

Proposal

ISURRUUTIIT

PROGRAM

Renewal

2011–2015



Kativik Regional Government
Municipal Public Works Department
August 2010



ISURRUUTIIT PROGRAM – PROPOSAL 2011–2015

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1. BACKGROUND INFORMATION

November 11, 1975	Signing of the <i>James Bay and Northern Québec Agreement</i> by the governments of Canada and Québec, Hydro-Québec, the Cree of the James Bay region, and the Inuit of Nunavik.
June 23, 1978	Enactment of the <i>Act respecting Northern Villages and the Kativik Regional Government</i> by the National Assembly. Section 2 of the Act gives the Northern villages jurisdiction over: <ul style="list-style-type: none">• Water and sewer services.• Fire protection.• Recreation and cultural activities.• Roads, lighting and snow removal services.• Garbage removal and disposal.• Heating.• Power.
November 1979	Approval of the Jolicoeur Report identifying Northern village needs with estimated costs of between \$37 million and \$42 million. Proposal by the <i>Secrétariat des activités gouvernementales en milieu amérindien et Inuit</i> (government activities in Aboriginal communities) to implement a five-year investment plan worth \$40 million.
1986	Tabling of the report entitled <i>Proposition de plan d'investissement pour l'amélioration des infrastructures municipales en milieu nordique</i> (proposed municipal infrastructure investment plan) prepared by the <i>ministère des Affaires municipales</i> (municipal affairs) and the Kativik Regional Government (KRG).
1988	Approval by the <i>Conseil du trésor</i> (treasury board) of municipal infrastructure investments worth \$7.4 million plus annual indexing.
1990	Further increase of municipal infrastructure investments by the <i>Conseil du trésor</i> to \$10,352,100 plus annual indexing.
1983 to 1996	Investment by the <i>ministère des Affaires municipales et de la Métropole</i> (municipal affairs and Montreal, MAMM) of roughly \$130 million in various infrastructure projects in Nunavik.
June 30, 1999	Signing by the MAMM of the Isurruutinik agreement creating a five-year infrastructure improvement program for the Northern villages worth \$45 million.
November 17, 2005	Renewal of the Isurruutinik agreement by the <i>ministère des Affaires municipales, du Sport et du Loisir</i> (municipal affairs, sports and recreation) and the KRG, providing \$65 million over five years and bringing total investments under the program to \$110 million. Henceforth known as the Isurruutiit Program.
Summer 2010	With less than a year until the expiry of the Isurruutiit Program, the entire resource envelope has been allocated and only a few projects already underway and worth roughly \$3 million will be carried out in the summer.



Despite these investments over the years, some essential needs remain to be fulfilled regarding drinking water supply and its treatment, wastewater facilities, municipal vehicles, equipment and roadways, as well as solid-waste disposal.

This proposal has been prepared by the KRG Municipal Public Works Department and was approved by the KRG Council on June 2, 2010 (Resolution No. 2010-49). The proposal covers essential public service needs for the next five years (2011–2015).

2. ISURRUUTIIT PROGRAM 1999–2010

2.1 Projects funded under the Isurruutiit Program

Investments between 1999 and 2010 ¹			
Components	1999–2006 phase (\$)	2005–2010 phase ² (\$)	TOTAL 1999–2010 (\$)
Component 1: Infrastructure			
1.1 Drinking Water	9,032,584	11,350,000	20,382,584
1.2 Wastewater	15,158,077	5,200,000	20,358,077
1.3 Waste	237,900	1,450,000	1,687,900
1.4 Roadways	<u>836,822</u>	<u>3,600,000</u>	<u>4,436,822</u>
Total	25,265,383	21,600,000	46,865,383
Component 2: Buildings and Other Facilities	n/a	24,300,000	24,300,000
Component 3: Vehicles			
3.1 Drinking Water	2,970,128	3,675,000	6,645,128
3.2 Wastewater	2,771,233	3,325,000	6,096,233
3.3 Waste	883,990	1,300,000	2,183,990
3.4 Roadways	<u>14,646,306</u>	<u>12,200,000</u>	<u>26,846,306</u>
Total	21,271,657	20,500,000	41,771,657
Pilot projects	62,960	n/a	62,960
TOTAL	46,600,000	66,400,000³	113,000,000

¹ The table shows the structure of the 2005–2010 phase of the Isurruutiit Program. The structure under the 1996–2006 phase was slightly different and was adapted for this presentation.

² Estimated amounts for current work on completion (fall of 2010).

³ The total of this portion of the Isurruutiit Program is \$63,400,000, although a \$3-million overrun is expected.



2.2 Impacts

Since 1999, the Isurruutiit Program has had many positive impacts, including the following important ones:

Quality of public services

Over the last five years, the Isurruutiit Program again contributed to improvements in the quality of public services in the region with regard to drinking water monitoring and delivery, wastewater treatment and the condition of roads, among others. Despite these improvements, it would be incorrect to conclude that public services in Nunavik are comparable to public services elsewhere in Québec. While the Isurruutiit Program has proven itself to be an excellent tool for improving the quality of public services as well as for ensuring essential sustainable development, these impacts are the direct results of the Program's ongoing implementation. To ensure that past achievements are not quickly outdated by developing technology and population growth, and with a view to one day being able to deliver the same level of public services available elsewhere in Québec, it is important that efforts and investments for this purpose be continued in the coming years.

Job creation

The many projects carried out under the Isurruutiit Program have created not a few seasonal jobs. For years, the KRG has prioritized civil infrastructure construction (roads, wastewater lagoon) projects that can be implemented in-house by the Northern villages. This has fostered job creation and local spinoffs, as well as the long-term transfer of knowledge. Under all its infrastructure construction and renovation project contracts, the KRG includes clauses that promote local hiring by general and specialized contractors. It is estimated that, year after year, depending on the types of projects underway, between 18,000 to 26,000 hours are worked by Nunavik residents.

Expertise enhancement

The implementation of infrastructure projects by the region has allowed the KRG and the Northern villages to acquire and fine tune their administrative and technical management skills. This increased expertise has contributed to the success of other internal projects as well as projects covered under different agreements with various government departments. Whereas 20 years ago the Northern villages and the KRG carried out only road construction projects, more recently they have been entirely responsible for the implementation of major projects, including the Road Paving Program (with 75% of the work performed by the Northern villages), the airport infrastructure improvement program and the construction of various buildings (under the management of the KRG with some local labour). In short, the Isurruutiit Program is a proven, essential tool for sustainable development.



3. ISURRUUTIIT PROGRAM – 2011–2015 Proposal

3.1 Scope

An in-depth analysis of the infrastructure and equipment needs of the Northern villages, as well as regional priorities, was carried out by the KRG and the Northern villages in 2004 prior to the last Isurruutiit Program renewal proposal. The KRG recently revised this analysis in consultation with the Northern villages to ensure that municipal infrastructure and equipment are still able to meet ever-expanding demands.

The Isurruutiit Program renewal proposal presented in 2005 was approved in its entirety by the *ministère des Affaires municipales, des Régions et de l'Occupation du territoire* (municipal affairs, regions and land occupancy, MAMROT), except for a metal recycling pilot project at disposal sites. In general, it may be stated that the 2005–2010 phase of the Isurruutiit Program lived up to expectations.

Over the years, adjustments to the resource envelopes under the Isurruutiit Program's different components and sub-components have been made, mainly due to the major work carried out under Component 1.1 Infrastructure – Drinking Water and Component 2 Buildings and Other Facilities. Drinking water projects proved to be a good deal bigger and more complex than expected, leading to much higher costs. Regarding buildings, more projects were actually carried out by the KRG under this component than initially planned, in response to Northern village needs expressed after the 2004 consultations. Cost hikes in the construction industry also impacted significantly on the funding required under these two components.

