

TERRITORIAL GRANULAR RESOURCE FORECAST REPORT



THE TERRITORIAL GRANULAR STRATEGY

Prepared by:

Department of Public Works and Services
Department of Municipal & Community Affairs
Department of Transportation
NWT Housing Corporation



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Territorial Granular Resource Forecast



Prepared by:

The Interdepartmental Granular Acquisition Committee

With Representatives from:

Department of Transportation
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EXECUTIVE SUMMARY

The Government of the Northwest Territories (GNWT) continues to develop initiatives to ensure that granular materials are available when required and at reasonable cost. Granular materials are necessary for territorial and municipal infrastructure projects in the Northwest Territories. It is imperative that the needs of a wide array of stakeholders and interest groups be considered in order to properly develop and manage this important resource. Further, when the New Deal for NWT Community Governments is implemented effective April 1, 2007, communities will become fully responsible for the acquisition of granular materials. The GNWT has a role to play in ensuring that Territorial Governments are able to meet this responsibility. This includes, as a specific component of the GNWT sustainable development policy, the improved coordination of granular material procurement by the GNWT managed through a stakeholder committee.

In response, the Departments of Municipal and Community Affairs (MACA), Transportation (DOT), and Public Works and Services (PWS), in partnership with the Northwest Territories Housing Corporation (NWT HC), established an Interdepartmental Granular Acquisition Committee (IGAC) to develop a comprehensive, territorial-wide, granular supply strategy. Completed in November 2006, the strategy involves a collaborative and coordinated approach for granular acquisition by Territorial Governments, as well as a NWT granular information database to be accessible to all users.

In January 2007, the Committee was tasked with implementing the two part Territorial Granular Strategy, by developing a *Territorial Granular Acquisition Forecast (Part 1)* and preparing a *Granular Resource Directory (Part 2)*.

This report is about the *Territorial Granular Resource Forecast (TGRF)*, which can be used as the basis for consultation with community governments, and potentially other stakeholders, who may want to partner with the GNWT to achieve economies of scale in the acquisition of granular materials. The Forecast will continually update multi-user granular acquisition opportunities to coordinate territorial granular supply operations and provides community-based forecast summary information on granular supply and demand, to assist Territorial Governments in the planning and acquisition of granular materials.

The *Granular Resource Directory* will act as a database that will compile information on the available supply, procurement, conservation, sustainability, and effective management of granular resources within the NWT for the benefit of future generations of northerners. The *Directory* will be available by October 2007.

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	(i)
1.0 INTRODUCTION	2
2.0 BACKGROUND	4
3.0 GRANULAR ACQUISITION COMMITTEE	5
4.0 COMMUNITY GOVERNMENTS	6
5.0 SUPPLY AND DEMAND	7
6.0 GRANULAR ACQUISITION BY ASSET	10
7.0 MACKENZIE GAS PROJECT	13
8.0 TERRITORIAL GRANULAR ACQUISITION FORECAST	18
9.0 TERRITORIAL GRANULAR DEMAND FORECAST	24
APPENDIX A	64

1.0 INTRODUCTION

An important aspect of the Government of the Northwest Territories (GNWT) territorial granular strategy is to improve coordination of granular material procurement by the GNWT, managed through a stakeholder committee. The Departments of Municipal and Community Affairs (MACA), Transportation (DOT), and Public Works and Services (PWS), in partnership with the Northwest Territories Housing Corporation (NWT HC), established an Interdepartmental Granular Acquisition Committee (IGAC) to initiate a collaborative approach to granular supply for the GNWT and community governments.

To ensure the needs of a wide array of stakeholders and interest groups are considered in order to acquire granular materials in a cost-effective and timely manner, the Committee has prepared the following *Territorial Granular Resource Forecast (TGRF)*. The Forecast can be used as the basis for consultation with community governments, and potentially other stakeholders, who may want to partner with the GNWT and municipal governments to achieve economies of scale. The Forecast will be continually updated to reflect current territorial-wide granular acquisition opportunities and project required material volumes.

Equally important, the Forecast will also provide territorial forecast summary tables on granular demand and acquisition to assist Territorial Governments in the planning and procurement of granular materials.

Including the introduction, the report is divided into nine sections:

Section 2 explains the circumstances and reasons behind the requirement for a comprehensive territorial granular strategy.

Section 3 describes the establishment and purpose of the Interdepartmental Granular Acquisition Committee (IGAC).

Section 4 examines the role of communities under the New Deal with respect to the planning and acquisition of granular materials.

Section 5 considers supply and demand information related to the acquisition of granular materials in the NWT, especially with respect to communities.

Section 6 examines the various assets or construction projects normally associated with granular acquisition.

Section 7 reviews the impact of the Mackenzie Gas Project on granular supply and acquisition specific to communities along the pipeline right-of-way and anchor fields.

Section 8 provides summary forecast tables of coordination opportunities for the procurement of granular materials by municipal governments, GNWT Departments, Crown Corporations, and resource development projects, in 2007 through 2010 and future years.

Section 9 presents detailed and summary forecast tables and charts of territorial granular quantity estimates related to proposed capital projects and O&M requirements, as of April 2007.

2.0 BACKGROUND

Communities within the Northwest Territories are faced with unique challenges with respect to the provision of accessible and adequate supplies of granular material. Inequities exist between communities that have access to granular material supplies and those who do not. Further, the conservation and effective management of granular reserves are important for future development projects throughout the NWT, especially transportation infrastructure-related projects.

In a number of communities, the lack of an adequate supply of granular materials for community infrastructure, private sector projects and transportation-related demands are serious challenges. The degree of challenge varies according to geographic location, community production and management capabilities, the high costs to supply granular materials on a project-by-project basis and the on-going competition for granular materials.

Access to adequate supplies of granular materials is another challenge for many Northwest Territories (NWT) communities. There are eight communities that do not have all-season access to granular materials, and are required to obtain gravel through seasonal supply at great cost. Other communities face issues associated with local capacity, long distance supply or lack of private sector capacity to obtain gravel.

In 2004-2005, MACA was directed to take the lead on an interdepartmental review to assess the overall GNWT approach to dealing with granular material acquisition, particularly with a view to focus on supply/resupply issues facing communities.

At the 2006 NWT Granular Users Forum, representatives from Aboriginal organizations, governments, regulators, industry, resource management bodies, and consultants formed a consensus on the need for better access to information on the identification, acquisition, and management of granular resources in the North.

In 2005, an Interdepartmental Working Group (IWG) was established and developed terms of reference to prepare a Territorial Granular Strategy. A northern consultant partnership was retained to develop the strategy. In April 2006, the IWG received the final report on a Territorial Granular Strategy from the consultants.

Two recommendation of the IWG was that there should be improved coordination of granular material procurement by the GNWT managed through a cooperative stakeholder committee, and the need for a granular resource database accessible to all users.

3.0 GRANULAR ACQUISITION COMMITTEE

In January 2007, an Interdepartmental Granular Acquisition Committee (IGAC) with representative from MACA, DOT, PWS, and the NWT HC was established. The IGAC will implement the GNWT two part Territorial Granular Strategy by:

- Developing a three-year *Territorial Granular Resource Forecast (TGRF)* that will provide up to date territorial granular supply and demand forecasts and acquisition opportunities in 2007 – 2010 (Part 1), and a *Granular Resource Directory (GRD)* that will compile base line information on the available granular supply, procurement, conservation, sustainability, and the effective management of granular resources within the NWT, scheduled for completion October 2007 (Part 2).
- Continually coordinate and update territorial granular acquisition and project quantity estimates within the TGRF to reflect the most current territorial-wide granular procurement opportunities and project required material volumes;
- Facilitate the interdepartmental coordination of procurement of granular needs for Territorial Governments and ensure that information related to granular supply, demand, acquisition and sustainability are made available, in a timely manner, to all users but especially communities that can benefit from this information;
- Formally consult with community governments on a regular basis to determine their granular supply needs and ensure they are aware of opportunities to take advantage of the GNWT multi-user acquisition forecast; and
- Continue to work with community governments as part of implementation of the New Deal to identify capital needs, develop capital investment plans, and budget to ensure those needs are met. Granular acquisition will be included in this process.

The IGAC is established under the direction of the Deputy Ministers of PWS, MACA, DOT, and the President of the NWT HC. The Department of Public Works and Services chairs the IGAC and through the department's Community Granular Program (CGP), coordinate GNWT planning for granular acquisition Committee members include:

- Chair, Director, Asset Management Division, PWS
- Director, Highways and Marine Services Division, DOT
- Special Advisor Infrastructure Policy/Project Management, MACA
- Construction Manager, Infrastructure Development, NWT HC
- Projects and Geotechnical Officer, PWS

4.0 COMMUNITY GOVERNMENTS

Community governments are responsible for obtaining granular materials to maintain roads and community infrastructure. Before April 1, 2007, this has been done through O&M formula funding, or through applications to GNWT Granular Materials programs. For new assets that are being constructed through the GNWT capital plan, PWS as project manager has ensured the acquisition of granular materials.

Effective April 1, 2007, communities will become fully responsible for the acquisition of granular material under the New Deal for NWT Community Governments. The GNWT has a role to play in ensuring that communities are able to meet this need. Communities will be better positioned to acquire granular materials using a collaborative, coordinated approach with GNWT Departments, Crown Corporation and other interest groups.

The cost of granular supply in the NWT is high. Once a developed borrow source has been depleted, identification and acquisition of an alternative site is often difficult and costly - assuming an alternate source is available. Any significant reduction in granular reserves available to communities and other users will result in higher costs to access and develop potential sources. A collaborative and coordinated approach to the acquisition of granular materials will support the sustainability of this valued resource throughout the NWT.

As community governments will make decisions about what facilities are built, set priorities, determine project management, scope, financing and scheduling, it should be noted that nothing can be built without gravel. Therefore, the requirement to access and manage granular material sources is essential for communities to plan and deliver infrastructure development and ongoing operations. The *Territorial Granular Resource Forecast* and a subsequent document, *Granular Resource Directory*, will facilitate the supply/re-supply of granular materials to meet the proposed capital and operational requirements of community governments.

5.0 SUPPLY AND DEMAND

This section considers supply and demand information related to the acquisition of granular materials in the NWT, especially with respect to communities.

5.1 Supply

An evaluation was made between the granular needs for NWT communities and their ability to satisfy this need. This involved a comparison for each community between the estimated demand for granular materials and the available granular reserves to meet this demand. The following criteria are used to determine those NWT communities that are self-sufficient in granular material and those that are not:

- The projected demand for granular materials;
- Available granular reserves (resource inventory), which include existing sources and potential sources;
- Source evaluation assessment - quality and quantity of available sources;
- Seasonal or all-weather access to existing and potential sources;
- Ability to process source material for the production of select grades in terms of available equipment and suitability of material for processing;
- The relative costs to develop potential granular sources;
- Private sector information - production and management capability of local/northern contractor(s) to supply and manage granular materials for all users specific to each community; and
- Land management information - management capability of a municipality to monitor and regulate land use activity and protect/conservate identified granular sources.

5.2 Demand

The TGRF is guided by community supply and demand models. Granular needs assessments are reviewed for each community. A number of communities are self sufficient in terms of granular supply and able to obtain granular materials on an '*as-and-when*' basis with all season/all weather access. For these communities, preparation of a yearly granular demand assessment would suffice to facilitate granular supply operations.

Other NWT communities are not self-sufficient in terms of granular supply and are dependent on seasonal and/or long distance supply operations to meet their granular requirements. A granular needs/demand assessment is a ‘must’ necessity for these communities. The granular requirements for community land development, capital projects and O&M needs are combined to obtain a municipal 3 - 5 year gravel supply quantity estimate. The intent is to focus coordination for re-supply where gravel shortages exist as future needs are identified.

The communities listed in *Table 1* are not self-sufficient in granular materials. A common factor in these communities is that long distance and/or seasonal access is necessary to obtain gravel. In some cases, granular sources close to the community have been depleted. As a result, a significant effort is now needed to develop identified sources that are now a long distance from the community. In other cases, the lack of granular sources is a function of geographic location. The environment of deposition that surrounds the community, often for many kilometres, is simply not conducive to the formation of granular materials or the provision of suitable access. Often, the land to the gravel source is rugged and dissected by rivers and lakes, and the only optimum method is to access the gravel in winter over ice and winter road. The results in both cases are high gravel costs and difficulty in meeting granular demand requirements.

Table 1: NWT Communities - Seasonal/Long Distance Access

Community	Supply Operation	Distance to Sources
Tuktoyaktuk	Seasonal and long distance.	20 & 60 km
Aklavik	Seasonal and long distance	18 km (27 km by Peel Channel)
Paulatuk	Seasonal	5 km
Tulita	Seasonal and long distance	17 km
Colville Lake	Seasonal	3.5 km
Nahanni Butte	Seasonal	9 km
Trout Lake	Seasonal and long distance	15 km
Fort Providence	Long distance	Varies 20 -30 km
Lutsel K'e	Long distance	Varies 12 -20 km
Wekweti	Seasonal	3 -10 km
Kakisa	Long distance	10 km

5.2.1 Select Grades

Most NWT communities lack the capability of producing select grade materials because processing equipment is required. Those communities with all season access to the NWT Hwy system and market driven economies can normally obtain select grade material on a project-by-project basis.

