DRAFT

Keewaytinook Mobile

Community Cellular Service Business Plan
First Nation Community Template

www.mobile.knet.ca

Executive Summary

The Community Cellular Service Business Plan is a template that describes the Keewaytinook Mobile (KM) Cellular Service model operating in a medium sized First Nation community in Northern Ontario. The Plan outlines a community-directed and owned business process, describes the technical and human resource requirements and includes a sample worksheet that describes the financial requirements for the first ten years of operation. Communities can use the template as a tool to develop their unique Community Cellular Service Plan and evaluate the community's readiness to provide cellular service.

The Community Cellular Service template suggests that the First Nation operate the service similar to the broadband service model, with technical and administration responsibilities. Administration resells products (Pre-paid cards, phones and accessories) and the technician provisions and supports user services on the local equipment. K-Net and provider/supplier partnership roles are also described. The community can realize reinvestment returns in year 2, given cost estimates and penetration projections provided in the budget forecast statement. Immediate benefits include employment and training, increased telecommunication access and more options for local residents. The cellular network will support the ongoing operation and growth of the broadband network and the delivery of essential applications.

The Community Cellular Service template makes three assumptions regarding existing network readiness.

- The existence of an established community network with adequate broadband;
- administrative support, and
- technical capacity to maintain the network to adequate service levels.

DRAFT

Table of Contents

Community Network Model

The Community Network Model is evolving as community needs and environments change, however it is still based on community-owned ICT delivery, providing access to essential services for all. Since inception in 1994, with the creation of the K-Net bulletin board, the Kuhkenah Network has grown due to the vision and direction of community leadership and partner support. Today, the network supports many applications and services including over 30,000 MyKnet homepages and 80,000 email accounts, over 100 video conference nodes and IP telephone accounts and over 120 First Nation broadband Points of Presence. The network is sustained by a number of applications that are built on the infrastructure and supported by the capacity in each partner First Nation to maintain and grow their local network.

Other applications include over ten internet high school classrooms for youth to obtain accredited courses in their communities, over 25 telemedicine sites with clinical and education service, video conferencing, residential internet service, broadband to offices and small business, accredited online training courses and now IP GSM cellular service.

The Community Network Model is maintained by local capacity and driven by community needs to deliver applications that provide access to services and improve quality of life. Various features of the model can be applied to the definition of the community cellular service.

The Northern Ontario Heritage Fund Corp. (NOHFC) Cellular Pilot Project includes Keewaywin and Weagamow First Nations, which have unique community networks. Keewaywin is serviced via microwave 3MB service with a robust cable system delivering QOS for video conferencing, telemedicine, KiHS, business and residential Internet service and other applications. Weagamow is satellite served (784KB) and uses DSL to deliver QOS for video conferencing, telemedicine, KiHS, business Internet and dial-up service for residences. NOHFC and other partners have contributed to the creation and growth of these and other networks, which provide economic benefits and improve access to services.

While the network model includes costs for broadband, technician wages, equipment and administration; the various applications and programs that use the service generate revenues. Programs, businesses and applications in the areas of education, health, justice and now cellular service use the network and contribute to its sustainability[1]. Ideally, application revenue supports the sustainability and growth of the network while providing employment, training and access to essential services.

[1] Appendix A: Community Network Model Diagram

Capacity Building

The local community support team is vital to the success of the network. The community technician works with the band administration to support and manage the network. The cellular/network technician will be responsible for maintaining the cellular equipment, managing cellular services and marketing the applications[2]. The community technician is the first point of contact for local technical issues.

Support and training are available to support the local technician. Training programs are available online in the form of tutorials and certified training courses. Six community technicians were trained on the cellular equipment during the last week of April 2008 with K-Net, Dryden Municipal Telephone System (DMTS –telephony partner) and Lemko Corp. (equipment/software supplier) representatives[3]. Support is available from the local technical team and varies in each community based on available resources. Funded technical support roles may include Community Access Program (CAP) workers, Community Telehealth Coordinator (CTC), Youth ICT workers and other workers who have an interest in maintaining the community network. Peer support from technical teams in other communities is also available through video conference updates and online forums. An interactive meeting place is maintained for cellular technician input and support[4]. The K-Net help desk provides secondary support when trouble shooting the POP is required. The Cellular Community Liaison[5] works with the community partners and K-Net in order to gather support and funding for cellular service growth.