In light of the projects completed to date and the revision of the 2004 analysis, the KRG sees this current renewal proposal as a continuation of the 2005–2010 phase of the Isurruutiit Program. Needs will continue to increase given the accelerated development of the communities in parallel with the population trend. According to Statistics Canada, population growth in Nunavik was 12% between 2001 and 2006 (most recent data available), probably the highest rate in Québec and even Canada. Certain communities in fact grew by between 17 and 24% (Statistics Canada – preliminary 2006 Census results).

In addition to this population growth, the Additional Low-Rent Housing Construction Catch-Up Program, which is currently being negotiated by the region (the KRG, the Makivik Corporation and the Kativik Municipal Housing Bureau) as well as the governments of Canada and Québec, will have a major effect on community needs and development in the coming years. Discussions are focused on the construction of an additional 1000 dwellings over the next five to seven years. The potential impact of the Catch-Up Program on infrastructure and equipment needs is taken into account in this proposal, with separate descriptions and cost breakdowns provided.

This proposal reproduces the structure (components) of the Isurruutiit Program since its last renewal in 2005 and it has the same objectives:

- Improve the quality of life of Nunavimmiut.
- Ensure that the Northern villages possess the basic infrastructure and equipment necessary to deliver adequate public services.
- Create new employment opportunities.
- Promote the sharing of knowledge between the Northern villages and the KRG.



Specific attention is focused on finishing drinking water infrastructure upgrading projects that were not completed under the 2005–2010 phase of the Isruutiit Program.

Section 3.3 provides detailed information on the objectives and budgets required for each component.

3.2 Needed Improvements

In the 2005 Isruutiit Program renewal proposal, the KRG suggested the following changes regarding the management of the Isruutiit Program:

1. Simplify rules for the reimbursement of the salaries of municipal workers assigned to infrastructure projects.
2. Allow the KRG to purchase equipment for use throughout the region.
3. Deliver the training necessary for new infrastructure and equipment.
4. Modify technical specifications for the replacement of vehicles and heavy equipment.
5. Provide funding for the operating costs of new infrastructure and equipment.
6. Allocate funding for legal fees and extra-judiciary costs.
7. Allow the KRG to re-allocate funding between projects and program components without prior MAMROT approval.

The first four suggested changes were accepted and integrated at the time of the last renewal of the Isruutiit Program, and had a very positive impact on the management of the Program. The KRG would therefore like to suggest that the changes remain in effect.

Changes 5 and 6 were not accepted in 2005. The KRG would however like to resubmit them for consideration.

Change 7 was partially accepted at the time of the last renewal of the Isruutiit Program: all re-allocations between components of less than 10% could be confirmed directly by the KRG to the MAMROT without prior approval. The KRG would however like to resubmit the original suggested change, specifically that it be authorized to re-allocate funding between components without prior MAMROT approval regardless of the amount or percentage.

Moreover, the KRG would like to suggest two additional changes:

- Although this proposal describes and places a price tag on needs for the next five years, implement a program (duration to be determined) with prescribed maximum annual investment amounts indexed over a period of years (also to be determined).
- Process financing and brokerage fees independently from projects, which is to say as a separate component or project. This would result in better cost tracking for individual projects, as well as facilitating management and assessment.



3.3 Components

This section of the current renewal proposal provides detailed information on objectives and needs in specific sectors of activity. It reproduces the structure of the Isurruutiit Program in effect since its last renewal in 2005.

Components
1. Infrastructure 1.1 Drinking Water 1.2 Wastewater 1.3 Waste 1.4 Roadways
2. Buildings and Other Facilities
3. Vehicles 3.1 Drinking Water 3.2 Wastewater 3.3 Waste 4.4 Roadways

The costs set out below, for each component, include in particular various applicable fees and taxes (Québec).



COMPONENT 1 – INFRASTRUCTURE

1.1 INFRASTRUCTURE: Drinking Water

Objectives

- Deliver quality drinking water to the residents of Nunavik (public health).
- Comply with the Québec *Regulation respecting the Quality of Drinking Water*.
- Improve drinking water supply and distribution systems and ensure their long-term operation.

Achievements 2005–2010

Between 2005 and 2010, many drinking water plant upgrading projects were undertaken, although few have as yet been completed. These projects have proven much more complex and costlier than planned when the Isrruuitt Program was last renewed in 2005.

As of the summer of 2010, four drinking water plants meet the standards set under the Québec *Regulation respecting the Quality of Drinking Water*, specifically those in Kangiqsualujjuaq, Quaqtaq, Inukjuak and Puvirnituk. These plants were expanded and each equipped with an ultraviolet-lamp treatment system, a new chlorination system and a laboratory. At the same time, supply-pipe freezing-protection systems were replaced.

Regarding the drinking water plants in Kuujjuaq, Tasiujaq, Aupaluk, Kangirsuk, Salluit, Ivujivik, Akulivik and Umiujaq, certain work has so far been carried out. All the planned upgrading work however has not been completed and will not be completed under the 2005–2010 phase of the Isrruuitt Program. To date, the following type of work has been carried out to varying degrees according to the plant: plans and specifications, improvements to supply-pipe freezing-protection systems, preliminary drinking water treatment upgrading work, as well as the replacement of automatic monitoring systems and raw-water intake components.

Cost of work between 2005 and 2010: \$11,350,000.

Needs 2011–2015

a) Upgrading of drinking water treatment

The work that remains to be completed to meet the set objectives involves mainly: expanding the plants, adding laboratories, installing initial ultra-violet lamp treatment systems, replacing chlorination systems, increasing the capacity of or installing reservoirs to hold treated drinking water, and replacing supply-pipe freezing-protection systems.

Work is planned in the drinking water plants in all the communities, since some minor work remains to be carried out at those plants where major upgrading treatment work has already been completed.

1.1 a) Drinking water treatment – upgrading		
Northern village	Description	Budget (\$)
Kangiqsualujuaq	installation of a reservoir	500,000
Kuujjuaq	upgrading	2,700,000
Tasiujaq	upgrading	1,800,000
Aupaluk	upgrading	2,100,000
Kangirsuk	upgrading	1,800,000
Salluit	upgrading	2,700,000
Ivujivik	upgrading	1,500,000
Akulivik	upgrading	2,200,000
Umiujaq	upgrading	2,700,000
Others	various work	500,000
Needs 2011–2015		18,500,000

b) Telemetry

There are plans to install a system that will permit the continuous measurement and transfer of treated drinking water data, as well as remote facility monitoring.

Work is planned in the drinking water plants in all the communities, with major work to be carried out at the head office of the KRG in Kuujjuaq where the data will be centralized.

1.1 b) Drinking water treatment – telemetry			
Northern village	Description	Cost	Budget (\$)
All	telemetry equipment	14 @ 100,000	1,400,000
KRG head office	data centralization	1 @ 100,000	100,000
Needs 2011–2015			1,500,000

c) Aqueducts for heavy users and new subdivisions

To date, Kuujjuarapik is the only community that possesses piped drinking water supply and sewage collection systems. The 2005–2010 phase of the Isruutiit Program proposed the construction of two piped drinking water supply systems for heavy users, which is to say supply by aqueduct instead of by delivery truck for major buildings that currently require more than one delivery daily. This proposal represented a compromise in terms of financing and technical requirements to full-scale piped drinking water supply and sewage collections systems.

Because the upgrading of drinking water treatment plants was more complex and costlier than planned, the implementation of the projects were postponed. A feasibility study and plans were however prepared for the Northern Village of Kangiqsualujuaq under the Gasoline Excise Tax and Québec Contribution Program. This work demonstrated the short- and medium-term benefits of such systems. Piped drinking water supply systems would serve to limit the number of delivery trucks and improve distribution.

The KRG also analyzed the possibility of secondary truck filling stations in certain communities. Pipes would connect the secondary filling stations to the drinking water plant. As several communities now cover large areas, the routes followed by some delivery trucks between the drinking water plant and distant subdivisions can be several kilometres long. Secondary filling stations would limit the distance covered by delivery trucks, increasing productivity and reducing the need for new trucks. A piped drinking water supply system for heavy users and second filling stations are therefore included in this proposal for Kangiqsualujuaq and Kuujjuaq.