Communities that have seasonal access to the NWT Hwy system require detailed forward planning to ensure select grade materials are available, when required, for municipal requirements at reasonable costs. Normally, this requires the mobilization/demobilization of processing equipment over seasonal ice and winter roads and thus increased costs. **Coordination and cost-sharing are especially recommended where crushing or screening operations are proposed for GNWT managed projects.**

The communities of Sachs Harbour, Ulukhoktok, Paulatuk, Wekweti, and Lutsel K'e are not connected to the NWT Hwy system, which has contributed to the highest costs for select grade materials; they especially require a detailed assessment of granular requirements over a five year period and, where opportunities exist in the community for crushing or screening, should maximize budgets to obtain and stockpile a supply of processed material for municipal use.

5.2.2 Granular Needs Assessment

On April 1, 2007, community governments will assume full authority for all aspects of community public infrastructure, including planning, financing, project management and maintenance. Communities will become fully responsible for acquisition of granular material necessary to support the construction of community infrastructure and delivery of municipal services.

Granular needs assessments will assist community and territorial governments to plan and prepare for granular supplies to ensure granular materials are available in a timely manner and at reasonable cost. The needs assessment can focus coordination of granular supply where gravel shortages exist, as future infrastructure and O&M needs are identified on an annual and/or five-year basis. Granular need assessments are based on:

- The “*Granular Material Breakdown*” of capital projects (*Table 2*), now a responsibility of community governments, is used to obtain the granular needs of a given asset or project for any given year;
- O& M granular materials for highways, roads, land fills, and general requirements;
- Both common and select grade requirements in cubic metres;
- All project quantity estimates are ‘bulk volumes’ that reflect maximum granular material requirements and earliest project initiation;
- An assumption is made that all projects will be 100% realized, beginning in FY2007/2008.

6.0 GRANULAR ACQUISITION BY ASSET

6.1 Granular Material Requirements

Table 2 represents the volume of granular materials required for various assets or construction projects normally associated with community infrastructure. Municipalities can estimate granular requirements by project annually or over a 3-5 year time horizon. This information is especially useful to communities that are not self-sufficient in granular materials and require seasonal and/or long distance granular supply operations to meet project needs.

Estimating the granular material volumes then becomes a simple calculations of volumes based on the number and type of project/asset proposed over a given year. However, it should be noted that the granular quantities as noted in *Table 2* are '*bulk volumes*'.

A '*bulk volume*' is the quantity of granular material that has to be extracted from a pit/quarry to meet the 'in-place' volume for any given construction project. Bulk volumes are up to 30 % higher to account for losses due to loading, shrinkage, compaction, side slope, etc.

Bulk volumes should be used in the calculation of granular quantities for community infrastructure projects with respect to the acquisition of pitrun material from a pit and/or quarry.

Table 2: Granular Material Requirements by Asset - Bulk Volumes

Project/Asset	Common m ³	Processed m ³		Rip-Rap m ³
	Pit run	Select	Concrete Agg.	
Airstrip (new 900x60)	81,000	21,600	0	0
Airstrip Resurface	0	5,400	0	0
Airstrip Maintenance	0	1,700	0	0
Air Terminal	675	425	0	0
Apron Expansion	2,500	1,000	0	0
Arena (large)	850	475	0	0
Arena (medium)	675	425	0	0
Arena (small)	500	375	0	0
Community Hall (l-440sq.m.)	675	425	0	0
Community Hall (m-390sq.m.)	500	375	0	0
Community Hall (sm -250sq.m.)	300	300	0	0
Firehall	350	300	50	0
Garage (1-3 bays)	600	400	50	0
Gas Station (in town)	600	400	50	0
Group Home	500	475	0	0
Gymnasium (l-440sq.m.)	675	425	0	0
Gymnasium (m-390sq.m.)	500	375	0	0
Gymnasium (sm-250sq.m.)	300	300	0	0
Health Center	675	425	0	0
Housing (single)	200	100	0	0
Housing (duplex)	300	150	0	0
Housing (fourplex)	675	200	0	0
Museum (l)	350	225	100	0
Museum (sm)	200	150	50	0
Office (l)	675	425	0	0
Office (m)	500	500	0	0
Office (hamlet)	500	375	0	0
Park Development (l)	4,900	2,500	0	100
Park Development (sm)	600	1,400	0	50
Rink (outdoor)	500	375	0	0
R/S/L-lot development	180	180	0	0
Road(25m) & 1 Lot	300	200	0	0
Road Construction (1km.)	4,900	1,000	0	0
Road Resurfacing (1km.)	600	1,400	0	0
Road Upgrade (1km.)	0	1,000	0	0
Satellite Base	300	300	250	0
School (new)	400	300	200	0
School (addition)	200	150	100	0
Sewerage Lagoon	10,000	0	0	0
Shoreline Protection	0	600	0	4,000
Solid Waste Site	9,000	6,000	0	0
Solid Waste Improvements	6,000	4,000	0	0
Tankfarm	3,000	5,000	0	0
Tankfarm (upgrade)	600	300	0	0
Tankfarm (increase capacity)	3,000	5,000	0	0
Trade Shop	300	300	0	0
Warehouse	900	750	0	0
Water Supply (reservior)	40,000	10,000	0	0
Water Supply (improve.)	6,000	4,000	0	0

Granular Material Requirements by Asset (continued)				
Project	Common m³	Select m³	Conc Agg. m³	Rip-Rap m³
Visitor Center	500	375	0	0
Above Ground Pool	500	375	0	0
Wharf	0	0	0	650
Breakwater	0	0	0	7,500
Curling Rink (1-4 sheets)	350	250	0	0
ATB Expansion	250	100	0	0
Lagoon Upgrade	5,000	0	0	0
Water Treatment Plant	675	425	0	0
Airport Lighting Rehab	0	100	0	0
Airport Maintenance Stockpile	0	5,000	0	0

6.2 Forecast Analysis

The Territorial Granular Resource Forecast (TGRF) is driven by the opportunities for stakeholders, especially communities, to obtain gravel in a collective manner to increase the economies of scale and reduce costs. It is an information tool that predicts granular supply opportunities for consideration by GNWT Departments, Crown Corporations and municipal governments in terms of coordinating granular supply operations. The Forecast incorporates:

- Participating GNWT Departmental O&M and Capital Plan related granular operations
- GNWT 2007 - 2010 Infrastructure Acquisition Plan
- Affordable Housing Initiative
- GNWT 20-year Needs Assessment
- Territorial resource development projects
- Community Governments Capital Plans

7.0 MACKENZIE GAS PROJECT

The Mackenzie Gas Project is being developed by Imperial Oil Resources Ventures, Conoco Phillips Canada, Shell Canada Limited, ExxonMobil, and the Mackenzie Valley Aboriginal Pipeline Group (Proponents). The purpose of the MGP is to develop natural gas in the Mackenzie Delta from three anchor fields and transport the gas by pipeline to Alberta. The entire project is still under review by the National Energy Board (NEB) and the Joint Review Panel (JRP) and has not been approved as of April 2007.

If the Project proceeds, construction of the gathering system and pipeline will require an estimated 7 million cubic metres of borrow material. About 74 primary and 50 alternate borrow sites have been identified for development along the project right-of-way. Although some of these sites and related access already exists, construction of new winter and all-weather roads will be required to develop some of the potential sites.

Borrow source development within the anchor fields and access corridor will occur in 2007 - 2010, dependent on Project approval. *Table 3* summarizes the borrow sites being considered for Project use that are located near communities or known to be used by communities along the pipeline right-of-way. Agreements have been reached by the Proponents and Territorial Governments on the use of these sources for the Project, to ensure a sustainable granular supply for the benefit of affected communities.

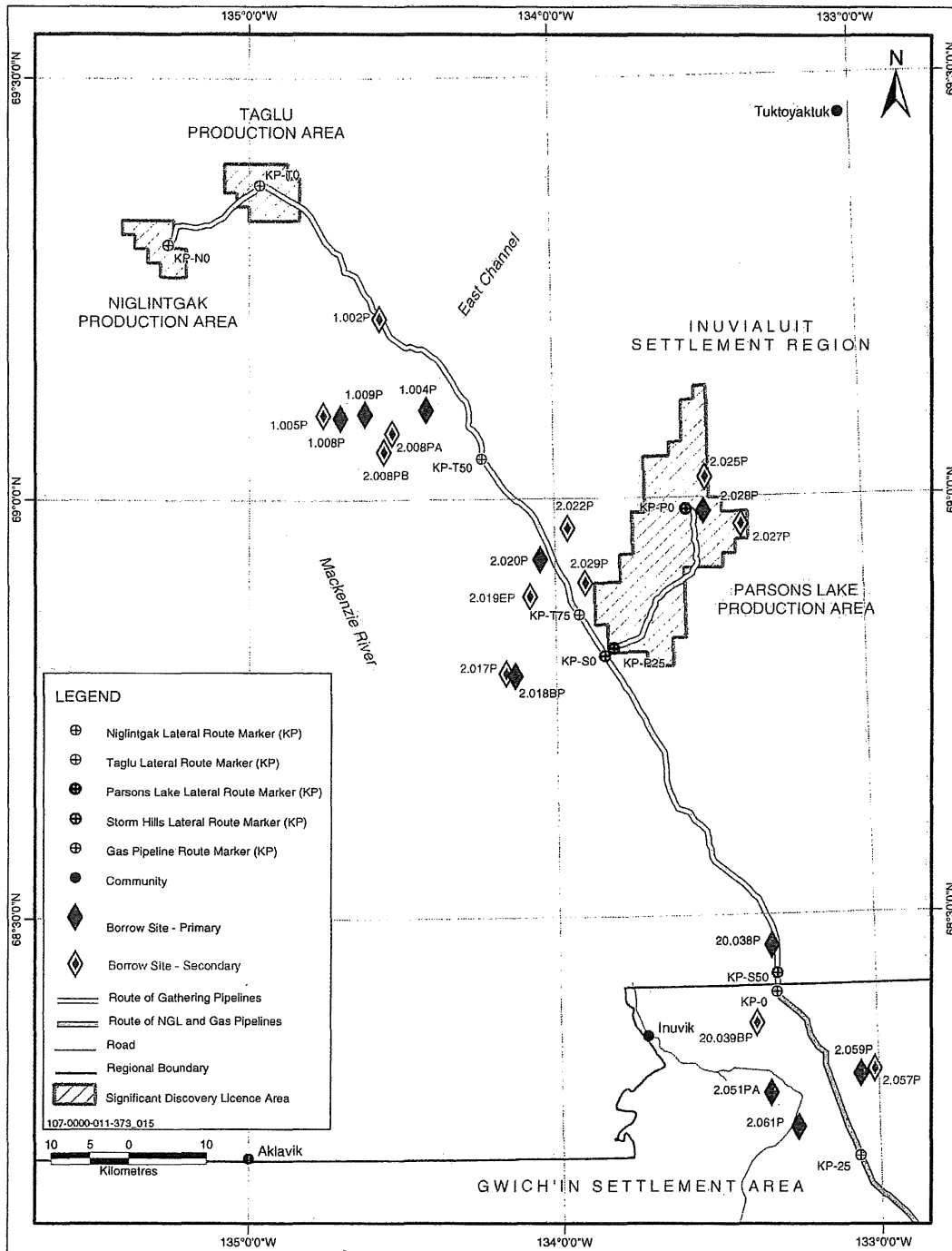
The eight communities noted in *Table 3* have opportunities to coordinate municipal granular requirements with the development of the listed borrow sources during the construction phase of the MGP. This would include use of new winter and all-weather access roads for granular supply operations. The Proponents will be hauling and stockpiling material extracted from these sources for Project infrastructure and facility sites. Further, crushing for select grades will be required at some of these sites for use by the Project. As the three-year construction phase proceeds, the communities listed in *Table 3* should consider joint venture supply operations with the Proponents to acquire and stockpile both select and pitrun materials for municipal requirements.

The Departments of Transportation (territorial wide infrastructure), Energy and Natural Resources (tower replacement/upgrades), and Industry, Tourism & Investment (park development) could also benefit from the development and access of borrow sources along the pipeline right-of-way, where granular material is required for capital projects or O&M, but is either not currently available or difficult to obtain at reasonable cost.

The following table and maps are referenced from the *MGP Environmental Impact Statement (EIS), Volume 2: Project Description*, submitted to the National Energy Board and the Joint Review Panel, by Imperial Oil Resources Ventures Limited, August 2004. The table has been edited for the TGRF report.