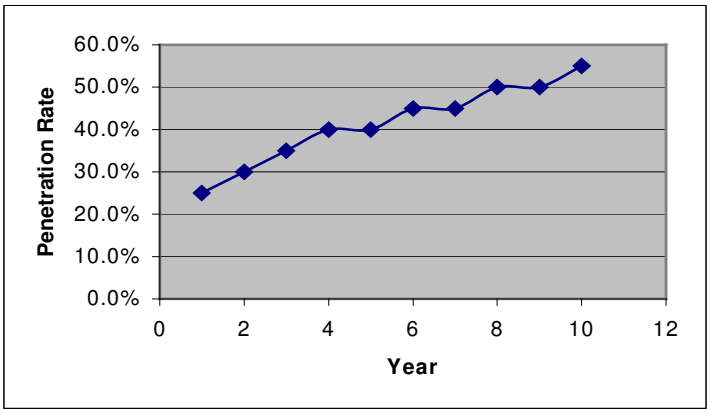
Market Analysis

The target population (aged 14+) will be those who have an interest or need in using a cellular telephone inside and outside of their home community. Local users will be interested in safety and/or communication when outdoors cutting firewood, hunting, fishing or traveling on the winter roads within the range of service. Community members can continue to share and learn from each other when on the land, strengthening their language and culture. Community leaders and organizers can better communicate with each other when executing community events. When travelling outside the community for professional or for medial reasons, users can stay connected in the extended calling area. Professionals such as teachers, councillors, health workers, police, technicians, etc. will be better connected in their jobs as a result.

[2] Appendix B: Cellular Technician Job Description
[3] View the Cellular Training and Development video summary at www.media.knet.ca
Appendix C: Cellular Training Schedule
[4] View the technical peer support meeting place at www.meeting.knet.ca
[5] Appendix D: Cellular Community Liaison Job Description

Market penetration rate is a term used to describe the percentage of the population that use the wireless service. Canadian penetration rates are estimated at 58% (September 2007)[6] The KM business model projects market penetration in order to develop a financial forecast. The model uses penetration rates beginning at 25% in the first year, increasing 5% annually until year five and 2.5% annually to 55% in year ten. The rates used are conservative given the annual year over year growth in the industry. The model is based on a medium sized community with a reserve population of 350 people.

Figure 1: Estimated Penetration Rate Years 1-10



Customers of other Canadian and American GSM carriers may be able to access service on the KM network. This will depend on the KM Inter-carrier roaming partner agreements and the type of service package the individual has. Rates for roaming usage, airtime and long distance are determined by the home carrier. Contractors, legal workers, agency workers, health, education & political representatives who have service with other GSM carriers and have roaming capabilities may be able to access service. In particular, the airport terminal would be a high usage area as few communities have a working payphone at the airport and the airline and MTO telephones are not available for public use.

[6] http://en.wikipedia.org & www.cwta.ca Canadian Wireless Telecommunications Association 22% of subscribers are pre-paid accounts.

Opportunities and Risks

There is no mobile service available in the First Nation communities of Keewaywin or Weagamow or the NAN region north of the trans-Canada and major extension highways. Tbaytel[7], DMTS, KMTS and NorthernTel make up the bulk of cellular service providers in the urban area described[8].

Communication and telephony service options available in the community include residential and business landline service with long distance, satellite and IP telephony. Landline telephony is costly due to the high rate of long distance usage. First Nation communities have been underserved by Telcos and have found other ways to remain connected. Federal funding partners worked with K-Net to build the IP Telephony Network, providing business and residential telephone access on the IP network, providing more telephony choices, access to basic telephony and reducing long distance fees and is seen as an alternative to land line service.

Other alternative technologies providing mobile services include wifi and satellite phones. Wifi telephones (802.11b) are available and are limited to short range. A multi WiFi cell deployment in each community would be necessary and is impractical. Satellite telephones are still used in the far north but have a high cost and can only be used during certain times of the day when satellites are within range.

The risks of the cellular network are similar to the challenges faced by the Community Network Model including difficulty of collecting on unpaid accounts, limited allocation of funds to support the technical team and access to equipment, all of which are addressed in the cellular service plan.

The Kativik Regional Government[9] (KRG) examined the feasibility of deploying a mobile telephony service in Nunavik in 2006. Cellular coverage was found to be possible only localized in communities depending on range and terrain. Roaming would have been possible with compatible technologies.

Extended range was possible only with expensive equipment. Therefore cellular was not a valid replacement for satellite phones commonly used in Nunavik by hunters, fishers, public security personnel, environment and renewable resources officials.

The major challenge of developing the business case was the refusal of the local Telco to negotiate pricing and interconnection. High penetration rates were forecasted and cost based on population in the territory and was found to be adequate to service the population in Nunavik. KM is confident in the relationship

[7] Thunder Bay Telephone
[8] Appendix E: Regional Cellular Coverage Map
[9] http://www.krg.ca/

that is being built with partner service providers and has negotiated the necessary interconnections, services rates and community ownership required to deliver the service effectively.