Finally, the Additional Low-Rent Housing Construction Catch-Up Program referred to in Section 3.1 (p. 6) of this renewal proposal will require the extension of the piped drinking water supply and sewage collection systems in Kuujjuarapik. The construction of 61 additional dwellings is planned in this community under the Catch-Up Program.

1.1 c) Drinking water treatment – piped water system				
Northern village	Description	Regular development	Catch-Up Program	Budget (\$)
Kangiqsualujuaq	piped system	2,600,000		2,600,000
Kuujjuaq	filling station	600,000		600,000
Kuujjuarapik	extension		2,800,000	2,800,000
Needs 2011–2015		3,200,000	2,800,000	6,000,000

Total for Sub-Component 1.1 Infrastructure – Drinking Water: **\$26,000,000.**

1.2 INFRASTRUCTURE: Wastewater

Objective

- Ensure proper treatment and monitoring of wastewater disposal sites – environmental protection.

Achievements 2005–2010

Under the 2005–2010 phase of the Isruutiit Program, three major projects were completed or begun.

The construction of aerated lagoons was completed in Kuujjuarapik. This infrastructure is shared with the Cree community of Whapmagoostui, which paid for a part of the construction costs.

In Puvirnituq (settling lagoons) and Salluit (aerated lagoons), work was begun but is not finished. As the KRG is promoting the in-house implementation of these projects in cooperation with the Northern villages, they will take a little longer to complete. At the end of the 2010 construction season, it is expected that the work in Puvirnituq will be 25% complete and in Salluit, 50% complete.

Wastewater transfer mechanisms between lagoons were also installed in facilities constructed under the first phase of the Isruutiit Program (1999–2006).

Cost of work between 2005 and 2010: \$5,200,000.

Needs 2011–2015

The following work is planned for the next five years: completion of the work begun in Puvirnituq and Salluit, as well as the construction of new facilities in Kangiqsujuaq. The infrastructure in this community dates from the end of the 1980s and the site, which was not authorized, is inadequate.

In addition to this major work, improvement work is planned in Quaqtaq and Aupaluk on facilities that were also constructed in the 1980s and consist of only one lagoon. A contingent allocation is also planned for improvement work at other facilities not identified in this renewal proposal, including discharge platform expansion, additional transfer mechanisms, etc.).

1.2 Wastewater treatment		
Northern village	Description	Budget (\$)
Puvirnituq	work completion	2,000,000
Salluit	work completion	3,500,000
Kangiqsujuaq	new facility	2,000,000
Others	improvement work	500,000
Needs 2011–2015		8,000,000

Total for Sub-Component 1.2 Infrastructure – Wastewater: **\$8,000,000.**

1.3 INFRASTRUCTURE: Waste

Objectives

- Foster improved management of disposal sites and environmental protection.
- Increase the service lives existing disposal sites and safety.

Achievements 2005–2010

Between 2007 and 2010 under an agreement covering 10 of the region's 14 communities, rehabilitation work was carried out on existing disposal sites. This work mainly involved restructuring to make the sites more functional, to maximize available space and thereby the service lives of the sites, as well as to improve environmental monitoring. Waste was sorted by category (household, metal, wood, granular material, etc.), drainage trenches were excavated, and fencing was installed. Moreover, some household waste areas were backfilled permanently.

As well, studies were carried out and authorization applications submitted for the expansion of the disposal site in Kuujjuaq, and a feasibility study was carried out for a metal recovery pilot project in the same community. The feasibility study will be generally applicable to all the communities in the region.

Cost of work between 2005 and 2010: \$1,450,000.

Needs 2011–2015

a) Waste disposal sites

Rehabilitation work, like that described above, is planned for the disposal sites in the remaining four communities (Salluit, Puvirnituq, Ivujivik and Kuujjuarapik).

Two new disposal site projects are planned in Kangirsuk and Kuujjuarapik. The existing sites in these communities are full and, because they are located next to the local airports, contribute to bird activity that increases hazards for aircraft. The disposal site at Kuujjuaq should also be expanded; despite recently completed rehabilitation work, the site has exceeded its capacity.

The work planned under this sub-component will be carried out in-house, generating significant local spinoffs.

1.3 a) Waste disposal sites		
Northern village	Description	Budget (\$)
Salluit, Puvirnituq, Ivujivik, Kuujjuarapik	rehabilitation work	800,000
Kangirsuk, Kuujjuarapik	new site construction	3,600,000
Kuujjuaq	expansion	1,800,000
Needs 2011–2015		6,200,000

b) Hazardous material management

Due to the environmental-contamination risks posed by hazardous materials, their management is a planned priority over the next few years. To promote good management, storage infrastructure is required. Adapted sheds will be built in every community, and special hazardous-material sea-shipping containers will be supplied to those Northern villages that did not receive such containers under the first phase of the Isruutit Program (1999–2006) or to those communities where more than one container is required.

1.3 b) Hazardous material management			
Northern village	Description	Cost	Budget (\$)
Kangiqsualujuaq, Tasiujaq, Aupaluk, Kangirsuk, Quaqtaq, Kangiqsujuaq, Ivujivik, Akulivik, Umiujaq, Kuujjuarapik	simple storage sheds	10 @ 20,000	280,000
Kuujjuaq, Salluit, Puvirnituq, Inukjuak	double sheds	4 @ 40,000	160,000
Tasiujaq, Salluit, Akulivik, Puvirnituq	containers	4 @ 20,000	80,000
Needs 2011–2015		520,000	

c) Metal recovery (pilot project)

This project involves the recovery and shipping of used metal located in disposal sites in Nunavik to salvage centres in the South.

The project was included in the 2005 Isruutit Program renewal proposal but was rejected because it was not deemed an infrastructure project in the strict sense.

The KRG would like to resubmit the project under the current renewal proposal since metal recovery will make it possible to extend the service lives of existing disposal sites by 15 to 25 years. Without a metal recovery project now, the next KRG Isruutit Program renewal proposal will assuredly refer to the need to expand disposal sites in a number of communities due, in particular, to the ever-increasing quantities of metal waste. It should be understood that the costs associated with disposal site expansion will be higher than the metal recovery pilot project described in this proposal.

The KRG believes that a metal recovery project is needed to ensure sustainable local development. Over the next five years, the KRG therefore proposes to implement a pilot project that will involve metal recovery in two communities of different sizes and that could be spread over a few years. The sorting, processing (cutting and compacting) and transportation of metal to salvage centres in the South would be tested with the long-term objective being to implement the project in all the communities.

The costs detailed in this renewal proposal cover the above-mentioned activities, including the transportation of materials and equipment between the Northern



villages and the South. The costs also take into account revenue that will be generated through the sale of the recovered metal.

The purchase of metal-recovery equipment was accepted under the 2005 Isruutiit Program renewal proposal (community equipment). However, the equipment was not purchased due to the absence of funding to implement the actual project. The purchase of the necessary equipment is therefore provided for under Sub-Component 3.3 Vehicles – Waste.

The work planned under this sub-component will be carried out in-house, generating significant local spinoffs.

1.3 c) Metal recovery (pilot project)		
Northern village	Description	Budget (\$)
Kuujjuaq, Kangiqlualujjuaq	cutting and compacting	1,920,000
	revenue	-640,000
Needs 2011–2015		1,280,000

Total for Sub-Component 1.3 Infrastructure – Waste: **\$8,000,000**.



1.4 INFRASTRUCTURE: Roadways

Objectives

- Permit the development of new residential subdivisions.
- Upkeep road infrastructure to reduce maintenance on municipal vehicle fleets.

Achievements 2005–2010

This component of the 2005–2010 phase of the Isurruutiit Program provided for the construction of community roads for residential development and related access. In five years, 4.5 km of roads were constructed. In addition, under the Gasoline Excise Tax and Québec Contribution Program, the construction of a bridge was completed along with general improvements to existing roads.