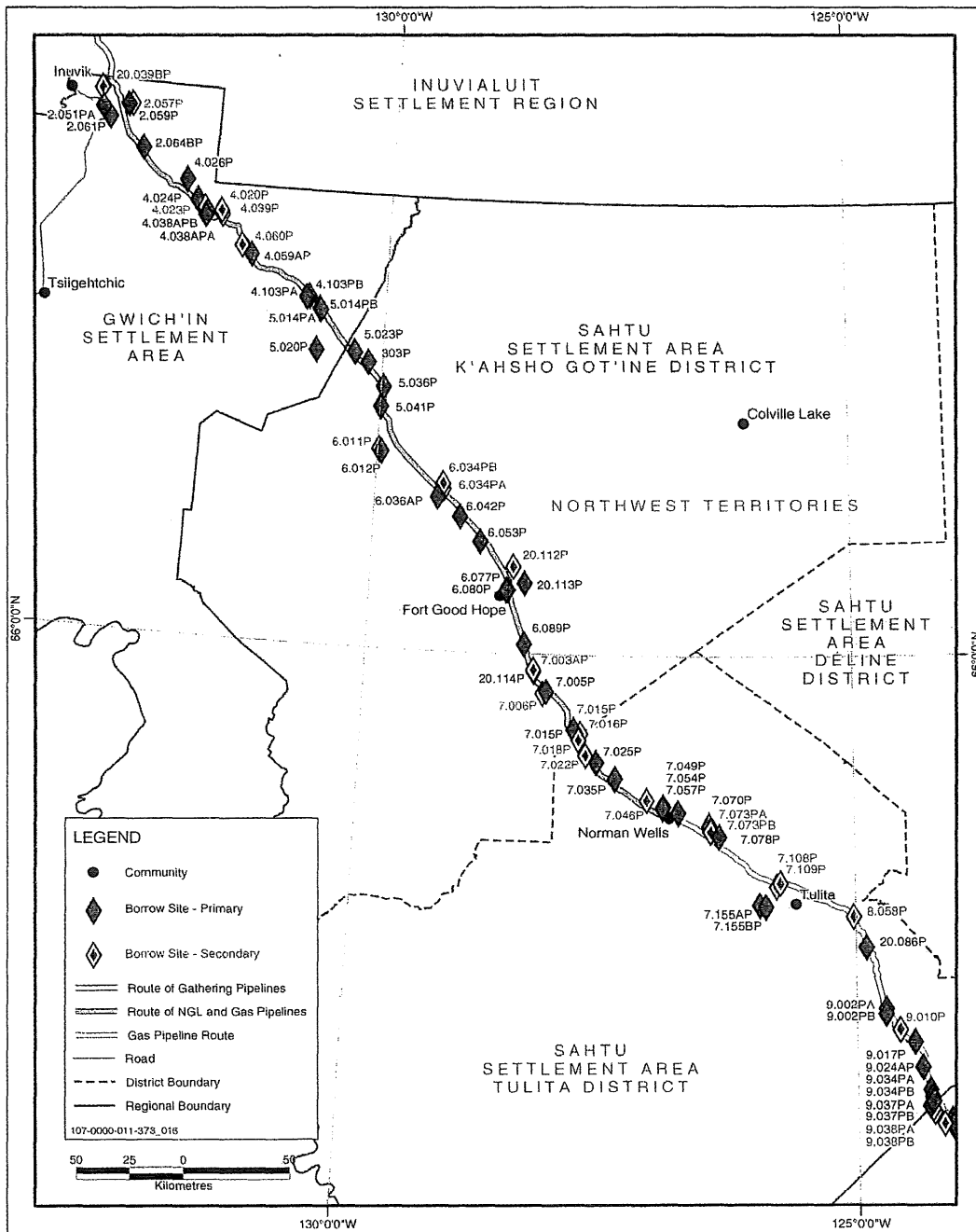
Table 3: MGP Granular Acquisition Located Near or Used by Communities

Source	Material	Ownership	Community	Status	Proposed Construction	Estimated Volume Source (1000 m3)	Estimated Volume Required (1000 m3)
1.008P	Granular	Private	Tuktoyaktuk	Existing	2007 - 2008	4,200	370
1.009P	Granular	Private	Tuktoyaktuk	Existing	2007 - 2009	1,900	70
2.051P 2059P	Rock	Private	Inuvik	Proposed	2007 - 2009	500	137
6.077P	Granular	Municipal	Fort Good Hope	Proposed	2008 - 2009	2,000	186
6.080P	Granular	Municipal	Fort Good Hope	Proposed	2007 - 2009	2,500	33
7.049P	Granular	Municipal	Norman Wells	Proposed	2007 - 2008	850	20
7.054P	Granular	Private	Norman Wells	Proposed	2007 - 2010	615	14
7.057P	Granular	Municipal	Norman Wells	Existing	2007 - 2009	To Be Determined	243
7.155AP 7.155BP	Granular	Crown Private	Tulita	Existing	2007 - 2009	112,000	73
10.043P	Granular	Crown	Wrigley	Existing	2008 - 2009	19,700	50
10.033P	Granular	Crown	Wrigley	Proposed	2007 - 2009	5,600	6
11.071P	Granular	Crown	Fort Simpson	Proposed	2008 - 2009	500	18
11.174P	Granular	Crown	Fort Simpson	Existing	2008 - 2009	3,000	32
20.057P	Granular	Crown	Jean Marie	Existing	2008 - 2009	To Be Determined	14



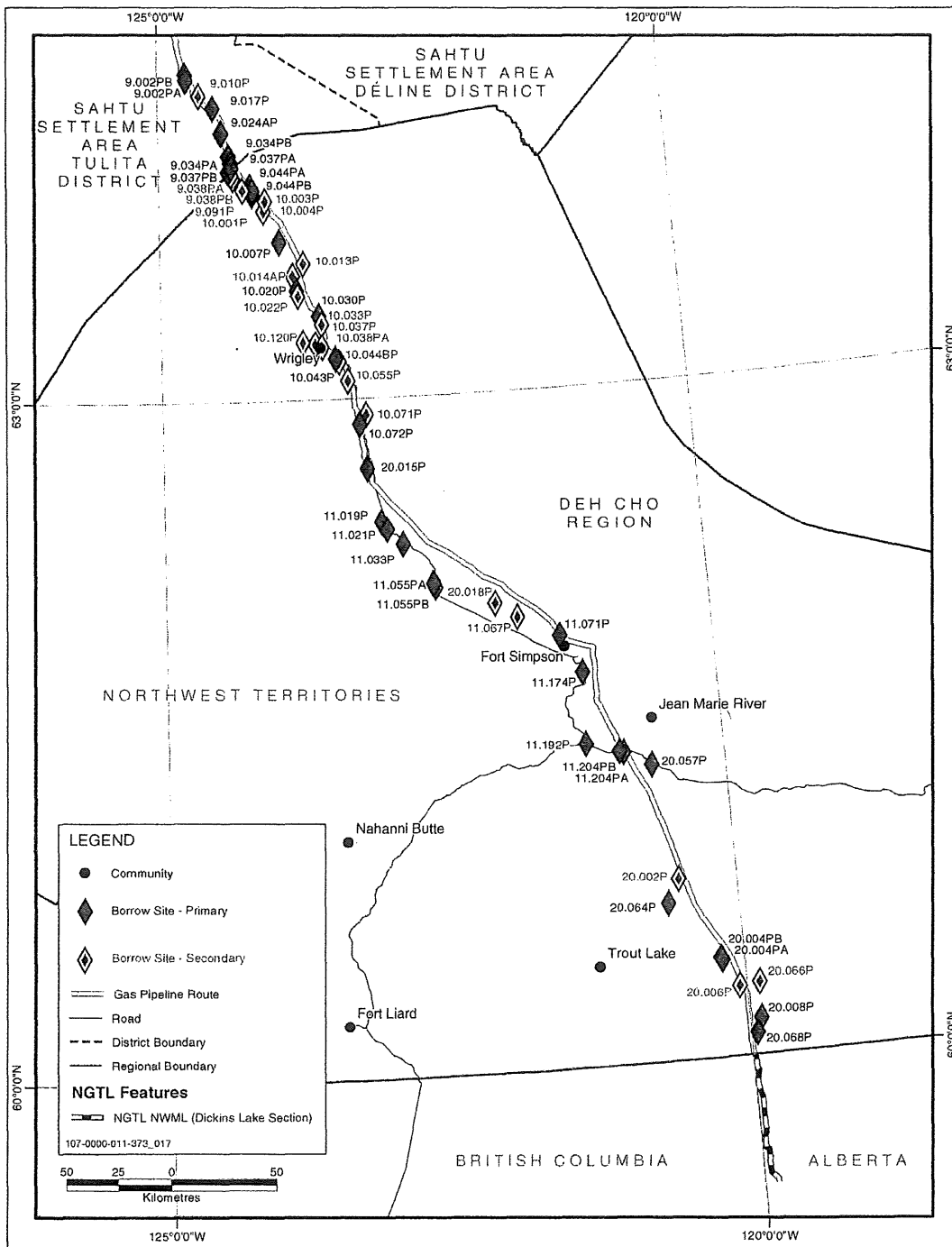
MAP 1: MGP Granular Acquisition - Inuvialuit Settlement Region

Opportunity to initiate a collaborative approach to granular acquisition for GNWT and municipal granular requirements, with the construction phase of the MGP within the ISR. This is especially relevant for the community of Tuktoyaktuk and Inuvik.



MAP 2: MGP Granular Acquisition - Sahtu/Gwich'in Settlement Areas

Opportunity to initiate a collaborative approach to granular acquisition for GNWT and municipal granular requirements, with the construction phase of the MGP within the SSA and GSA. This is especially relevant for the communities of Inuvik, Norman Wells, Fort Good Hope, and Tulita.



MAP 3: MGP Granular Acquisition - Deh Cho Region

Opportunity to initiate a collaborative approach to granular acquisition for GNWT and municipal granular requirements, with the construction phase of the MGP within the DCR. This is especially relevant for the communities of Wrigley, Fort Simpson, and Jean Marie River.

8.0 TERRITORIAL GRANULAR ACQUISITION FORECAST



8.1 GRANULAR ACQUISITION FORECAST TABLES

The following tables forecast coordination opportunities, related to proposed granular supply requirements by municipal governments, GNWT Departments, Crown Corporations, and resource development projects, in 2007 through 2010 and future years.

The GNWT departments that normally require gravel for capital projects, the NWTHC, and the Mackenzie Gas Project (MGP) are listed under each year from 2007 – 2010. Those users that may require gravel for proposed work are marked with an ‘X’ under each year.

Using *Table 1* and the community of *Aklavik* as an example in 2008/2009, the Hamlet has an opportunity to coordinate and acquire municipal granular requirements (if any) with DOT and the NWTHC granular acquisition needs. Similarly, using *Table 3* and the community of *Tulita* in 2009/2010, the Hamlet has an opportunity to coordinate and acquire municipal granular requirements (if any) with PWS, NWTHC, and the MGP proposed granular acquisition requirements.

Under Future Years, possible stakeholder collaboration is marked accordingly; more detailed information on Future Year project coordination is addressed in the detailed granular demand tables (Section 9).

TABLE 1: INUVIK REGION USER ACQUISITION FORECAST

MGP = Mackenzie Gas Project (still under review)

COMMUNITY	2007/2008						2008/2009									
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP
Aklavik							X		X						X	
Tuktoyaktuk								X								X
Sachs Harbour				X			X				X				X	
Ulukhoktok							X				X				X	
Paulatuk				X			X				X				X	
Inuvik							X	X							X	X
Fort McPherson	X						X		X						X	
Tsiigehtchic						X	X							X	X	

COMMUNITY	2009/2010						Future									
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP
Aklavik							X		X	X						
Tuktoyaktuk								X	X	X		X				
Sachs Harbour							X		X	X		X				
Ulukhoktok			X							X						
Paulatuk							X		X	X						
Inuvik							X	X	X	X		X	X	X	X	X
Fort McPherson	X								X							
Tsiigehtchic						X	X		X				X			

TABLE 2: SAHTU REGION USER ACQUISITION FORECAST

MGP = Mackenzie Gas Project (still under review)

COMMUNITY	2007/2008						2008/2009									
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP
Colville Lake	X	X					X		X						X	
Fort Good Hope		X		X				X								X
Norman Wells							X	X								X
Deline												X				
Tulita				X				X				X			X	X

COMMUNITY	2009/2010						Future									
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP
Colville Lake							X					X			X	
Fort Good Hope								X				X	X			
Norman Wells								X	X	X			X		X	
Deline									X	X			X			
Tulita				X			X	X	X			X	X			

TABLE 3: DEH CHO REGION USER ACQUISITION FORECAST

MGP = Mackenzie Gas Project (still under review)

COMMUNITY	2007/2008							2008/2009								
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP
Wrigley																X
Fort Simpson						X	X	X	X					X		X
Nahanni Butte	X						X		X						X	
Fort Liard	X								X		X					
Trout Lake			X	X			X									
Jean Marie River							X	X								X
Fort Providence	X					X								X		
Kakisa	X								X					X		

COMMUNITY	2009/2010							Future								
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP
Wrigley								X	X				X			
Fort Simpson	X							X			X	X				
Nahanni Butte	X						X		X	X					X	
Fort Liard									X				X			
Trout Lake	X								X							
Jean Marie River								X	X							
Fort Providence			X													
Kakisa	X								X							

TABLE 4: TILICHO REGION USER ACQUISITION FORECAST**MGP = Mackenzie Gas Project (still under review)**

COMMUNITY	2007/2008							2008/2009								
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP
Behchoko	X															
What'i																
Gameti		X		X			X					X				
Wekweti							X									

COMMUNITY	2009/2010							Future								
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NWTHC	MGP
Behchoko									X	X			X			
What'i	X									X		X	X			
Gameti										X						
Wekweti									X							

TABLE 5: SOUTH SLAVE REGION USER ACQUISITION FORECAST**MGP = Mackenzie Gas Project (still under review)**

COMMUNITY	2007/2008							2008/2009								
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP
Enterprise	X					X			X							
Hay River							X							X		
Hay River Reserve	X								X							
Fort Resolution							X									
Fort Smith	X						X		X						X	
Lutsel k'e				X			X					X			X	
Dettah/North Slave							X		X							

COMMUNITY	2009/2010							Future								
	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP	DOT	EC&E	ENR	PWS	H&SS	IT&I	NW/THC	MGP
Enterprise	X								X					X		
Hay River							X		X	X	X	X	X	X	X	
Hay River Reserve	X								X							
Fort Resolution						X			X	X	X					
Fort Smith	X						X		X	X	X		X	X	X	
Lutsel k'e							X		X				X		X	
Dettah/North Slave									X	X						

