to maximize sharing of government employment opportunities and to encourage a high

level of local employment. To ensure Nunavut residents have the appropriate training and experience to be successful candidates for many of these positions both general training and training specifically related to each decentralization initiative are required.

The general training programs and the associated funding are directly related to the broader training strategy and recommendations that have been outlined in the Commission's March Report, "Footprints in New Snow" and the Supplementary Report on "Education and Training".

It is too early in the planning process for Nunavut to either identify the specific training or costs associated with individual decentralization initiatives. The exact nature of this specific training cannot be determined until there are details available on the positions to be filled through recruitment, and the skills and experience for each position are clearly defined. As a result only this category of additional cost can be identified now and not the specific costs for decentralization.

(i) Severance Pay - Territorial

With the decentralizing and relocation of government offices and staff and the establishment of the headquarters for the Government in Nunavut there will be significant numbers of existing Territorial staff who are unable or unprepared to relocate. It has been a common practice for devolution from the federal government to the GNWT, and GNWT to the community level of government for appropriate severance packages to be provided to qualifying employees. The Commission understands this practice has, also, been followed for decentralization initiatives by the GNWT over many years.

Although it is too early to identify the detailed elements of any severance package and to whom it would be applied, the cost of severance is clearly part of the process of establishing the Nunavut Government. It is expected, therefore, that these costs will be the responsibility of the Federal Government as part of its commitments under the Nunavut Political Accord.

2. FINANCIAL SAVINGS AND BENEFITS

On page 12 of this report the major benefits of the recommended decentralized organizational structure are outlined. The financial value of these benefits cannot be accurately quantified and determined at this stage of planning for the Nunavut Government. For illustrative purposes, however, it is possible to give some indication of the potential cost savings per employee. The cost of living in Nunavut is and will continue to be substantially

higher than elsewhere in Canada for the foreseeable future. These higher costs are reflected both in the government salary schedule and the social assistance payment structure and rates. The current average salary for employees of the GNWT is \$48,000 per year. The social assistance payments for food, housing, and clothing for a family of four without any income in a Nunavut location, such as Baker Lake or Cambridge Bay, is approximately \$30,000 per year.

Therefore, every new job at the community level associated with decentralization has important financial implications. The location of approximately 220 of the 600 headquarters type positions outside the capital as recommended by the Commission, represents a significant financial benefit annually for the Government of Nunavut.

The proposed decentralized organizational structure will result in some additional one time capital and operational expenses to put the new organization in place.

Although accurate and detailed calculations of the ongoing financial benefits of decentralization are not possible at this time it is reasonable to predict that the ongoing added costs associated with decentralization will eventually generate significant financial benefits both for the residents of Nunavut and the Nunavut Government.

PART VIII - SUMMARY

A more detailed analysis of the additional costs and savings associated with the recommended decentralized organizational structure cannot be determined in detail until some of the broader Commission recommendations have been addressed and decisions made by the Government of Canada, GNWT, and Nunavut Tunngavik Incorporated (NTI). These include:

1. selection of the capital.
2. agreement on the number of departments and their make-up.
3. agreement on the size of the legislative assembly.
4. agreement on the size of the Nunavut Territorial Government and the number and location of each position, for all levels in the organization.

Following selection of the capital, the Commission will be in a position to finalize the entire organizational structure of the Nunavut Government in close consultation with the existing Territorial Government with appropriate Federal and Nunavut Tunngavik involvement. At that point many of the current long list of variables associated with

three potential capital locations will be eliminated and a additional financial analysis can be carried out.

In addition , the Commission intends in the next phase of its work to define more precisely those specific program and service areas where it may not be desirable for the Nunavut Government to assume full delivery responsibility initially. For some programs and services it may be desirable to contract services from the Government in the Western Arctic, and/or other governments and organizations

The Commission has also recommended that the NWT Power Corporation and the Workers Compensation Board not be duplicated initially by the creation of these organizations for Nunavut. The details of how these services will be provided to Nunavut will require careful research and NWT consultation with the existing NWT Power Corporation and Workers Compensation Board. This research could influence further calculations as to the cost of operating the Government of Nunavut.

Appendix B

DECENTRALIZATION - ADDITIONAL STAFF COSTS

1. Ongoing Additional Annual Costs

(i) Operations

	Offices Leases	Staff Housing Leases	Settlement Allowance	Vacation Travel Assistance	Medical & Dental Travel	TOTAL
Baffin Region	124,000	386,000	297,000	1,113,000	266,000	2,186,000
Keewatin Region	0	0	(-57,000)	75,000	14,000	32,000
Kitikmeot Region	16,000	42,000	(-17,000)	13,000	3,000	57,000
TOTAL	140,000	428,000	223,000	1,201,000	283,000	2,275,000

2. One Time Additional Costs

(ii) Operations

	Removal of Relocating Staff and new Staff	Recruitment of New Staff.	TOTAL
Baffin Region	862,000	109,000	971,000
Keewatin Region	122,000	29,000	151,000
Kitikmeot Region	104,000	18,000	122,000
TOTAL	1,088,000	156,000	1,244,000

(iii) Capital

	Office Tenant Improvement	Staff Housing Furniture	TOTAL
Baffin Region	204,000	323,000	526,000
Keewatin Region	0	0	0
Kitikmeot Region	21,000	(-14,000)	7,000
TOTAL	225,000	308,000	533,000

* The additional costs by Region relates to decentralization to and within each Region.