Over the same period, bituminous surface treatment was applied to roads in three communities. Access roads for wastewater treatment facilities and disposal sites were prioritized given their heavy use. The work significantly and immediately reduced the maintenance required on municipal trucks used for these purposes. Moreover, the bituminous surface treatment serves to control dust and improves air quality and the environment near these roads.

Cost of work between 2005 and 2010 (Isurruutiit Program only): \$3,600,000.

Needs 2011–2015

a) Road construction

According to Statistics Canada, population growth in Nunavik was 12% between 2001 and 2006. In order to meet continued growth and increased administrative needs, there are plans to construct 700 dwellings in the next five years. Moreover, the Additional Low-Rent Housing Construction Catch-Up Program, referred to in Section 3.1 (p. 6) will ensure the construction of an additional 1000 dwellings. Consequently, close to 1700 dwellings could be constructed between now and 2016.

To this end, new roads will have to be constructed in every community. It is estimated that each new dwelling requires roughly 11 m of new road. This estimate is obtained by taking into consideration typical lot size for duplex units (32-m frontage) and adding 30% to account for intersections and unusable lots.

Based on these numbers, dwelling construction between now and 2016 will require roughly 19 km of new roads plus one more kilometre for related public-service infrastructure. The total of new roads to be constructed is therefore 20 km.

The availability of usable lots is another critical factor for dwelling construction in some communities. It is estimated that bridges will be necessary in at least three communities to access new residential subdivisions.



The work planned under this sub-component will be carried out in-house, generating significant local spinoffs.

1.4 a) Roadways			
Description	Regular development	Catch-Up Program	Budget (\$)
Road construction	9 km @ 225,000= 2,025,000	11 km @ 225,000= 2,475,000	20 km / 4,500,000
Bridge construction	1 @ 600,000 = 600,000	2 @ 600,000 = 1,200,000	3 bridges / 1,800,000
Needs 2011–2015	2,625,000	3,675,000	6,300,000

b) Bituminous surface treatment

As the work completed to date has had a positive impact, there are plans to extend the treatment in three communities. Access roads for wastewater treatment facilities and disposal sites will be prioritized.

1.4 b) Bituminous surface treatment			
Northern village	Description	Distance	Budget (\$)
Inukjuak	Wastewater and disposal sites	4.5 km @ 170,000	765,000
Umiujaq	Wastewater and disposal sites	2.5 km @ 170,000	425,000
Akulivik	Wastewater and disposal sites	3.0 km @ 170,000	510,000
Needs 2011–2015		10.0 km	1,700,000

Total for Sub-Component 1.4 Infrastructure – Roadways: **\$8,000,000**.

Total needs 2011–2015, Component 1.0 – Infrastructure:

Regular development	\$43,525,000
<u>Catch-Up Program</u>	<u>\$6,475,000</u>
Total	\$50,000,000

COMPONENT 2 – BUILDINGS AND OTHER FACILITIES

Objectives

- Ensure that the Northern villages have adequate office space to deliver ever-growing public services.
- Provide safe recreation facilities for youth.
- Provide safe and sufficient workplaces for municipal vehicles and equipment (repair garages).
- Extend the service lives of municipal vehicles and equipment by protecting them from bad weather and vandalism (parking garages).

Achievements 2005–2010

This component was added to the Isruutiit Program at the time of its last renewal in 2005. Many more projects were completed under this component than originally planned. As well, due to considerable increases in construction costs, the budget for this component was substantially increased.

Despite many construction and renovation requests submitted by the Northern villages, only one administrative office was built (Kuujjuarapik). These requests were mainly submitted in the second last year of the 2005–2010 phase of the Isruutiit Program. Notwithstanding, due to the considerable increases in construction costs over the last few years and the approaching depletion of the related resource envelopes, these projects had to be put on hold. Certain research, architectural and budget-estimate work was however carried out internally.

Recreation facilities were constructed in all the communities. Thirteen Northern villages drew funding from the Isruutiit Program to install outdoor playgrounds for youth. The Northern Village of Kuujjuarapik constructed an outdoor skating rink with a concrete pad and service shed. At the outset, each Northern village was given a resource envelope of \$100,000. Notwithstanding and as previously mentioned, considerable increases in construction costs resulted in cost-overruns of between 15 and 20%. It was therefore necessary to reduce the scale of the projects. The projects had an important impact by introducing safe play environments for young people in all the communities. In several communities, such equipment had been nonexistent up to that point.

Three new repair garages were constructed and two others were expanded and renovated. A few more repair garages were scheduled to be renovated but, once again, considerable cost overruns prevented their implementation and forced their postponement.

Finally, the 2005–2010 phase of the Isruutiit Program permitted the construction of parking garages. This type of infrastructure provides protection for municipal vehicles and equipment, as well as for various materials when not in use (in winter for example), against bad weather, maritime air and vandalism. Projects were carried out in 10 of the 14 communities. Parking garages also make it possible to avoid vehicle and equipment clutter in repair garages.

Cost of work between 2005 and 2010 by sector of activity:

a) Administrative office (1)	1,988,000
b) Recreation facilities (14)	1,570,000
c) Repair garages (5)	17,425,000
d) <u>Storage garages (10)</u>	<u>3,245,000</u>
Total	24,228,000

Needs 2011–2015

a) Administrative offices

In recent years, the Northern villages of Aupaluk, Ivujivik, Puvirnituq and Tasiujaq have expressed a need for new, or renovated and expanded, office space. As previously mentioned, these projects were not carried out under the 2005–2010 phase of the Isruutiit Program. The needs have been assessed and it is evident that the current administrative offices in these communities are inadequate: all are too small and certain are in very poor condition.

2.0 a) Administrative offices			
Northern village	Description	Budget (\$)	
Aupaluk	renovation/expansion	2,300,000	
Ivujivik	renovation/expansion	1,800,000	
Puvirnituq	construction	2,600,000	
Tasiujaq	construction	2,300,000	
Needs 2011–2015			9,000,000

b) Outdoor recreation facilities

As the facilities installed over the last five years have been appreciated by residents and safe play environments for young people foster physical activity, it is strongly suggested that this type of infrastructure continue to be eligible for funding.

2.0 b) Outdoor recreation facilities			
Northern village	Description	Costs	Budget (\$)
All	recreation facilities	14 @100,000	1,400,000
Needs 2011–2015			1,400,000

c) Repair garages

Repair garages are mainly used to maintain and repair municipal vehicles and equipment. They also serve a secondary function, providing parking space for drinking water delivery trucks and wastewater collection trucks. These types of vehicles must be parked indoors in winter when not in use to prevent freezing and resulting breakages. Five expansion or renovation projects are proposed to meet current needs.

Moreover, it is expected that the Additional Low-Rent Housing Construction Catch-Up Program (1000 additional dwellings) will produce demand for an additional 16 municipal trucks, specifically eight drinking water delivery trucks and eight wastewater collection trucks.

Sixteen new indoor parking spaces will therefore also be required. Currently, municipal parking garages are filled to capacity. Normally, additional parking is constructed as the shortage of spaces reaches four or five in a community. It is therefore generally understood that the Northern villages lack parking spaces for a few years before the construction of new spaces.

The fact nonetheless remains that, even if required parking spaces are not constructed at the same time as the implementation of the Additional Low-Rent Housing Construction Catch-Up Program and are reserved for construction later, the need remains and must be taken into consideration immediately.

For calculation purposes, 65 m² is considered to be adequate parking space. Moreover, average construction costs between 2011 and 2015 are expected to be \$5000/m², for projects that are integrated into other more important expansion or renovation projects.

The costs presented in the table below represent those used by the KRG based on its experience with similar projects in recent years, plus indexing.