9.0 TERRITORIAL GRANULAR DEMAND FORECAST



DETAILED AND SUMARY TABLES/CHARTS

9.1 DETAILED GRANULAR DEMAND AND FORECAST ESTIMATES

COMMUNITY: HAMLET OF AKLAVIK

REGION: INUVIK

Table 1: Granular Demand Forecast

Aklavik	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 12 km average use	Resurfacing All - 9000 crushed			
O&M average	4000/year			
*Road Erosion Protection	500	500	500	500 m ³ annual
*Water Treatment Plant	2000	700		
Capital Plan/Projects	1100	5000	5000	**10000 m ³
NWTHC				
Housing Corporation	2200	2200	1200	1200 m ³ annual
O&M Private Housing	300	300	300	300 m ³ annual
GNWT Departments				
DOT Winter Haul & Crush - Runway Extension -		2000		FY 2011/12 TBD
O&M Pitrun -	200	200	200	200 m ³ annual
16 mm -	30	30	30	30 m ³ annual
EC&E School -				FY 2018/19 1000 m ³

*MACA carry-over

**Mostly for landfill site and drainage construction 2010 – 2012

Table 2: Granular Acquisition Forecast

Aklavik Granular Resource Acquisition Forecast	
1. 2007/2008 - NWTHC	Recommendation/Supply
Opportunity to coordinate with NWTHC to haul and stockpile pitrun gravel for municipal requirements with regard to housing and lot development.	Municipality haul and stockpile 3000 m ³ pitrun in partnership with NWTHC.
2. 2008/2009 - DOT/NWTHC	
Opportunity to coordinate with DOT and NWTHC to haul pitrun gravel and crush for select grade. This is a 'must' opportunity for the Hamlet to produce a 3-year supply of surfacing material as DOT will mobilize a crusher into the community.	Municipality haul and stockpile 10000 m ³ and 3000 m ³ select grade in partnership with DOT and NWTHC.
3. 2011/2012 - DOT	
Coordinate municipal granular needs with regard to DOT's proposed runway extension.	TBD
4. 2018/2019 - EC&E	
Coordinate with EC&E to implement a granular supply operation in winter 2018 to obtain gravel for both municipal and school requirements. Check with DOT and NWTHC for possible requirements.	TBD

COMMUNITY: HAMLET OF TUKTOYAKTUK
REGION: INUVIK

Table 1: Granular Demand Forecast

Tuktoyaktuk	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 27 km average use.	Resurfacing All - 21000 crushed			
O&M average	10000/year			
*Water Treatment Plant	1000	1500		
Capital Plan/Projects	**2000 2150	**2000		***10000 m ³
NWTHC				
Housing Corporation				1000 m ³ annual
O& M Private Housing	600	600	600	600 m ³ annual
GNWT Departments				
DOT - Runway Improvements - Maintenance Garage - O&M 16 mm -				FY 2011/2012 TBD FY 2014/2015 1000 m ³
IT&I - Interpretive Centre -	100	100	100	100 m ³ annual
EC&E - School -				FY 2020/2021 1000 m ³

*MACA carry-over **Specific gravel funding (DND site) ***Mostly shoreline erosion and land development

Table 2: Granular Acquisition Forecast

Tuktoyaktuk Granular Resource Acquisition Forecast	
1. 2007/2008 - 2009/2010 - Mackenzie Gas Project	Recommendation/Supply
A number of pits/quarries have been identified for construction of the Mackenzie Gas Pipeline, especially the anchor fields SW of Tuktoyaktuk, includes the YaYa Esker Complex and Parsons and Eskimo Lakes region. Coordinate municipal granular supply with the construction phase of the anchor fields, especially with respect to new winter and all weather access roads to sources.	Municipality consider 5000 m ³ pitrun hauled and stockpiled.
2. 2011/2012 - DOT	
Coordinate municipal granular needs with DOT requirements with regard to the proposed runway extension and erosion protection project.. If scope of work involves crushing, then recommend the stockpiling of crushed gravel for municipal needs.	Municipality consider 10000 m ³ hauled & stockpile; 5000 m ³ crush & stockpile
3. 2014 – 2017 – IT&I/DOT	
Opportunity to coordinate with IT&I and DOT for municipal requirements.	TBD
4. 2020/2021 - EC&E	
EC&E may require granular material for the school. Coordinate with EC&E to implement a granular supply operation in winter 2020 to obtain gravel for both municipal and school requirements.	TBD

COMMUNITY: HAMLET OF SACHS HARBOUR
REGION: INUVIK

Table 1: Granular Demand Forecast

Sachs Harbour	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 8 km average use	Resurfacing All - 6000 m ³ crushed			
O&M average	2500 m ³ /yr			
Federal – RCMP Building	500	500		
*Water Treatment Plant	200			
Capital Projects	2775	400		**875 m ³
NWTHC				
Housing Corporation	300	300	150	150 m ³ annual
O&M Private Housing	100	100	100	100 m ³ annual
GNWT Departments				
PWS – Tank Farm/Berms	600	500		
DOT - Runway Improvements -				FY 2015 - 2018 TBD
O&M 16 mm -	40	40	40	40 m ³ per year
EC&E - School -				FY 2014/2015 1000 m ³
H&SS - Health Centre -				FY 2020/2021 1100

*MACA carry-over

**Storage Facility

Table 2: Granular Acquisition Forecast

Sachs Harbour Granular Resource Acquisition Forecast	
1. 2007/2008 - 2009/2010 - PWS/NWTHC	Recommendation/Supply
Few opportunities available but coordinate municipal requirements with PWS and NWTHC for granular needs related to completion of the tank farm project and future new housing and lot development.	TBD
2. 2014/2015 - EC&E	
Coordinate with EC&E to implement a granular supply operation in winter 2014 to obtain gravel for both municipal and school requirements. Check with DOT and NWTHC for possible requirements.	TBD
3. 2015 - 2018 - DOT	
Coordinate municipal granular needs with DOT requirements with regard to proposed runway improvements. If scope of work involves crushing, then recommend the stockpiling of crushed gravel for municipal needs.	Municipality consider crush and stockpile 4000 m ³ - if crusher becomes available.
4. 2020/2021 - H&SS	
Coordinate municipal granular needs with H&SS requirements with regard to the Health Centre project	TBD

COMMUNITY: HAMLET OF ULUKHOKTOK
REGION: INUVIK

Table 1: Granular Demand Forecast

Ulukhoktok	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 12 km	Resurfacing All - 9000 m ³ crushed			
O&M average	3500 m ³ /yr			
*Water Treatment Plant	500			
Capital Plan/Projects		2500	1600	**8200 m ³
NWTHC				
Housing Corporation	1100	1100	1000	1000 m ³ annual
O& M Private Housing	100	100	100	100 m ³ annual
GNWT Departments				
PWS/PPD- Replace Pipe Supports-		600		
DOT - Runway Improvements -				FY 2015 - 2018 TBD
O&M 16 mm -	30	30	30	30 m ³ annual
ENR - Office Building -				FY 2010/2011 500 m ³
EC&E - School -				FY 2022/2023 1000 m ³

*MACA carry-over

**Mostly solid waste site FY 2011/12

Table 2: Granular Acquisition Forecast

Ulukhotok Granular Resource Acquisition Forecast	
1. 2007/2008 - 2009/2010	Recommendation/Supply
Few opportunities available but coordinate with NWTHC and PPD for granular requirements related to future new housing, lot development and tank farm upgrade.	TBD
2. 2010/2011 - ENR	
ENR may require granular material for new office building. Coordinate with ENR to implement a granular supply operation in summer 2010 to obtain gravel for both municipal and ENR requirements. Coordinate with DOT and NWTHC for possible requirements.	TBD
3. 2022/2023 - EC&E	
Coordinate with EC&E to implement a granular supply operation in summer 2022 to obtain gravel for both municipal and school requirements. Check with DOT and NWTHC for possible requirements.	TBD

COMMUNITY: HAMLET OF PAULATUK
REGION: INUVIK

Table 1: Granular Demand Forecast

Paulatuk	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads -7 km average use	Resurfacing All - 5500 m ³ crushed			
O&M average	3000 m ³ / yr			
Capital Plan/Projects	2500	2700	8500	*6050 m ³
NWTHC				
Housing Corporation				1000 m ³ annual
O& M Private Housing	600	600	600	600 m ³ annual
GNWT Departments				
PWS - Tank Farm Upgrade	1000	500		
DOT - Runway Improvements -				FY 2013/14 TBD
O&M -16 mm -	100	100	100	100 m ³ annual
EC&E - School -				FY 2021/2022 1000 m ³

*Mostly Sewage Lagoon Upgrade 2011-2012

Table 2: Granular Acquisition Forecast

Paulatuk Granular Resource Acquisition Forecast	
1. 2007/2008 - 2008/2009 - PWS/NWTHC	Recommendation/Supply
Opportunity to coordinate with NWTHC and PWS for municipal requirements for the tank farm project (airport), future new housing and lot development.	Municipality consider haul and stockpile 3000 m ³ pitrun.
2. 2013/2014 - DOT	
Coordinate municipal granular needs with DOT requirements for the proposed airport improvements. If scope of work involves crushing, then recommend the stockpiling of crushed gravel for municipal needs.	Municipality consider a 4000 m ³ crush stockpile
3. 2021/2022 - EC&E	
EC&E may require granular material for school. Coordinate with EC&E to implement a granular supply operation in winter 2021 to obtain gravel for both municipal and school requirements. Check with DOT and NWTHC for possible requirements.	TBD

COMMUNITY: TOWN OF INUVIK
REGION: INUVIK

Table 1: Granular Demand Forecast

Inuvik	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads average use	Normally Maintenance Stockpile - 5000 m ³ crushed			
O&M average	45000 m ³ / yr			
Capital Plan/Projects				
NWTHC				
Housing Corporation				2800 m ³ annual
O&M Private Housing	3500	3500	3500	3500 m ³ annual
GNWT Departments				
ENR Complex	1500			
DOT - Maintenance Garage - Apron Expansion -				FY 2019/2020 1100 m ³ FY 2023/2024 3500 m ³
O&M - 19 mm (highway & airport maintenance) -	2000	2000	2000	2000 m ³ annual
EC&E - Schools - Aurora College Gym -	7000	3000	2000	FY 2011/2012 900 m ³
H&SS - Group Home -				FY 2015/2016 1000 m ³
IT&I - Park Development Various -				FY 2011 – 2017 5000 m ³
Justice - Courthouse Expansion -				FY 2014/2015 1200 m ³
PWS - Garage/Shop -				FY 2021/2022 1000 m ³

Table 2: Granular Acquisition Forecast

Inuvik Granular Resource Acquisition Forecast	
1. 2007/2008 - 2009/2010 - MGP	Recommendation
A number of pits and quarries have been identified for construction of the Mackenzie Gas pipeline, especially the anchor fields SW of Tuktoyaktuk - includes the Ya-Ya Esker Complex, Parsons and Eskimo Lakes region and a major expansion of the Campbell Lake Quarry. Coordinate municipal granular supply activities with the construction phase of the anchor fields, especially with regard to new winter and all weather access roads to these sources and the development of the Campbell Lake Quarry.	TBD
2. 2007 - 2015 - GNWT Departments	
Opportunities to coordinate municipal requirements for pitrun and select grade materials with EC&E, NWTHC, H&SS, IT&I, and Justice, related to schools, housing and lot development, park/campground upgrades, and courthouse expansion.	TBD
3. 2019 - 2023 - GNWT Departments	
Opportunities to coordinate municipal requirements for pitrun and select grade materials with DOT, IT&I, and PWS related to maintenance garage, apron expansion, park development and trade shop.	TBD

COMMUNITY: CHARTER COMMUNITY OF TSIIGHEHTCHIC
REGION: INUVIK

Table 1: Granular Demand Forecast

Tsiighehtchic	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads – 7 km average use	Resurfacing All - 5500 m ³ crushed.			
O&M average	2500 m ³ /yr			
*Maintenance Garage	2200			
*Sewage Lagoon/Solid Waste			500	
Capital Plan/Projects		1050	1000	**4000 m ³
NWTHC				
Housing Corporation	1500	1500		500 m ³ annual
GNWT Departments				
PWS - New Operators Shelter	500			
DOT - O&M 19 mm-Helipad -	500	500	500	500 m ³ annual FY 2014/2015 875 m ³
H&SS - Health Centre -				FY 2020/2021 1100 m ³
IT&I - Jackfish Creek Park -				FY2010 – 2013 1000 m ³

*MACA carry-over

**Mostly solid waste site expansion 2010/2011

Table 2: Granular acquisition Forecast

Tsiighehtchic Granular Resource Acquisition Forecast	
1. 2007/2008 - 2009/2010 - NWTHC	Recommendation
Few opportunities available but coordinate with NWTHC for granular requirements related to future new housing and lot development. IT&I may require granular material for proposed development of Jackfish Creek Park.	TBD
3. 2014/2015 - DOT	
DOT may require granular material for a helipad. Coordinate with DOT to implement a granular supply operation in winter 2014 to obtain gravel for both municipal and DOT needs.	TBD
3. 2020 - 2021 - H&SS	
Contact H&SS with regard to proposed health centre to coordinate community and H&SS granular requirements.	TBD