2.0 c) Repair garages				
Northern villages	Description	Regular development	Catch-Up Program	Budget (\$)
Quaqtaq	renovation/expansion	1,500,000		1,500,000
Kuujjuaq	expansion	1,900,000		1,900,000
Kuujjuarapik	renovation	1,900,000		1,900,000
Ivujivik	renovation/expansion	2,250,000		2,250,000
Puvirnituq	renovation	500,000		500,000
Others to be determined	parking spaces		16 spaces 5,200,000	5,200,000
Needs 2011–2015		8,050,000	5,200,000	13,250,000

d)



e) Parking garages

Ten of the 14 communities constructed parking garages over the last five years. Given their usefulness, similar infrastructure is planned for construction in the remaining four communities.

2.0 d) Parking garages			
Northern villages	Description	Costs	Budget (\$)
Kuujjuaq, Salluit, Ivujivik, Inukjuak	Parking	4 @ 337,500	1,350,000
Needs 2011–2015			1,350,000

Total needs 2011–2015, Component 2.0 – Buildings and Other Facilities:

Regular development: \$19,800,000
Catch-Up Program: \$5,200,000

Total: **\$25,000,000**

COMPONENT 3 – VEHICLES

3.1 and 3.2 VEHICLES: Drinking Water and Wastewater

Note: The sub-components 3.1 and 3.2 are grouped together for presentation purposes.

Objectives

- With an adequate number of vehicles in good condition, ensure the delivery of drinking water and the collection of wastewater.
- Increase the service lives of vehicles.

Achievements 2005–2010

Between 2005 and 2010 under the Isurruutiit Program, 18 drinking water delivery trucks and 18 wastewater collection trucks (a total of 36) were purchased, and five others were reconditioned. The new vehicles replaced others that had reached the end of or exceeded their service lives according to Isurruutiit Program criteria or they were added in certain communities to meet increased demand for these services. Reconditioning work made it possible to extend the service lives of vehicles that would otherwise have been very costly to replace. Two more trucks were purchased under the Gasoline Excise Tax and Québec Contribution Program, bringing the total number of purchased vehicles to 38.

Cost of purchases and reconditioning work between 2005 and 2010 (Isurruutiit Program only): \$11,350,000.

Needs 2011–2015

The population growth referred to Section 3.1 (p. 6), urban sprawl and changing water consumption patterns drive ever-increasing demand for drinking water delivery and wastewater collection trucks. As mentioned under Sub-Component 1.4 Infrastructure – Roadways, a) Road construction (p. 14) at least 700 new dwellings will be built between now and 2016 and this number could be significantly higher (1700) taking into account the Additional Low-Rent Housing Construction Catch-Up Program.

According to current Isurruutiit Program criteria, 60 new drinking water delivery and wastewater collection trucks will be required to meet these needs, specifically 44 for regular development and 16 under the Catch-Up Program.

Notwithstanding, following analysis of the situation and discussions with the Northern villages, the KRG would like to propose that one of the three replacement and purchasing criteria be revised.

Criterion 1: At least two drinking water delivery trucks and two wastewater collection trucks in every Northern village.

This criterion remains unchanged.

Criterion 2: For every 120 units, one drinking water delivery truck and one wastewater collection truck (capacity: 13,600 L).

This criterion remains unchanged.



Criterion 3: All trucks should be not more than 10 years old.

To be replaced as follows:

50% of all drinking water delivery trucks and 50% of all wastewater collection trucks should be not more than 10 years old, and all trucks should not be more than 15 years old.

This third criterion, which is less generous in its new version, is reasonable given the improved road conditions that exist further to the Road Paving Program completed in 2009 (a total of 90 km of roads were paved in the communities) and the bituminous surface treatment applied in certain communities under the Isurruutiit Program. This work has significantly and immediately reduced the maintenance required on municipal trucks used for drinking water delivery and wastewater collection. Moreover, the KRG feels that the Northern villages are better able to maintain municipal vehicles than was the case in the past.

The revised criterion results in a reduction of the required number of new drinking water delivery and wastewater collection trucks from 60 to 40, and more than a \$5-million drop in costs. On the other hand, reconditioning costs for 14 vehicles are proposed to permit the Northern villages to keep some existing trucks in operation for an additional five years.

3.1 a) Drinking water delivery trucks			
Description	Regular development	Catch-Up Program	Budget (\$)
Purchase	11 @ 260,000= 2,860,000	8 @ 260,000= 2,080,000	19 trucks / 4,940,000
Reconditioning	7 @ 80,000= 560,000		560,000
Needs 2011–2015	3,420,000	2,080,000	5,500,000

3.2 a) Wastewater collection trucks			
Description	Regular development	Catch-Up Program	Budget (\$)
Purchase	13 @ 235,000= 3,060,000	8 @ 235,000= 1,880,000	21 trucks / 4,940,000
Reconditioning	7 @ 80,000= 560,000		560,000
Needs 2011–2015	3,620,000	1,880,000	5,500,000

Total for sub-components 3.1 and 3.2 Vehicles – Drinking Water and Wastewater

Regular development: 7,040,000

Catch-Up Program: 3,960,000

Total: **\$11,000,000**

3.3 VEHICLES: Waste

Objectives

- With an adequate number of vehicles in good condition, ensure household waste collection.
- Increase the service lives of vehicles.

Achievements 2005–2010

Between 2005 and 2010, four 10-m³ and three 14-m³ solid-waste collection trucks (household waste) were purchased under the Isurruutiit Program, and three others were reconditioned (new boxes).

Cost of purchases and reconditioning work between 2005 and 2010 (Isurruutiit Program only): \$1,300,000.

Needs 2011–2015

a) Solid-waste collection trucks

As mentioned under sub-components 3.1 and 3.2, population growth and urban sprawl are increasing demand for municipal services, including solid-waste collection. The Additional Low-Rent Housing Construction Catch-Up Program will also increase this demand due to the increased number of dwellings and expanded service areas. Half of the purchases proposed in this section arise from the Catch-Up Program.

Over the last few years, some Northern villages requested a second solid-waste collection truck because, with only one truck, it was proving difficult to offer adequate service. The current criterion provides that each Northern village should possess one solid-waste collection truck not more than 10 years old. In January 2008, the KRG conducted a study based on the situation in Kuujuaq and concluded that the requests were pertinent. Following MAMROT approval, an additional truck was therefore purchased.

The KRG would like to propose that the purchasing criteria for solid-waste collection trucks be revised in accordance with its 2008 study, specifically:

- For every 350 units/week, one 14-m³ solid-waste collection truck.
- For every 150 units/week, one 7-m³ solid-waste collection truck.
- At least one solid-waste collection truck per Northern village that is not more than 10 years old, and all additional trucks should be not more than 15 years old.

For calculation purposes:

- Single-family dwelling = one unit/week.
- Multiple-family dwelling = two units/week.
- Commercial building (arena, repair garage, small business) = three units/week.
- Large commercial building (grocery store, restaurant) and institutions (head offices, schools) = eight units/week.



b) Metal recovery equipment

In order to implement metal recovery services in the communities (as described under Sub-Component 1.3 Infrastructure – Waste) specialized, regionally owned equipment will be needed. The purchase of this equipment was accepted under the 2005 Isurruuit Program renewal proposal. The equipment however was never purchased due to the rejection of the actual projects and absence of funding. The necessary equipment therefore remains to be purchased and is again presented in this renewal proposal.

3.3 a) and b) Solid-waste collection trucks and metal-recovery equipment				
Description		Regular development	Catch-Up Program	Budget (\$)
Solid-waste collection trucks	14 m ³	2 @ 205,000 = 410,000	4 @ 205,000 = 820,000	1,230,000
	10 m ³	2 @ 140,000 = 280,000		280,000
Waste shredder		240,000		240,000
Compactor		200,000		200,000
Various equipment		50,000		50,000
Needs 2011–2015		1,180,000	820,000	2,000,000

Total for Sub-Component 3.3 Vehicles – Waste: **\$2,000,000**.

3.4 VEHICLES: Roadways

Objectives

- With an adequate number of vehicles and heavy equipment in good condition, ensure the delivery of various municipal services including snow removal, road maintenance, as well as infrastructure work carried out in-house.
- Increase the service lives of vehicles and heavy equipment.

Achievements 2005–2010

Between 2005 and 2010, mainly in the first three years under the Isurruutiit Program, several vehicles and pieces of heavy equipment were purchased. These vehicles and heavy equipment permit the Northern villages to deliver certain municipal services.

Heavy equipment: purchases and reconditioning, 2005–2010			
Equipment	Number	Average cost	Total (\$)
Dump truck	10	173,000	1,730,000
Wheeled loader	9	330,000	2,970,000
Bulldozer	6	373,000	2,238,000
Grader	3	242,000	726,000
Excavator	2	253,000	506,000
Compactor	4	192,000	768,000
Flat-bed trailer	7	50,000	350,000
Screener	1	196,000	196,000
Sand spreader (box)	10	13,000	130,000
Street sweeper	9	30,000	270,000
Coarse crusher	1	275,000	275,000
Snow-blower	6	137,000	822,000
Accessories ¹			560,000
Reconditioning			533,000
Achievements 2005–2010			12,074,000

¹ Accessories: gravel and snow buckets, hydraulic shears, lifting forks, hydraulic jackhammers.

Needs 2011–2015

Despite the many purchases made over the last five years, many other needed pieces of heavy equipment could not be purchased, even though they were eligible under the Isurruutiit Program. The KRG reviewed each purchase request individually in accordance with the prescribed criteria, the condition of similar existing equipment in the Northern villages, the purpose of such equipment and actual needs.

Further to a KRG proposal, the purchasing criteria for certain equipment were revised at the time of the last renewal of the Isurruutiit Program in 2005. Once again, because heavy equipment maintenance is improving year after year and, as a result, several pieces of heavy equipment have potentially longer service lives, the KRG would like to propose that a few of the purchasing criteria be revised.

Heavy equipment: purchasing criteria		
Equipment	Criterion by Northern village	Comment
Dump truck	Minimum of 2 1st: Not more than 10 years 2nd: 15 years	Unchanged (modified in 2005)
Wheeled loader	Minimum of 2 1st: Not more than 10 years 2nd: 20 years	Unchanged (modified in 2005)
Bulldozer	Minimum of 1 Not more than 15 years	Unchanged (modified in 2005)
Grader	Minimum of 1 Not more than 20 years	Changed from 1 not more than 15 years
Excavator	Minimum of 1 Not more than 15 years	Changed from 1 not more than 10 years
Backhoe	Minimum of 1 Not more than 15 years	New
Compactor	Minimum of 1 Not more than 20 years	Changed from 1 not more than 15 years
Flat-bed trailer Screener Sand spreader Street sweeper Snow-blower	Minimum of 1 No age limit	Unchanged
Coarse crusher Accessories Reconditioning	To be evaluated individually, according to needs	Unchanged



Under the 2005–2010 Isruutiit Program, backhoes were eligible but were grouped with excavators. The KRG would like to propose that the two pieces of heavy equipment be listed separately since each is required for different kinds of work and both are essential.

3.4 Heavy equipment			
Description	Number	Unit price	Budget (\$)
Dump truck	6	200,000	1,200,000
Loader	3	430,000	1,290,000
Excavator	6	260,000	1,560,000
Backhoe	3	200,000	600,000
Bulldozer	7	380,000	2,660,000
Grader	4	320,000	1,280,000
Compactor	1	230,000	230,000
Street sweeper	1	45,000	45,000
Snow-blower	2	180,000	360,000
Accessories ¹			375,000
Reconditioning			1,000,000
Coarse crusher	4	350,000	1,400,000
Needs 2011–2015			\$12,000,000

¹ Accessories: hydraulic jackhammer, snow bucket, etc.

Total for Sub-Component 3.4 Vehicle – Roadways: **\$12,000,000**.

Total needs 2011–2015, Component 3.0 – Vehicles:

Regular development: \$21,040,000
Catch-Up Program: \$3,960,000

Total: **\$25,000,000**



3.4 Summary of Costs

Isurruutiit Program – 2011–2015 Proposal			
Components	Required budget (\$)		
	Regular development	Catch-Up Program	Total
1. Infrastructure 1.1 Drinking Water 1.2 Wastewater 1.3 Waste 1.4 Roadways	23,200,000 8,000,000 8,000,000 4,325,000	2,800,000 3,675,000	50,000,000
2. Buildings and Other Facilities	19,800,000	5,200,000	25,000,000
3. Vehicles 3.1 Drinking Water 3.2 Wastewater 3.3 Waste 3.4 Roadways	3,420,000 3,620,000 1,180,000 12,000,000	2,080,000 1,880,000 820,000	25,000,000
TOTAL	83,545,000	16,455,000	100,000,000

For each of the components, these costs include namely management fees, applicable taxes (Québec), bridge financing, shipping, architectural and engineering fees, as well as laboratory analysis fees.

Management fees are calculated as follows:

- 6% for vehicle and heavy equipment purchases;
- 8% for all construction projects (drinking water supply, wastewater treatment, buildings, etc.).

4. CONCLUSION

Since the creation of the Northern villages in 1978, the quality of municipal public services has increased significantly with many positive impacts on public health. This statement is nonetheless expressed with some reserve: while tangible progress has been made, in 2010 the level of services in Nunavik still remains lower than that found in municipalities elsewhere in Québec. Municipal public service parity, it should be recalled, was one of the objectives of the 1979 Jolicœur Report. To a great extent, the progress made to date is the result of new public, recreation and civil security equipment, vehicles and infrastructure acquired by the Northern villages. These acquisitions have moreover been made possible under several agreements and programs with the Québec government, including the Isruutiit Program, the Pivaliutiit Program, the Makigarutiit Fund and the Sanarrutik Agreement, as well as with financial contributions from the Government of Canada and the Makivik Corporation.

While the achievements of the past years are positive, further efforts and investments will continue to be needed in the future, not only to maintain the current level of services in the context of evolving demand, but to gradually eliminate the gap between Nunavik and the rest of Québec. Any slackening of effort and investment now will only widen the disparity.

In this respect, the Isruutiit Program is one of the most important tools wielded by the KRG and the Northern villages. Created in 1999 following up on previous capital investment projects and renewed in 2005 with a total resource envelope of \$110 million, Isruutiit has permitted major development of essential municipal public services, such as drinking water treatment and supply, wastewater collection and treatment, solid waste management, road construction as well as, recently, the construction of repair and warehouse garages, administrative offices and playgrounds. As all the funding under Isruutiit has already been spent or is earmarked for projects, the KRG and the MAMROT must immediately undertake discussions regarding the program's renewal and implementation no later than the start of 2011.

During the negotiations that lead to the signing of the Sanarrutik Agreement in 2002, the Makivik Corporation and the KRG emphasized the importance of the Isruutiit Program. Section 2.5.6 clearly states that Sanarrutik funding is "without prejudice to and in addition to Québec operation and capital funding for Nunavik and [...] without prejudice to the renewal of any such funding, which includes, but is not limited to, *inter alia*, Pivalliutiit (SAA), Makigarutiit (SAA) and Isruutiit (MAMM)".

The program described in this document requires investments of \$100,000,000 over five years. It must moreover be stated clearly that the program covers only the infrastructure and equipment needs of the Northern villages related directly to the MAMROT. Housing, fire protection and municipal court needs, among others, are in no way dealt with herein, nor are the eventual needs of a new form of government in the region. Nonetheless, certain needs covered in this document do relate directly to the possible implementation of a Additional Low-Rent Housing Construction Catch-Up Program, currently under negotiation by regional authorities (the KRG, the Makivik Corporation and the Kativik Municipal Housing Bureau) as well as the federal and provincial governments. The municipal infrastructure and equipment needs covered by the catch-up program are clearly identified and represent investments of \$16,455,000 (included in the total amount indicated at the top of this paragraph).

Nunavik's isolation (absence of any terrestrial links) and its harsh climate make the region unique. These characteristics generate additional labour, transportation, maintenance and operational costs for municipal infrastructure and equipment.