COMMUNITY: HAMLET OF FORT MCPHERSON
REGION: INUVIK

Table 1: Granular Demand Forecast

Fort McPherson	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 12 km average use	Resurfacing All - 9000 m ³ crushed.			
O&M average	8000 m ³ / yr			
Capital Plan/Projects	6500	5000		
NWTHC				
Housing Corporation	1500	1500	1200	1200 m ³ annual
O&M Private Housing	400	400	400	400 m ³ annual
GNWT Departments				
DOT - Hwy Maintenance -	3000	3000	3000	3000 m ³ annual
Crush and Haul to Stockpile -				FY 2010/2011 2000 m³ summer crush and haul
Airport Improvements -				FY 2013/2014 TBD

Table 2: Granular Acquisition Forecast

Fort McPherson Granular Resource Acquisition Forecast	
1. 2007/2008 - 2009/2010 - DOT/NWTHC	Recommendation/Supply
Opportunities are available with NWTHC and DOT for municipal granular requirements related to future new housing, lot development, and Hwy maintenance.	TBD
2. 2010/2011 - DOT	
DOT will require 2000 m ³ of crushed granular material for airport stockpile in 2010. Coordinate with DOT to implement a granular supply operation in summer 2010 to crush and stockpile surfacing gravel for community roads.	Municipality should consider stockpile 3000 m ³ of crushed gravel for municipal use.
3. 2013/2014 - DOT	
Coordinate municipal granular needs with DOT requirements for the proposed airport improvements. If scope of work involves crushing, then recommend the stockpiling of crushed gravel for municipal needs.	Municipality consider a 3000 m ³ crushed stockpile

COMMUNITY: CHARTER COMMUNITY OF FORT GOOD HOPE
REGION: SAHTU

Table 1: Granular Demand Forecast

Fort Good Hope	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 10 km average use	Resurfacing All - 7500 m ³ crushed.			
O&M average	7500 m ³ / yr			
*Community Office	3200			
Capital Plan/Projects				
NWTHC				
Housing Corporation	600	600	600	600 m ³ annual
O&M Private Housing	300	300	300	300 m ³ annual
GNWT Departments				
DOT - Airport Maintenance -	60	60	60	60 m ³ annual
EC&E - School -	5000			
PWS/PPD - Capacity Increase - Garage/Warehouse -	3000			FY 2020/2021 1000 m ³
H&SS - Health Centre -				FY 2016/2017 1100 m ³

*MACA carry-over

Table 2: Granular Acquisition Forecast

Fort Good Hope Granular Resource Acquisition Forecast	
1. 2007/2008 - PWS/EC&E	Recommendation/Supply
Opportunity available with tank farm expansion and major school renovations to coordinate municipal granular requirements for both select and common grade/pitrun materials.	Dependent on available processing equipment, municipality should consider stockpile 3000 m ³ crushed.
2. 2007/2008 - 2009/2010 - MGP	
Two large granular sources have been identified for development near the community by the MGP, for use in construction of the pipeline gathering system. Excellent opportunities to coordinate municipal granular requirements with development of these sources and new access roads.	TBD
3. 2016/2017 - H&SS	
Opportunity to coordinate with H&SS for municipal granular requirements related Health Centre	TBD
4. 2020/2021 - PWS	
Opportunity to coordinate with PWS for municipal granular requirements related to construction of a garage/warehouse	TBD

COMMUNITY: SETTLEMENT CORPORATION OF COLVILLE LAKE
REGION: SAHTU

Table 1: Granular Demand Forecast

Colville Lake	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 2 km average use	Resurfacing All - 1500 m ³ crushed - mostly trails but new road to water supply and sewage lagoon recently constructed.			
O&M average	2000 m ³ /yr			
*Water Supply	500			
*Community Office	1000			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1500	1500	200	200 m ³ annual
O&M Private Housing	50	50	50	50 m ³ annual
GNWT Departments				
DOT - Haul and crushing - Parking Garage and ATB -	2000 (TBD)		3000 (TBD)	FY 2014 -2017 2100
PWS - Parking Garage -		1000		
EC&E - School Modular -	600			

*MACA carry-over

Table 2: Granular Acquisition Forecast

Colville Lake Granular Resource Acquisition Forecast	
1. 2007/2008 - DOT/NWTHC/PWS/EC&E	Recommendation/Supply
Opportunity to coordinate with DOT to crush for surfacing material; as well, coordinate with EC&E, and NWTHC for pitrun requirements related to future new housing, lot development and school modular building.	Municipality should consider 1000 m ³ crush and stockpiled; 2000 m ³ pitrun hauled and stockpile.
2. 2009/2010 - DOT/NWTHC/PWS	
Opportunity to coordinate with DOT to haul pitrun gravel in winter 2009 and crush for select grade. This is a 'must' opportunity for the settlement to stock pile a 2-year supply of surfacing and/or pitrun material as DOT will mobilize a crusher into the community. Also, opportunity to coordinate with PWS and NWTHC to haul and stockpile pitrun, related to new housing, lot development, and garage.	Consider 5000 m ³ hauled and stockpiled; 2000 m ³ crush stockpile.
3. 2014 - 2017 - DOT/NWTHC	
Opportunities available to coordinate with DOT for municipal granular requirements related to DOT Parking Garage and ATB projects. Also, contact and coordinate with NWTHC for housing and lot requirements.	TBD

COMMUNITY: TOWN OF NORMAN WELLS
REGION: SAHTU

Table 1: Granular Supply Forecast

Norman Wells	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads average use	Recommend Maintenance Stockpile - 5000 m ³ crushed.			
O&M average	8500 m ³ /yr			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1000			800m ³ annual
O&M Private Housing	1000	1000	1000	1000 m ³ annual
GNWT Departments				
DOT - O&M 16 mm - Airport Improvements -	20	20	20	20 m ³ annual FY 2013/2014 TBD
H&SS - Health Centre -				FY 2013/2014 1100 m ³
EC&E - School -				FY 2013/2014 1000 m ³

Table 2: Granular Acquisition Forecast

Norman Wells Granular Resource Acquisition Forecast	
1. 2007 - 2010 - NWTHC	Recommendation
Opportunity to coordinate municipal requirements with NWTHC requirements.	TBD
2. 2007 - 2010 - MGP	
Three large granular sources will be developed near the community by the MGP, for use in construction of the pipeline gathering system. Opportunities to coordinate municipal granular requirements with development of these sources and 6 km of new access roads.	TBD
3. 2012 - 2014 - GNWY Departments	
Opportunities to coordinate municipal needs with granular requirements of DOT, H&SS, EC&E, and NWTHC related to airport improvements, health centre, school, new housing and lot development.	TBD

COMMUNITY: HAMLET OF TULITA
REGION: SAHTU

Table 1: Granular Demand Forecast

Tulita	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 8 km average use	Resurfacing All - 6000 m ³ crushed			
O&M average	4500 m ³ /yr			
Capital Plan/Projects	*6000	*6000 **2500	*6000 **2500	*12000 m ³ **5000 m ³
NWTHC				
Housing Corporation	2500	1500	600	600 m ³ annual
O& M Private Housing	250	250	250	250 m ³ annual
GNWT Departments				
PWS/PPD - Capacity Increase -	2600		2500	
DOT - O&M 16 mm - Airport Improvements -	50	50	50	50 m ³ annual
				FY 2012/2013 TBD
H&SS - Health Centre -				FY 2018/2019 1100 m ³

*Granular material direct funding

**Mostly lagoon and solid waste site improvements

Table 2: Granular Acquisition Forecast

Tulita Granular Resource Acquisition Forecast	
1. 2007 - 2009 - MGP	Recommendation/Supply
The MGP will require about 55,000 m ³ of gravel from the FN19 source for construction of the pipeline gathering system in 2007 – 2010. As the pit is also the community source, this provides excellent opportunities to coordinate municipal granular needs over the winter months with the MGP construction requirements.	The municipality should consider haul and stockpile 10000 m ³ through a joint venture granular supply operations with the MGP.
2. 2007 - 2009 - NWTHC/PWS	
Opportunities available for the municipality to coordinate with NWTHC and PWS for granular requirements related to future new housing, lot development, replace maintenance stockpile, and tank farm/capacity increase	The municipality consider haul and stockpile 5000 m ³ through a joint venture granular supply operation with the NWTHC and PWS.
3. 2012/2013 - DOT	
Opportunities available for the municipality to coordinate DOT for granular requirements related to airport improvements, especially if a ‘crusher’ is mobilized to the community in 2012.	Municipality should consider 5000 m ³ pitrun and 2000 m ³ crush stockpiled
4. 2018/2019 - H&SS	
Opportunity to coordinate with H&SS for municipal requirements related to Health Centre.	TBD
5. 2020/2021 - PWS	
Opportunity to coordinate with PWS for municipal requirements related to garage/warehouse project.	TBD

COMMUNITY: CHARTER COMMUNITY OF DELINE
REGION: SAHTU

Table 1: Granular Demand Forecast

Deline	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 10 km average use	Resurfacing All - 8000 m ³ crushed.			
O&M average	6500 m ³ /yr			
*Truck Fill Upgrade	1000			
Capital Plan/Projects	7000	5500	4875	**9300
NWTHC				
Housing Corporation				800 m ³ annual
O&M Private Housing	250	250	250	250 m ³ annual
GNWT Departments				
DOT - O&M 16 mm - ATB -	100	100	100	100 m ³ annual FT 2010/2011 TBD.
PWS/PPD - Capacity Increase -		3000	500	
H&SS - Health Centre -				FY 2012/2014 1100

*MACA carry-over

**Mostly sewage lagoon relocation FY 2010 - 2012

Table 2: Granular Acquisition Forecast

Deline Granular Resource Acquisition Forecast	
1. 2008 - 2010 - PPD/PWS	Recommendation Supply
Opportunity with PPD tank farm expansion to coordinate municipal granular requirements for both select and common grade materials. Possibility of a 'crusher' mobilized into the community in winter 2008 for project.	Municipality consider 3000 m ³ crushed stockpile, if 'crusher' available.
2. 2010/2011 - DOT	
Opportunity available to coordinate with DOT for municipal granular requirements related to Air Terminal Building	TBD
3. 2013/2014 - H&SS	
Opportunity available to coordinate with H&SS for municipal granular requirements related to Health Centre.	TBD

COMMUNITY: SETTLEMENT OF WRIGLEY
REGION: DEH CHO

Table 1: Granular Demand Forecast

Wrigley	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 7 km average use	Resurfacing All - 5000 m ³ crushed.			
O&M average	3000 m ³ /yr			
*Water Treatment Facility	TBD			
Capital Plan/Projects				
NWTHC				
Housing Corporation				200 m ³ annual
O&M Private Housing	150	150	150	150 m ³ annual
GNWT Departments				
DOT - Airport Improvements -				FY 2013/2014 TBD
H&SS - Health Centre -				FY 2019/2020 1100 m ³
EC&E - School -				FY 2024/2025 1000 m ³

*MACA carry-over

Table 2: Granular Acquisition Forecast

Wrigley Granular Resource Acquisition Forecast	
1. 2013/2014 - DOT	Recommendation/Supply
Opportunity for the settlement to coordinate with DOT for community select grade/crushed requirements related to the proposed runway extension project. Possibility of a 'crusher' mobilized into the community for project in winter 2013.	Consider 5000 m ³ crushed and stockpiled if 'crusher' available.
2. 2019/2020 – H&SS	
Opportunity available to coordinate with H&SS for community granular requirements related a new Health Centre.	TBD
3. 2024/2025 – EC&E	
Opportunity available to coordinate with EC&E for community granular requirements related to the school upgrade/project.	TBD

COMMUNITY: VILLAGE OF FORT SIMPSON
REGION: DEH CHO

Table 1: Granular Demand Forecast

Fort Simpson	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads	Recommend Maintenance Stockpile - 4000 m ³ crushed.			
O&M average	12000 m ³ /yr but varies considerably on an annual basis			
Capital Plan/Projects				
NWTHC				
Housing Corporation				1300 m ³ annual
O&M Private Housing	1000	1000	1000	1000 m ³ annual
GNWT Departments				
EC&E - Schools/Deh Cho Hall -		2000		FY 2017 – 2018 2000 m ³
DOT - Liard River Landing -			1000	
IT&I - Buildings/Parks Maintenance -	600	400		FY 2022 -2024 1000 m ³
PWS - Trade Shop -				FY 2010/2011 600 m ³
DOT - Airport Improvements - Maintenance Garage -				FY 2016/2017 TBD FY 2018/2019 1000
H&SS - Wellness Centre -				FY 2019/2020 1100
ENR - Regional laboratory -				FY 2010 – 2012 800 m ³

Table 2: Granular Acquisition Forecast

Fort Simpson Granular Resource Acquisition Forecast	
1. 2007 - 2012 - GNWT Departments	Recommendation
Opportunities to coordinate municipal requirements for pitrun and select grade materials with EC&E, NWTHC, IT&T, DOT PWS, and ENR related to schools, housing and lot development, park/campground upgrade, Ferry landing maintenance, a trade shop and laboratory.	TBD
2. 2008/2009 - MGP	
Two large granular sources are proposed for development 16 km SE and 5 km N of Fort Simpson by the MGP for use in construction of the pipeline gathering system. Excellent opportunity to coordinate municipal granular requirements with development of this sources and 9 km of new access roads.	TBD
3. 2017/2018 - EC&E	
Opportunities to coordinate municipal needs with granular requirements for EC&E and NWTHC related to schools and housing.	TBD
4. 2016 - 2019 - DOT	
Opportunities to coordinate municipal needs with granular requirements for DOT related to airport improvements/maintenance garage..	TBD