Moreover, the region's harsh climate increases wear, shortens service life and negatively affects the depreciation of capital assets.

Municipal needs and attendant investments are examined in this document over a five-year period. Notwithstanding, the KRG believes that it would be appropriate to assess the pertinence of making the program recurrent. Since 1978, several agreements and programs have been implemented consecutively and continually, and it is clear that this will continue to be the case in the future. In this context, the KRG would be open to the idea of negotiating a program (duration to be determined) with prescribed maximum annual investment amounts indexed over a period of years (also to be determined).

For 32 years, the KRG and the Northern villages have struggled to establish for Nunavimmiut appropriate municipal public services that are as good as those delivered to other Quebecers. It is therefore imperative that the Isrruuitt Program be renewed quickly so that, no later than the summer of 2011, the Northern villages are enabled to continue to fulfil their responsibility to deliver services to a continually expanding population. Current forecasts put Nunavik's population at 12,324 by 2015.

This proposal describes Nunavik's basic needs regarding drinking water and wastewater treatment, solid waste disposal and treatment, road, heavy equipment, vehicle and municipal administrative services. It is not an exhaustive list of the region's needs, but rather a list of locally identified priorities aimed at ensuring the proper functioning of the Northern villages, at least for the next five years.

Finally, as the Québec government proceeds with its Plan Nord project, a response to the municipal public service needs expressed herein by the KRG and the Northern villages is paramount. These services are essential and inextricably tied to the sound functioning of Nunavik's communities. The Northern villages must be equipped with essential infrastructure and equipment. The Isrruuitt Program represents a tool for the Québec government, the KRG and the Northern villages to reach, if but partially, one Plan Nord objective, specifically to develop "prosperous, dynamic communities that offer an attractive living community for young people, workers and families". Public service infrastructure, housing, education and healthcare will eventually offer Nunavimmiut a quality of life equivalent to the quality of life that exists in the other communities of Québec.

KATIVIK REGIONAL GOVERNMENT

Resolution No. 2010-49

Concerning a proposal for the renewal of the Isurruutiit Program related to construction and improvement of municipal infrastructures in the Kativik region.

- Whereas** pursuant to Resolution No. 99-16 adopted by the Council on March 30, 1999, the KRG approved an agreement with the then Minister of Municipal Affairs concerning a five-year municipal infrastructure program for the construction and improvement of municipal infrastructures in the Kativik region to be managed by the KRG, which agreement ended on December 31, 2006;
- Whereas** pursuant to Resolution No. 2004-91 adopted by the Council on December 10, 2004, the KRG approved a proposal for the renewal of the above-mentioned program;
- Whereas** pursuant to Resolution No. 2005-62 adopted by the Council on September 15, 2005, the KRG approved an agreement with the Gouvernement du Québec concerning the renewal of the above-mentioned program, which renewed program was then named Isurruutiit Program (Revision 1);
- Whereas** with the ending of the Isurruutiit Program (Revision 1), the KRG initiated a review of the needs of the Northern villages (NVs) in terms of municipal infrastructures and equipment;
- Whereas** the new program would essentially be a continuation of the Isurruutiit Program with similar objectives, notably to:
- improve the quality of life of the Nunavimmiut;
 - provide the basic infrastructures and equipment to the NVs as to enable them to provide adequate municipal services to the population;
 - create new employment opportunities;
 - promote the sharing of knowledge between the NVs and the KRG;
- Whereas** considering the positive impacts of the Isurruutiit Program and the constant growth of the NVs, the KRG deems appropriate and necessary that the Isurruutiit Program be renewed;
- Whereas** the Municipal Public Works (MPW) Department has drafted a proposal to be presented to the Ministère des Affaires municipales, des Régions et de l'Occupation du territoire (MAMROT) for the renewal of the Isurruutiit Program, a copy of which is appended to this resolution;
- Whereas** the Council has discussed the appended proposal and agrees with its content.

It is therefore resolved that:

1. the preamble be an integral part of this resolution;
2. the appended proposal for the renewal of the Isurruutiit Program be approved;
3. the Director of the MPW Department be instructed to send a copy of the appended proposal to the MAMROT;
4. negotiations for the renewal of the Isurruutiit Program be initiated with the MAMROT as soon as possible;

5. the Secretary be authorized to sign any document necessary to implement this resolution;
6. this resolution come into effect on the day of its adoption.

MOVED BY: Danielle Qinuajuak
SECONDED BY: Charlie Paningayak
IN FAVOUR: 15
OPPOSED: 0
ABSTENTIONS: 0
ABSENTEES: 1
DATE OF ADOPTION: June. 2, 2010
SPEAKER'S SIGNATURE: (S) Mary Pilurtuut
SECRETARY'S SIGNATURE: (S) Ina Gordon



CERTIFIED COPY

BY: Ina Gordon
DATE: Sept. 17, 2010



CATCH-UP PROGRAM – LOCAL IMPACTS

The purpose of this document is to identify the potential impacts and costs of the *Programme de rattrapage pour la réalisation de logements à loyer modique additionnels au Nunavik* (additional low-rent housing construction catch-up program) from a Northern village perspective.

The document contains three sections:

- impacts on infrastructure;
- impacts on municipal equipment;
- impacts on municipal operating costs.

The estimates presented in this document are based on the needs identified in May under the *2010 Housing Needs Survey* produced by the Kativik Municipal Housing Bureau (KMHB).

Table – KMHB Housing Needs, May 2010

Communities	Required units (no.)	Existing units (no.)	Difference
Akulivik	194	117	77
Aupaluk	69	42	27
Inukjuak	540	352	188
Ivujivik	89	75	14
Kangiqlualujjuaq	193	169	24
Kangiqsuuaq	180	129	51
Kangirsuk	136	138	0
Kuujjuaq	576	373	203
Kuujjuarapik	211	150	61
Puvirnituq	473	301	172
Quaqtaq	97	70	27
Salluit	340	245	95
Tasiujaq	81	53	28
Umiujaq	110	80	30
TOTAL	3 289	2 294	997

These needs do not include new housing covered under the current housing construction agreement, which provides for roughly 400 new units between 2010 and 2014.

1. Impacts on Infrastructure

- a) **Drinking Water Supply and Wastewater Treatment:** drinking water treatment plants, pumping stations, settling ponds, underground waterworks

No impact on drinking water supply and wastewater treatment infrastructure is expected given that the increased number of dwellings will not directly change the number of residents in the communities or the volume of water to be treated. The volume of water to be treated could however increase as fewer residents per dwelling could lead to increased use of water (showers and clothes washing) but no meaningful data exists at the moment regarding such impacts.

Drinking water distribution and wastewater collection in Kuujjuarapik is provided by underground waterworks. Kuujjuarapik is the only community with waterworks. According to KMHB estimates, 61 new units are planned in Kuujjuarapik under the catch-up program.

An estimated total of 671 m of pipeline (drinking water and wastewater) will be required. This calculation is based on the estimate that each new housing unit will require the construction of 11 m of road, and therefore the same length of pipeline. Refer to the Table 1 c).

The unit cost used in the following calculations was provided by the engineering firm that designed and constructed the initial waterworks.

Table 1 a) Infrastructure – Waterworks (Kuujjuarapik)

Pipelines	671 m @ \$2 000/m	\$1 342 000
Residential lines	61 units @ \$25 000	\$1 525 000
Subtotal 1 a)		\$2 867 000

- b) **Household Garbage Management:** landfill sites

No impact on household garbage management infrastructure is expected given that the increased number of dwellings will not directly change the number of residents in the communities or the volume of household garbage generated.

Notwithstanding, the construction of the new housing units themselves will generate significant quantities of waste (wood, metal and other). This waste will fill space at landfill sites. While the occupation of this space will not represent any additional costs, it must be taken into account that the service life of the sites will be shortened. An estimate of the reduction in service life of the landfill sites could eventually be calculated.

c) Roads

The construction of new dwellings will require the construction of 11 km of new roads. It is estimated that each housing unit will require roughly 11 m of road. This calculation is based on the typical dimensions of duplex-dwelling lots (32 m wide), plus an additional 30% to take into account lots where construction is not possible. The 30% factor also takes into account that certain dwellings could be constructed along existing roads, although such possibilities are very low given that the large majority of available lots in the communities are already occupied.

The shortage of adequate dwelling lots in some communities could also lead to additional costs if the development of new sectors requires the construction of extended segments of road, bridges and dynamiting for roads or dwelling pads. These costs are difficult to estimate accurately prior to exhaustive soil studies but, according to the identified needs and the KRG and Makivik Corporation's knowledge about the communities, it is estimated that an approximate total volume of 95 040 m³ alone will need to be dynamited for the construction of roads (Salluit, 30 400 m³; Ivujivik, 4 480 m³; and Inukjuak, 60 160 m³).

As well, it is highly likely that bridges will need to be constructed in two communities (Salluit and Inukjuak) in order to access new dwelling zones.

Costs associated with the extension of local power grids are not contemplated in this document.

The unit cost used in the following calculations is based on KRG experience on recent projects and takes into account indexation. Paving costs do not take into account equipment mobilization costs and dynamiting. It has been assumed that this work will be carried out for other similar projects. It should be noted that, as roads will be constructed before or at the same time as the new housing units, road paving work will only be carried out a few years after the major construction work.

Table 1 c) Infrastructure – Roads		
Road construction (gravel surface)	11 km @ \$225 000/km	\$2 475 000
Road paving	11 km @ \$370 000/km	\$4 070 000
Dynamiting	95 040 m ³ @ \$15/m ³	\$1 425 600
Bridges	2 @ \$600 000/km	\$1 200 000
	Subtotal 1 c)	\$9 170 600

Bridge and gravel road construction will be included in the Isurruutiit Program 2011–2015 renewal proposal that the KRG plans to submit shortly to the *ministère des Affaires municipales, des Régions et de l'Occupation du territoire* (municipal affairs, regions and land occupancy, MAMROT).

A portion of the road paving work is included in the road paving agreement renewal proposal that the KRG submitted to the *ministère des Transports du Québec* (transportation) in January 2010. This renewal project totals \$13 133 940 over five years in four communities.

Dynamiting work is not included in any other proposal at this time.

d) **Buildings:** vehicle garages

The only impact on buildings generated by an increased number of dwellings concerns garages for drinking water distribution and wastewater collection trucks.

According to section 2 a), it is estimated that eight additional drinking water distribution trucks and eight additional wastewater collection trucks will be required to meet the needs generated by 1000 new housing units. These vehicles must be stored indoors in winter to prevent freezing. Sixteen indoor parking bays are therefore required. Currently, Northern village vehicle garages are almost completely full. Normally in order to minimize costs, additional parking bays are constructed only when the required number in a community reaches four or five. It is therefore generally accepted that the Northern villages will experience a shortage of parking bays for a few years prior to the construction of new bays.

However, even though the parking bays required may not be constructed at the same time as the new housing units in a given community, but will instead be constructed later, the need remains and must be taken into account immediately.

For calculation purposes the space required for a parking bay is 65 m³. Average construction costs between 2011 and 2015 are moreover estimated at \$5 000/m², taking into account construction work integrated into a larger project.

The unit cost used for the following calculations is based on KRG experience on recent projects and take into account indexation.

Table 1 d) Infrastructure – Buildings			
Vehicle parking construction	16	65 m ² @ \$5 000/m ² = \$325 000	\$5 200 000

This work will be included in the Isruutit Program 2011–2015 renewal proposal that the KRG plans to submit shortly to the MAMROT.

2. Impacts on Municipal Equipment

a) **Drinking Water Distribution and Wastewater Collection:** vehicles

Drinking water distribution and wastewater collection are performed by truck, except in Kuujjuarapik as explained in section 1 a) of this document.

The criteria for calculating the number of trucks required in each community is one truck for every 120 housing units. On this basis and taking into account the housing

needs identified by the KMHB, it is estimated that eight drinking water distribution trucks and eight wastewater collection trucks will be required, for a total of 16.

The unit cost used in the following calculations is based on 2009 purchase costs indexed over an average of five years.

Table 2 a) Equipment – Trucks			
Drinking water distribution	8	\$280 000	\$2 240 000
Wastewater collection	8	\$255 000	\$2 040 000
Subtotal 2 a)			\$4 280 000

The purchase of this equipment will be included in the Isurruutiit Program 2011–2015 renewal proposal that the KRG plans to submit shortly to the MAMROT.

b) **Household Garbage Collection:** vehicles

The criteria for calculating the number of trucks required in each community is one truck for every 300 housing units.

On this basis and taking into account discussions with Northern village officials, it seems that four communities have reached or exceeded this capacity with existing equipment (Kuujjuaq, Salluit, Puvirnituq and Inukjuak) and that the new housing units will make additional equipment necessary. The volume of garbage produced by households will not increase substantially with the construction of new housing units since the number of residents in the communities will remain the same. Nonetheless, operator workload will increase and productivity will diminish. In addition, in these four communities, the landfill sites are relatively far from town.

Consequently, an additional four garbage trucks will be required.

The unit cost used in the following calculations is based on 2009 purchase costs indexed over an average of five years.

Table 2 b) Equipment – Trucks			
Household garbage	4	\$220 000	\$880 000

The purchase of this equipment will be included in the Isurruutiit Program 2011–2015 renewal proposal that the KRG plans to submit shortly to the MAMROT.

c) **Road Maintenance:** heavy equipment

No impact on equipment purchases is expected given that current Northern village equipment can support the additional road construction workload (paved or gravel road surface maintenance and snow removal).

3. Impacts on Municipal Operating Costs

The new infrastructure and the new equipment described in the preceding sections will have impacts on Northern village operations, specifically by increasing costs.

The additional costs generated by new housing units will be connected with the following activities:

- drinking water treatment and delivery;
- wastewater collection;
- household garbage collection;
- road maintenance and snow removal;
- operation and maintenance of parking garages.

The MAMROT provides financial assistance to the Northern villages for the delivery of municipal services as set out in the *Act respecting Northern Villages and the Kativik Regional Government* (R.S.Q., c. V-6.1). This financial assistance is calculated according to the number of building units (all kinds) and will therefore increase with the construction of the new housing units. It is estimated that the additional required financial assistance will be \$7 048 560 to cover the additional costs of the Northern villages. This amount is calculated for 2010 and is indexed annually to take into account population growth.

Conclusion

The direct costs of the *Programme de rattrapage pour la réalisation de logements à loyer modique additionnels au Nunavik* (additional low-rent housing construction catch-up program) will therefore reach \$22 297 600 in investments for infrastructure and equipment over five years for the Northern villages.

The type of dwellings to be constructed or a community distribution different than that taken into account in this document could affect the analysis carried out in certain areas, although the estimated total will remain more or less unchanged.

Summary of Estimated Costs

1. Infrastructure			
a) Waterworks (Kuujjuarapik)	Pipeline construction (671 m) Residential pipes (61)	\$1 342 000 \$1 525 000	\$2 867 000
b) Household garbage management			\$0
c) Roads	Construction (11 km) Paving (11 km) Dynamiting (95 040 m ³) Bridges (2)	\$2 475 000 \$4 070 000 \$1 425 600 \$1 200 000	\$9 170 600
d) Buildings	16 parking bays		\$5 200 000
	Subtotal 1. Infrastructure		\$17 237 600

2. Equipment			
a) Vehicles	Drinking water distribution (8) Wastewater collection (8)	\$2 240 000 \$2 040 000	\$4 280 000
b) Vehicles – household garbage collection (4)			\$880 000
c) Road maintenance			\$0
	Subtotal 2. Equipment		\$5 160 000

TOTAL 1 and 2	\$22 397 600
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