COMMUNITY: HAMLET OF FORT LIARD
REGION: DEH CHO

Table 1: Granular Demand Forecast

Fort Liard	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads 12 km average use	Resurfacing All - 10000 m ³ crushed.			
O&M average	5000 m ³			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1000			800 m ³ annual
O&M Private Housing	200	200	200	200 m ³ annual
GNWT Departments				
DOT - Km 2.9 Hwy 7 - Site upgrading -	30000	500		
ENR - Tower Replacement -		850		
H&SS - Health Centre -				FY 2021/2022 1100 m ³
DOT - Airport Improvements - Access Road Upgrade -				FY 2013/2014 TBD FY 2021/2022 TBD

Table 2: Granular Acquisition Forecast

Fort Liard Granular Resource Acquisition Forecast	
1. 2007/2008 - 2008/2009 – NWTHC/ENR/DOT	Recommendation/Supply
Opportunity to coordinate municipal requirements with NWTHC, ENR and DOT related to housing lots, site upgrading, and tower replacement.	TBD
2. 2007/2008 - DOT	
Although 25 km from project site, opportunity to coordinate municipal requirements for select grade and pitrun materials with DOT's reconstruction work at km 2.9 Hwy #7	Hamlet should consider crush and stockpile 3000 m ³ for municipal needs.
3. 2013/2014 - DOT	
Opportunity to coordinate municipal requirements with DOT granular needs related to proposed airport improvements projects.	TBD
4. 2021/2022 – H&SS/DOT	
Opportunity to coordinate municipal requirements with H&SS and DOT related to the Health Centre and access road upgrade.	TBD

COMMUNITY: SETTLEMENT OF NAHANNI BUTTE
REGION: DEH CHO

Table 1: Granular Demand Forecast

Nahanni Butte	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 6 km average use	Resurfacing All - 5000 m ³ crushed.			
O&M average	2000 m ³ /yr			
*Water treatment Plant	500	500		
*Gym (MACA)	800	1500		
Capital Plan/Projects				
NWTHC				
Housing Corporation	1000 Stockpiled 06/07	1000		150 m ³ annual.
O&M Private Housing	100	100		100 m ³ annual
GNWT Departments				
PWS/PPD - New Tank Farm -	5000 Stockpiled 06/07			
DOT - Access Road -				FY 2010 - 2012 5000 m ³
ATB -	2500	2500	2500	FY 2021 - 2022 1100 m ³
EC&E - School -				FY 2015 - 2016 500 m ³

*MACA carry-over

Table 2: Granular Acquisition Forecast

Nahanni Butte Granular Resource Acquisition Forecast	
1. 2007 - 2012 - DOT/NWTHC/PWS	Recommendation/Supply
Coordinate with DOT with regard to the proposed access road construction to combine community granular needs with DOT and NWTHC requirements. In 2007/2008, will require granular material for the new gym and water treatment plant upgrades. Granular material has already been hauled and stockpiled for construction of the tank farm.	The Band should consider haul and stockpile 3000 m ³ pitrun.
2. 2015/2016 - EC&E	
Coordinate with EC&E for settlement granular needs with regard to the school requirements.	TBD
3. 2021/2022 - DOT	
Coordinate with DOT with regard to the proposed Airport Terminal Building project, to combine community granular needs with DOT requirements.	TBD

COMMUNITY: SETTLEMENT OF TROUT LAKE
REGION: DEH CHO

Table 1: Granular Demand Forecast

Trout Lake	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads – 6 km average use	Resurfacing All - 5000 m ³ crushed.			
O&M average	2000 m ³ /yr			
*Water Treatment Plant	650			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1500	1500		
GNWT Departments				
ENR - Fire Base/Access -	1500			
DOT - Airport Stockpile - ATB -			2000	FY 2016 - 2018 1100 m ³
Band - MACA contribution Agreement -	2000 pitrun 1000 crushed			

*MACA carry-over

Table 2: Granular Acquisition Forecast

Trout Lake Granular Resource Acquisition Forecast	
1. 2007/2008 - ENR/NWTHC/MACA	Recommendation/Supply
<p>A granular supply operation is proposed for winter 2007. Opportunity for Band/ENR/NWTHC and other stakeholders to coordinate a gravel haul and crushing operation depending on available funding.</p> <p>The Band should consider hauling a significant amount of 'pitrun' for current usage but also for 'crushing' in 2009/2010 with the proposed DOT winter haul and crushing operation.</p>	The Band and client departments should consider haul a minimum of 5000 m ³ and crush and stockpile 2000 m ³ .
2. 2009/2010 - DOT	
Opportunity to coordinate with to haul pitrun gravel and crush for select grade. This is a 'must' opportunity for the settlement to stockpile a supply of surfacing material as DOT will mobilize a crusher into the community.	Band should consider haul and stockpile 2000 m ³ pitrun and 1000 m ³ crush.
3. 2016 - 2018 - DOT	
Coordinate with DOT with regard to the proposed Airport Terminal building to combine community granular needs with DOT requirements.	TBD

COMMUNITY: SETTLEMENT OF JEAN MARIE RIVER
REGION: DEH CHO

Table 1: Granular Demand Forecast

Jean Marie River	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M				
Roads - 4.5 km average use	Resurfacing All - 3000 m ³ crushed.			
O&M average	1500 m ³ /yr			
*Garage Extension	*600			
NWTHC				
Housing Corporation	1500	1000		
GNWT Departments				
DOT - Public Access Road -	1000	1000	1000	FY 2010 - 2012 2000
Runway Extension -				FY 2022 - 2024 TBD

*might be deferred till 2008/2009

Table 2: Granular Acquisition Forecast

Jean Marie River Granular Resource Acquisition/Forecast	
1. 2007/2008 - 2009/2010 - DOT	Recommendation/Supply
Few opportunities available but coordinate with DOT for municipal needs related to the access road upgrade project, and development of proposed gravel source at Km 24/access road.	TBD
2. 2007/2008 - 2009/2010 - MGP	
A large granular source has been identified for development by the MGP, for use in construction of the pipeline gathering system. Although the source is over 60 km from the community, this is an excellent opportunities to coordinate municipal granular requirements with development of this sources and access road.	Municipality consider a joint venture operation with the MGP to haul and stockpiled 3000 m ³ pitrun.
3. 2022/2023 - 2023/2024 - DOT	
Coordinate with DOT with regard to proposed runway extension to combine community granular needs with DOT requirements, especially select/crush material if processing involved.	TBD

COMMUNITY: HAMLET OF FORT PROVIDENCE
REGION: DEH CHO

Table 1: Granular Demand Forecast

Fort Providence	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads -15 km average use	Resurfacing All - 10500 m ³ crushed.			
O&M average	8500 m ³ /yr			
Capital Paln/Projects				
NWTHC				
Housing Corporation	1000	1000	1000	1000 m ³ annual
O&M Private Housing	500	500	500	500 m ³ annual
GNWT Departments				
IT&I - Camp Ground Upgrade -		1000		
ENR - Tower Replacement -			850	
DOT - O&M Project Km 86.5 Hwy #3.	15000 crushed			
EC&E - School -				FY 2017 - 2019 1000 m ³

Table 2: Granular Acquisition Forecast

Fort Providence Granular Resource Acquisition Forecast	
1. 2007/2008 - DOT	Recommendation/Supply
Opportunity for the Hamlet to coordinate with DOT for municipal requirements of select grade material, related to a Highways O&M project at Km 86.5/Hwy #3. Although over 50 km from the community, DOT will require a 'crusher' at this location.	The Hamlet should consider haul, crush, and stockpile 3000 m ³ for municipal use.
2. 2007/2008 - 2009/2010 - GNWT Departments	
Opportunities available to coordinate for municipal needs with NWTHC, IT&I and ENR for granular requirements related to future new housing, lot development, camp ground upgrades, and tower replacement.	TBD
3. 2017 - 2019 - EC&E	
Opportunity to coordinate municipal requirements with EC&E granular needs for school upgrade/project.	TBD

COMMUNITY: KAKISA
REGION: DEH CHO

Table 1: Granular Demand Forecast

Kakisa	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads 1 km average use	Resurfacing All - 1000 m ³ crushed.			
O&M average	N/A			
Capital Plan/Projects				
NWTHC				
Housing Corporation				
O&M Private Housing	30	30	30	30 m ³ annual
GNWT Departments				
DOT - Hwy #1 Kakisa River Bridge -	Km 169 Hwy #1 – Kakisa River Bridge Replacement - TBD			
IT&I - Park/Campground - Lady Evelyn Falls Upgrade -		400		FY 2011 - 2015 TBD
DOT – Access Road Upgrade 12.9 km -				FY 2011/2012 TBD

Table 2: Granular Acquisition Forecast

Kakisa Granular Resource Acquisition Forecast	
1. 2007 - 2010	Recommendation/Supply
Few opportunities available to coordinate for municipal granular needs with GNWT Departments, but contact NWTHC and IT&I for granular requirements related to future new housing and lot development, camp ground upgrades, and park maintenance.	TBD
2. 2007 - 2011 - DOT	
Opportunity to coordinate municipal requirements for select grade material with DOT's capital project at Km 169 Hwy #1- Kakisa River Bridge for concrete aggregate.	Consider a 1000 m ³ crush stockpile for community use.
3. 2011/2012 - DOT	
Opportunity to coordinate municipal requirements for select grade and pitrun materials with DOT's proposed access road upgrade in 2011.	TBD

COMMUNITY: COMMUNITY GOVERNMENT OF BEHCHOKO
REGION: TLICHO GOVERNMENT

Table 1: Granular Demand Forecast

Behchoko	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads average use	Recommend Maintenance Stockpile - 3000 m ³ crushed.			
O&M average	10000 m ³ / yr			
*Water Treatment Plant (Edzo-MACA)	*200			
Water Sewage Main (Rae-MACA)	*200	250		
Lagoon Upgrade (MACA)	*300			
Capital Plan/Projects				
NWTHC				
Housing Corporation				1500 m ³ annual
O&M Private Housing	1000	1000	1000	1000 m ³ annual.
GNWT Departments				
DOT - Mosquito Creek/ Stagg River Bridges -				FY 2011/2012 TBD
EC&E - Schools -				FY 2017/2018 1000 m ³ FY2021/2022 1000 m ³
H&SS - Health Centre -				FY 2021/2022 1100 m ³

*MACA carry-over

Table 2: Granular Acquisition Forecast

Behchoko Granular Resource Acquisition Forecast	
1. 2010/2011 - DOT	Recommendation/Supply
Opportunity for the Hamlet to coordinate with DOT for municipal requirements of select grade material, related to winter haul and crushing project in 2010	TBD
2. 2017/2018 - EC&E	
Opportunity for the Hamlet to coordinate with EC&E for municipal granular needs related to the school project.	TBD
3. 2021/2022 - H&SS	
Opportunity for the Hamlet to coordinate with H&SS for municipal granular related to the Health Centre.	TBD

COMMUNITY: COMMUNITY GOVERNMENT OF WHATI
REGION: TLICHO GOVERNMENT

Table 1: Granular Demand Forecast

Whati	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 6 km average use	Resurfacing All - 4500 m ³ crushed.			
O&M average	5000 m ³ /yr			
Golf Course Development	200	500	500	
Community Office Expansion	600	200		
Capital Plan/Projects				
NWTHC				
Housing Corporation				600 m ³ annual
O&M Private Housing	150	150	150	150 m ³ annual
GNWT Departments				
DOT - Airport Stockpile -				FY 2010/2011 5000 m ³ crushed
PWS/PPD - Capacity Increase Tank Farm -				FY 2011/2012 1500 m ³
EC&E - School -				FY 2019/2020 1000 m ³
H&SS - Health Cente -				FY 2021/2022 1100

Table 2: Granular Acquisition Forecast

Whati Granular Resource Acquisition Forecast	
1. 2010/2011 - DOT	Recommendation/Supply
Opportunity for the Hamlet to coordinate with DOT for municipal requirements of select grade material, related to winter haul and crushing project in 2010.	Municipality consider crush and stockpile 4000 m ³ .
2. 2011/2012 - PWS	
Opportunity for the Hamlet to coordinate with PWS for municipal requirements of pitrun, related to a tank farm capacity increase project.	TBD
3. 2019/2020 - EC&E	
Opportunity for the Hamlet to coordinate with EC&E for municipal requirements of pitrun, related to the school project.	TBD
4. 2021/2022 - H&SS	
Opportunity for the Hamlet to coordinate with H&SS for municipal requirements related to the Health Centre.	TBD

COMMUNITY: COMMUNITY GOVERNMENT OF GAMETI
REGION: TLICHO GOVERNMENT

Table 1: Granular Demand Forecast

Gameti	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 6.5 km average use	Resurfacing All - 5500 m ³ crushed.			
O&M average	4500 m ³ /yr			
Capital Plan/Projects	2000	7300	9800	6810
NWTHC				
Housing Corporation				
O&M Private Housing	300	300	300	300 m ³ annual.
GNWT Departments				
EC&E - School Addition -	500			
PWS - Decommission Tank Farm -		1000		
DOT - Runway Extension -				FY 2012 - 2014 TBD
EC&E - School -				FY 2021 - 2023 1000

Table 2: Granular Acquisition Forecast

Gameti Granular Resource Acquisition Forecast	
1. 2007 - 2009 - NWTHC/PWS/EC&E	Recommendation/Supply
Opportunity for the settlement to coordinate municipal granular requirements with NWTHC, PWS, and EC&E related to housing pads, decommission of the existing tank farm, and school addition.	TBD
2. 2012 - 2014 - DOT	
Opportunity for the settlement to coordinate with DOT for municipal requirements of select grade material, related to proposed runway improvements in 2012.	Municipality consider crush and stockpile 3000 m ³ .
3. 2021/2022 - EC&E	
Opportunity for the settlement to coordinate with EC&E for municipal granular requirements related to the school project.	TBD

**COMMUNITY: COMMUNITY GOVERNMENT OF WEKWETI
REGION: TLICHO GOVERNMENT**

Table 1: Granular Demand Forecast

Wekweti	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 4 km average use	Resurfacing All - 4000 m ³ crushed.			
O&M average	4000 m ³ /yr			
*Solid Waste Site	500			
Capital Plan/Projects	1100	1050		1050
NWTHC				
Housing Corporation				
O&M Private Housing	130	130	130	130 m ³ annual.
GNWT Departments				
DOT - Runway Extension -				FY 2011/2012 TBD

*MACA carry-over

Table 2: Granular Acquisition Forecast

Wekweti Granular Resource Acquisition Forecast	
1. 2007 - 2010 - NWTHC	Recommendation/Supply
Few opportunities available for coordinating municipal granular requirements, but contact NWTHC for granular needs related to future new housing and lot development.	TBD
2. 2011/2012 - DOT	
Opportunity for the settlement to coordinate with DOT for municipal requirements of select and pitrun material, related to the proposed runway improvements in 2012. This would require a winter haul and crushing operation. If a crusher is mobilized into the community, opportunity for the municipality to provide funding for the production and stockpiling of select/crush grade material for community use.	Municipality consider haul and stockpile 5000 m ³ of pitrun 3000 m ³ of crush, if project implemented.
3. Resource Development - Tlicho Government	
Operation of the Colomac mine may provide opportunities for the coordination of settlement's granular needs, with assistance from the Tlicho Government, with regard to a winter/seasonal access road to the community.	TBD

COMMUNITY: DETTAH
REGION: NORTH SLAVE

Table 1: Granular Demand Forecast

Dettah	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 3 km average use	Resurfacing All - 2000 m ³ crushed.			
O&M average	N/A			
*Community Hall/Gym	1100			
Capital Plan/Projects				
NWTHC				
Housing Corporation	600			400 m ³ annual
O&M Private Housing	50	50	50	50 m ³ annual
GNWT Departments				
DOT - Access Road Upgrade 11.3 km -				FY 2016/2017 TBD
EC&E - School -				FY 2018/2019 1000

*MACA carry-over

Table 2: Granular Acquisition Forecast

Dettah Granular Resource Acquisition Forecast	
1. 2007 - 2010	Recommendation/Supply
Few opportunities available to coordinate for municipal needs with GNWT Departments but collaborate with NWTHC for granular requirements related to future new housing and lot development	TBD
2. 2016/2017 - DOT	
Opportunity to coordinate municipal requirements for select grade and pitrun materials with DOT's proposed access road project in 2016.	Consider a 1000 m ³ crush stockpile for community use
3. 2018/2019 - EC&E	
Opportunity to coordinate municipal requirements for granular materials with EC&E proposed school project.	TBD

COMMUNITY: SETTLEMENT COUNCIL OF ENTERPRISE
REGION: SOUTH SLAVE

Table 1: Granular Demand Forecast

Enterprise	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 5 km average use	Resurfacing All - 3500 m ³ crushed.			
O&M average	N/A			
Capital Plan/Projects				
NWTHC				
Housing Corporation				
O&M Private Housing	50	50	50	50 m ³ annual
GNWT Departments				
IT&I - Park/Campground Twin Falls/Louise Falls -	500			FY 2011 - 2014 1000
DOT - Hwy #1 Projects. -		*15000		

Table 2: Granular Acquisition Forecast

Enterprise Granular Resource Acquisition Forecast	
1. 2007 – 2014 - DOT/IT&I	Recommendation/Supply
Few opportunities available to coordinate for municipal needs with GNWT Departments but collaborate with NWTHC and IT&I for granular requirements related to future new housing and lot development, camp ground upgrades, and park maintenance.	TBD
2. 2007 - 2011 - DOT	
Opportunity to coordinate municipal requirements for select grade material with DOT's capital and O&M project at Hwy #1 km 67.3.	Municipality might consider stockpile 1000 m ³ crush material.

COMMUNITY: TOWN OF HAY RIVER
REGION: SOUTH SLAVE

Table 1: Granular Demand Forecast

Hay River	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - heavy use	Recommend Maintenance Stockpile - 5,000 m ³ crushed.			
O&M average	15000 m ³ /yr but varies considerably on an annual basis			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1200			1000 m ³ annual
O&M Private Housing	5000	5000	5000	5000 m ³ annual
GNWT Departments				
IT&I - Park Development - Managers Residence -	600		1000	FY 2015/2016 600 m ³
H&SS - Hospital - Group Home - Womens Resource Centre 2 Duplexes - Medical Centre -			TBD	FY 2016/2017 1000 m ³ FY 2020/2021 1800 m ³ FY 2024/2025 1100 m ³
ENR - Replace Main Office -				FY 2012/2013 1100 m ³
DOT - Runway/Apron - Drainage Improvement - 4-Bay Maintenance Garage -				FY 2013 – 2015 TBD FY 2015/2016 TBD FY 2020/2021 1000 m ³
PWS - 4 -Bay Garage -				FY 2010/2011 1100 m ³
ECE - School Site Drainage -	500	500		

Table 2: Granular Acquisition Forecast

Hay River Granular Resource Acquisition Forecast	
1. 2007 - 2012 - GNWT Departments	Recommendation
Numerous opportunities to coordinate municipal granular requirements with NWTHC, IT&I, DOT, H&SS, PWS, and ENR related to schools, housing and lot development, park/campground upgrade, airport improvements, treatment centres, garages and offices.	TBD
2. 2013 - 2015 - DOT	
Opportunity to coordinate municipal needs for select grade materials with DOT's proposed runway/apron project.	TBD

COMMUNITY: HAY RIVER RESERVE
REGION: SOUTH SLAVE

Table 1: Granular Demand Forecast

Hay River Reserve	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 5 km average use	Resurfacing All - 3500 m ³ crushed.			
O&M average	N/A			
Capital Plan/Projects				
NWTHC				
Housing Corporation				200 m ³ annual/avg.
O&M Private Housing	200	200	200	200 m ³ annual /avg.
GNWT Departments				
DOT- Hwy Access Road -	3600	3600	3600	
H&SS - Treatment Centre -				FY 2014/2015 1100 m ³
ECE - School -				FY 2015 - 2016 500 m ³

Table 2: Granular Acquisition Forecast

Hay River Reserve Granular Resource Acquisition Forecast	
1. 2007 - 2010 - GNWT Departments	Recommendation
Few opportunities available for coordinating Reserve granular needs, except to coordinate with DOT regarding road access improvements in 2007 through 2009.for possible resupply.	TBD

COMMUNITY: FORT RESOLUTION
REGION: SOUTH SLAVE

Table 1: Granular Supply Forecast

Fort Resolution	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 10 km average use	Resurfacing All - 7500 m ³ crushed.			
O&M average	6500 m ³ /yr			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1000			400 m ³ annual.
O&M Private Housing	600	600	600	600 m ³ annual
GNWT Departments				
IT&I - Park Upgrade -			500	
ENR - Tower Replacement -				FY 2010/2011 800 m ³
DOT - ATB -				FY 2014/2015 1100 m ³
EC&E - School -				FY 2021 – 2023 1000

Table 2: Granular Acquisition Forecast

Fort Resolution Granular Resource Acquisition Forecast	
1. 2007 - 2011 - GNWT Departments	Recommendation
Few opportunities available to coordinate for municipal needs with GNWT Departments but coordinate with NWTHC, IT&I and ENR for granular requirements related to future new housing and lot development, camp ground upgrades, and tower replacement.	TBD
2. 2021 - 2023	
Opportunity to coordinate municipal requirements with EC&E granular needs for school upgrade/project.	TBD

COMMUNITY: LUTSEL K'E
REGION: SOUTH SLAVE

Table 1: Granular Demand Forecast

Lutsel K'e	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads - 7 km average use	Resurfacing All - 6000 m ³ crushed.			
O&M average	4500 m ³ /yr			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1000			400 m ³ annual.
O&M Private Housing	250	250	250	250 m ³ annual.
GNWT Departments				
PWS - Tank Farm (new) -	2500	1000		
DOT - Runway Extension -				FY 2012/2013 TBD
H&SS - Health Centre -				FY 2021 - 2023 1100

Table 2: Granular Acquisition Forecast

Lutsel K'e Granular Resource Acquisition Forecast	
1. 2007/2008 - PWS/NWTHC	Recommendation/Supply
Opportunity for Hamlet to coordinate with PPD's construction of a new tank farm and NWTHC needs, for obtaining municipal granular requirements for both select and common grade/pitrun materials. This is a 'must' opportunity for the community as a 'crusher' will be available from mid-July to mid-August 2007. The community/Band should consider maximizing funding to stockpile crush and pitrun materials for community use, as part of the PPD project operations.	Hamlet might consider stockpiles of 3000 m ³ pitrun and 2000 m ³ crush.
2. 2012/2013 - DOT	
Opportunity for Hamlet to coordinate with DOT, related to the proposed airport improvements project tentatively scheduled for 2012, for obtaining municipal requirements of select and pitrun materials. This is a 'must' opportunity for the community to stockpile a supply of surfacing material as DOT might mobilize a 'crusher' into the community, if project is implemented.	Hamlet stockpile 3000 m ³ crushed.
3. 2021/2022 - H&SS	
Opportunity to coordinate municipal requirements with H&SS needs related to the health centre.	TBD

COMMUNITY: TOWN OF FORT SMITH
REGION: SOUTH SLAVE

Table 1: Granular Demand Forecast

Fort Smith	2007/2008 m ³	2008/2009 m ³	2009/2010 m ³	Future
Capital / O&M	Prepare Needs Assessment - capital and O&M needs.			
Roads	Recommend Maintenance Stockpile - 5000 m ³ crushed.			
O&M average	12000 m/yr but varies considerably on an annual basis			
Capital Plan/Projects				
NWTHC				
Housing Corporation	1000			700 m ³ annual.
O&M Private Housing	3000	3000	3000	3000 m ³ annual
GNWT Departments				
IT&I - Building/Parks Maintenance -				FY 2010 - 2012 1000 m ³
H&SS - Group Home - House Shelter - Children's Treatment Centre -				FY 2011/2012 1000 m ³ FY 2015/2016 1000 m ³ FY 2016/2017 1200 m ³
ENR - Replace Main Office -				FY 2017/2018 1100 m ³
DOT - Hwy #5 Maintenance - Runway/Apron Resurfacing -	5000	5000	5000	5000 m ³ annual FY 2018/2019 TBD
PWS - Maintenance Shop -				FY 2019/2020 600 m ³
EC&E - Equipment Garage - Heavy Equipment Centre - Trades Complex - Schools -				FY 2011/2012 1000 m ³ FY 2011/2012 1200 m ³ FY 2016 – 2018 2000 m ³ FY 2020- 2023 1800 m ³

Table 2: Granular Acquisition Forecast

Fort Smith Granular Resource Acquisition Forecast	
1. 2007 - 2023 - GNWT Departments	Recommendation
Numerous opportunities to coordinate municipal requirements for pitrun and select grade materials with NWTHC, IT&I, DOT, H&SS, PWS, and ENR related to schools, housing and lot development, park and campground upgrade, Hwy maintenance, treatment centre/shelter, maintenance shop and offices.	TBD
2. 2018/2019 - DOT	
Opportunity to coordinate municipal needs for select grade materials with DOT's runway/apron resurfacing project.	TBD

9.2 DETAILED GRANULAR DEMAND AND FORECAST ESTIMATES BY REGION

TERRITORIAL GRANULAR FORECAST ESTIMATES

- The following tables forecast granular quantity estimates for community capital projects (CCP), combined GNWT projects and the NWTHC requirements, under each year from 2007 - 2010.
- Using *Table 1* and the community of Aklavik for 2008/2009 as an example, bulk volume granular quantity estimates are given for proposed community capital projects (CCP), as well as GNWT and the NWTHC estimates, which were noted in the coordination acquisition tables (Table 1/Section 8) as stakeholders that also need to acquire granular materials in that year.
- In some cases, a community may not require granular material for capital or O&M projects in a specific year but should still consider, for future requirements, collaborating with those stakeholders that do, so that economies of scale will provide a more cost-effective supply.
- Note that the Future Years column in these tables are split between DOT and remaining GNWT Departments. The reason is that DOT has a number of community airport improvement projects from 2011 on, which may involve large scale granular acquisition projects that would be of interest to the community and other users; the TBD annotation in this column indicates future work is proposed and that the community and other stakeholders should review the detailed tables for more information.
- With regard to all granular volume estimates but especially the total regional quantities (noted in the pie charts), changes in the GNWT Infrastructure Acquisition Plan and municipal government priorities will impact on stakeholder participation and the estimated granular quantities currently shown for any given year. Project scope and budgets constantly change, especially during the design phase, which will impact on granular quantities and user participation.
- All granular quantity volume estimates are in cubic metres.

NOTE: Not all community capital plans were available at the time of report completion. The user participation tables and granular quantity estimates for community capital projects, GNWT needs and NWTC requirements will be continually updated as information become available.

TABLE 1: INUVIK REGION GRANULAR FORECAST ESTIMATES

CCP = Community Capital Projects

COMMUNITY	2007/2008				2008/2009			
	CCP	GNWT	NWTHC	TOTAL	CCP	GNWT	NWTHC	TOTAL
Aklavik	3600		2500	6100	6200	** 2230	2500	10930
*Tuktoyaktuk	5150		1600	6750	3500		1600	5100
Sachs Harbour	3475		400	3875	900		400	1300
Ulukhoktok	500		1200	1700	2500	600	1200	4300
Paulatuk	2500	1000		3500	2700	500		3200
*Inuvik		10000	6300	16300		5500	6300	11800
Tsiigehtchic	2200	1000	1500	4700	1050		1500	2550
Fort McPherson	6500		2000	8500	5000		2000	7000

COMMUNITY	2009/2010				Future Years		
	CCP	GNWT	NWTHC	TOTAL	CCP	DOT	GNWT Other
Aklavik	5500		1500	7000	10000	TBD	1000
*Tuktoyaktuk			1600	1600	10000	TBD	2800
Sachs Harbour			250	250	875	TBD	2100
Ulukhoktok	1600		1000	2600	8200	TBD	1500
Paulatuk	8500			8500	6050	TBD	1000
*Inuvik		2000	6300	8300		4600	9100
Tsiigehtchic	1500		500	1500	4000	876	2100
Fort McPherson		2000***	1600	3600		TBD	

*MGP opportunities for community supply

**DOT/Airports - 2000 m3 2008/2009 winter haul and crush

***DOT - Actually 2010/2011 - 2000 m3 summer crush and haul and stockpile

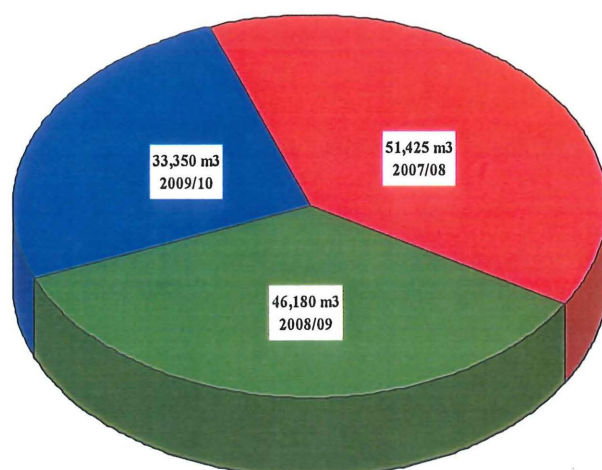


CHART 1: INUVIK REGION

Regional Granular Material
Forecast Estimates

2007 - 2010

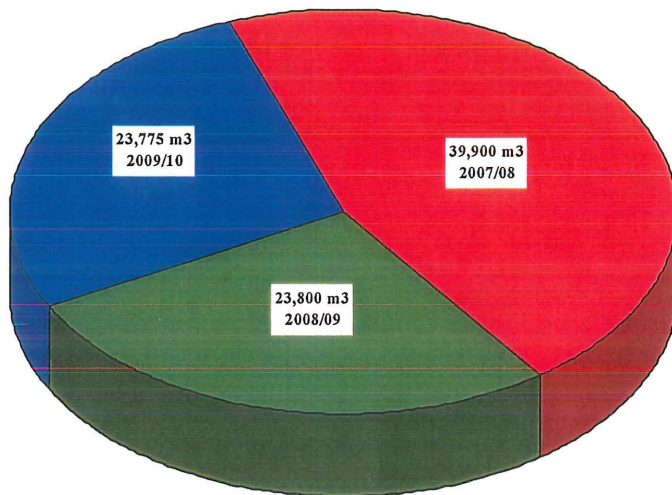
TABLE 2: SAHTU REGION GRANULAR FORECAST ESTIMATES

CCP = Community Capital Projects

COMMUNITY	2007/2008				2008/2009			
	CCP	GNWT	NWTHC	TOTAL	CCP	GNWT	NWTHC	TOTAL
Colville Lake	1500	** 2600	1500	5600			1500	1500
*Fort Good Hope	3200	8000	1000	12200			1000	1000
*Norman Wells			2000	2000			1800	1800
Deline	8000		1000	9000	5500	3000	1000	9500
*Tulita	6000	***2600	2500	11000	8500		1500	10000

COMMUNITY	2009/2010				Future Years		
	CCP	GNWT	NWTHC	TOTAL	CCP	DOT	GNWT Other
Colville Lake		** 3000		3000		2100	-
*Fort Good Hope			1000	1000		-	2100
*Norman Wells			1800	1800		TBD	2100
Deline	4875	500	1000	6375	9300	-	1100
*Tulita	8500	2500	600	11600	17000	TBD	2100

- *MGP opportunities for community supply
- **Mostly DOT/Airports - estimated quantities / crush 2000 m3 2007/2008 / base coarse material 3000 m3 2009/2010
- ***PWS crush 2600 m3 replace DOT maintenance stockpile / CAWS site work



**CHART 2: SAHTU REGION
Regional Granular Material
Forecast Estimates
2007 - 2010**

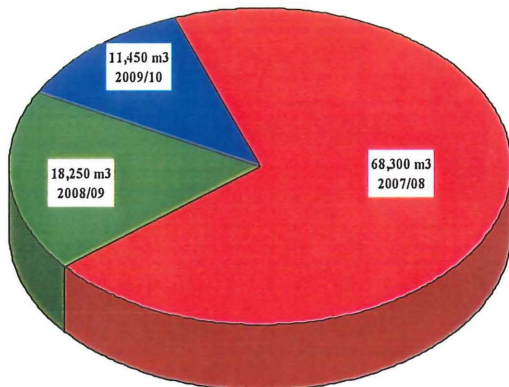
TABLE 3: DEH CHO REGION GRANULAR FORECAST ESTIMATES

CCP = Community Capital Projects

COMMUNITY	2007/2008				2008/2009			
	CCP	GNWT	NWTHC	TOTAL	CCP	GNWT	NWTHC	TOTAL
*Wrigley								
*Fort Simpson		600	2300	2900		2400	2300	4700
Fort Laird		***30000	1000	31000		1350	800	2150
Nahanni Butte	1300	7 600	1000	9900	2000	2500	1000	5500
Trout Lake	3000	1500	1500	6000			1500	1500
*Jean Marie R.	600	1000	1500	3100		1000	1000	2000
Fort Providence		! 15000	1000	16000		1000	1000	2000
Kakisa		!! TBD				400		400

COMMUNITY	2009/2010				Future Years		
	CCP	GNWT	NWTHC	TOTAL	CCP	DOT	GNWT Other
*Wrigley						TBD	2100
*Fort Simpson		1000	2300	3300		TBD	9000
Fort Laird			800	800		-	1100
Nahanni Butte		2500		2500		6100	500
Trout Lake		** 2000		2000		1100	
*Jean Marie R.		1000		1000		TBD	
Fort Providence		850	1000	1850			1000
Kakisa		!!TBD				TBD	TBD

- *MGP opportunities for community supply
- **DOT/Airports - 2000 m3 2009/2010 winter haul/crush
- ***DOT - Hwy 7 km 2.9 - 30000 m3 for reconstruction - about 25 km from Fort Liard
- ! DOT - Hwy 3 km 86.5 - 15000 m3 for O&M - about 50 km from Fort Providence
- !! DOT - Hwy 1 km 169 - TBD m3 for concrete aggregate - about 15 km from Kakisa

**CHART 3: DEH CHO REGION**

**Regional Granular Material
Forecast Estimates**

2007 - 2010

TABLE 4: TLICHO REGION GRANULAR FORECAST ESTIMATES

CCP = Community Capital Projects

COMMUNITY	2007/08				2008/2009			
	CCP	GNWT	NWTHC	TOTAL	CCP	GNWT	NWTHC	TOTAL
Behchoko	700		1500	2200	250		1500	1750
Whati	800		600	1400	700		600	1300
Gameti	2000	500		2500	7300	1000		8300
Wekweti	1600			1600	1050			1050

COMMUNITY	2009/2010				Future Years		
	CCP	GNWT	NWTHC	TOTAL	CCP	DOT	GNWT Other
Behchoko			1500	1500			3100
Whati	500	* 5000	600	6100			3600
Gameti	9800			9800	6810	TBD	1000
Wekweti					1050	TBD	

*DOT/Airports - actually 2010/2011 - 5000 m3 winter haul, crush and stockpile

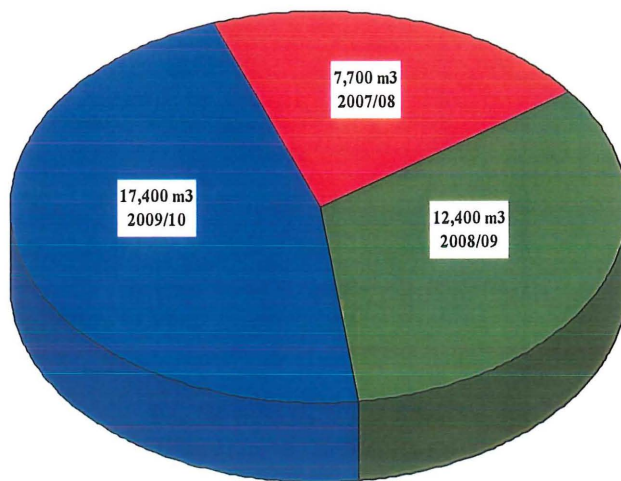


CHART 4: TLICHO REGION
Regional Granular Material
Forecast Estimates

2007 - 2010

TABLE 5: SOUTH SLAVE REGION GRANULAR FORECAST ESTIMATES

CCP = Community Capital Projects

COMMUNITY	2007/2008				2008/2009			
	CCP	GNWT	NWTHC	TOTAL	CCP	GNWT	NWTHC	TOTAL
Enterprise						* 15000		15000
Hay River		600	1200	1800		1000		1000
HR Reserve		3600		3600		3600		3600
Fort Resolution			1000	1000			400	400
Fort Smith		5000	1000	6000		5000	700	5700
Lutsel K'e		2500	1000	3500		1000	400	1400
Dettah (NS)	1100			1100				

COMMUNITY	2009/2010				Future Years		
	CCP	GNWT	NWTHC	TOTAL	CCP	DOT	GNWT Other
Enterprise							1000
Hay River						TBD	9700
HR Reserve		3600		3600			1600
Fort Resolution		500	400	900		1100	1800
Fort Smith		5000	700	5700		TBD	11900
Lutsel K'e			400	400		TBD	1100
Dettah (NS)						TBD	1000

*DOT - Hwy 1 km 67.3 - 15000 m3 for O&M - about 14 km from Enterprise

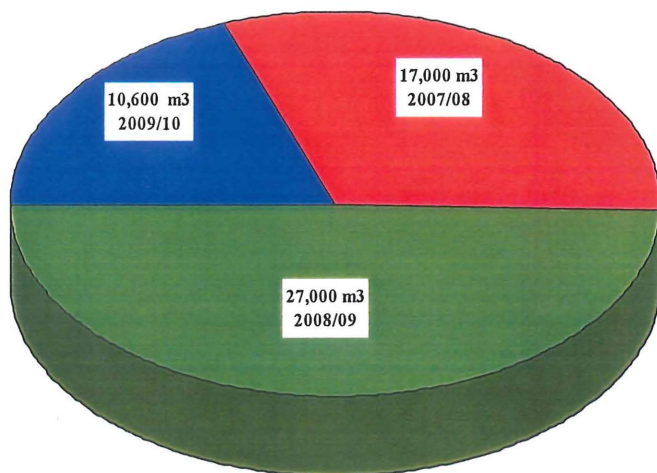


CHART 5: SOUTH/NORTH SLAVE REGIONS

Regional Granular Material Forecast Estimates

2007 - 2010

APPENDIX A

The following terms and definitions are provided for quick and easy reference and warrant a brief explanation, as they are important terminology to better understand the TGRF.

Granular Materials: Often used to describe sands and gravels but technically granular materials include natural sizing from silts to sand, gravel, and cobbles to rip-rap.

Pit: A land location where granular materials, not including consolidated rock, is being or has been extracted.

Borrow Pit: Often specifically related to the excavation from a location of low to marginal quality fill for construction activities such as roadbed, berms, and landscaping for base material requirements.

Quarry: An open excavation, normally related to extraction of bedrock.

Pitrun: Raw, extracted, granular materials accessed directly from a naturally occurring source/deposit.

Common Grade: Normally referred to naturally occurring pitrun used for rip-rap, general fill, or embankment.

Select Grade: Material that has been processed from raw pitrun to a specific granular size or grade required for a specific use. Specialized equipment is needed: grizzly screener, power screener, or crusher to process the pitrun material. Processed material often referred to as ‘crushed’ or ‘screened’.

Concrete Aggregate: Granular material that meets the specifications for the production of cement (clean, hard, free of ‘fines’ or contaminates).

Bulk Volume: The quantity of granular material that has to be extracted from a pit/quarry to meet the ‘in-place’ volume for any given construction project. Bulk volumes are up to 30 % higher to account for losses due to loading, shrinkage, compaction, side slope, etc.

Fines: A grade of very fine materials of a particular size such as clay and silts.

Seasonal: Granular supply/re-supply can only occur during the winter months as winter or ice roads are required to access granular materials.

As and When: The ability to acquire granular materials at any given time during a year, usually associated with all weather access to granular pits and quarries.