Inuvik has a successful commercial GSM service from Ice Wireless Inc servicing a population of 3,000. Ice Wireless Inc.[10] (est. 1999) offers a basic GSM mobile service in the North West Territories with roaming through Rogers Wireless. Its community service areas include Inuvik (head office), Hay River, Yellowknife, and Behchoko. Ice Wireless offers a variety of features at competitive rates as there is a CDMA provider in the area. There are no service contracts, no activation or termination fees and free evenings and weekends. The packages (monthly billing) are designed to be transparent with competitive rates, however, the features and add-ons are costly. The company is incorporated and not community owned. Ice Wireless has seen relative success based on its simple packages and use of emerging GSM technology.

Although, there are no service providers currently in the NAN area described north of major highways, community members often purchase cellular service when travelling outside the community. KM is partnering with DMTS to provide this mobility in extended calling areas at competitive rates.

Review of Prepaid Packages in Northern Ontario

Telco	URL	Rate/ Minute	Unlimited Eve/weekend	Features	Min 30 day card	Top-up & roll over
Bell	http://www.bell.ca/shopping/PrsShpWls_RtpPreLanding.page	$0.20	√	Extra	$25	√
Rogers	http://www.completecommunication.com/rateplans.asp?RID=8&CID=26	$0.30	√	Incl.	$20	√
Telus	http://www.telusmobility.com/on/plans/payandtalk/index.shtml	$0.25	X	Extra	$10	√
Tbaytel	http://www.tbaytel.net/business/mobility/cellular_phones/pre_paid/plans.shtml	$0.25	√	Extra	$10	√

[10] http://www.icewireless.ca/

Community Ownership

As with the Community Network Model, the First Nation community partner owns and operates their local cellular service. The community leadership, responding to community demand, oversees the administration and operation of the network. The First Nation owns the capital and equipment and has control over the resale of mobile services and is therefore is responsible for effective use and sustainability of applications.

The community will identify a technician and administration roles to manage the service, governed by the chief and council. A Cellular Committee will be developed to engage partner communities in discussion and provide input into the direction of the wide area cellular service.

K-Net helps to facilitate cellular service growth by negotiating interconnections and partnerships with funders, providers and suppliers. K-Net supports equipment and broadband service by maintaining spare equipment and providing technical support and training. K-Net works with communities to find funding for capital projects and is able to advise on project process, contractors, equipment, etc. as required.

Dryden Municipal Telephone System (DMTS) is partnered to provide telephone circuit connections and extended calling area service. Rogers Communications Inc. is engaged with K-Net in a contract for usage of area spectrum for roaming. Northern Ontario Heritage Fund Corp. (NOHFC) is the main funding partner for the cellular pilot project.

Operations

Budget Notes

Keewaytinook Mobile offers GSM cellular service on a pre-paid system in partner communities. The community cellular service administration will follow the community network process. The band administration can manage sales (cellular telephones and prepaid cards) or have them resold at the community store or other outlets wherein a resale agreement is in place.

2.2 Admin

The First Nation will resell prepaid cards at the established airtime rates based on aggregate network costs and partner negotiations. Pre-paid cards can be ordered in bulk from K-Net, which will stock quantities of cards, and can place orders upon request.

1.2 Sales – Pre-paid cards

Keewaytinook Mobile employs the Lemko Prepaid dMARC System[11] that allows the local technician to manage user accounts and services. It is an interactive system wherein the technician can provision SIM Cards, activate cards and packages, adjust features and troubleshoot customer services. Customers can also check and contribute to their account online. Prepaid service will terminate when an account balance reaches

2.3 Pre-paid software

online. Prepaid service will terminate when an account balance reaches $0.00 and an account will expire after 3 months if there is no usage.

A variety of GSM cellular telephones will be available for order in bulk from K-Net, upon request. Businesses or individuals can also order un-locked, compatible GSM phones from any distributor and have them provisioned on the dMARC. SIM Cards will be issued by DMTS as they are the licensed distributor. It is estimated that %75 of customers will purchase their phones from the community.

2.4 Phones

The community will provide broadband transport and local gateway circuits to facilitate intercommunity and community-to-community traffic. A broadband rebate may be issued from K-Net, based on activity.

2.5 Broadband
2.6 Circuits
1.3 Broadband Rebate

The cellular technician will be the first point of contact for customer service, troubleshooting equipment, provisioning phones and cards and managing customer features and accounts. The technician will have suitable office space and sparing equipment. The community will also be responsible for tower and building site utilities, maintenance and security.

2.7 Technician wages
2.8 Equipment & amortization
2.1 Site Utilities

Figure 2: Community Cellular Service Budget

Community Revenue	**Community Costs**
1.1 Sales - Cellular Telephones	2.1 Site Utilities
1.2 Sales - Prepaid Cards	2.2 Administration
1.3 Broadband Rebate	2.3 Prepaid Cards
	2.4 Cellular Telephones
	2.5 Broadband Usage
	2.6 Gateway Circuits
	2.7 Technician Wages
	2.8 Office & Equipment

See the attached Community Cellular Service Budget Forecast for more details.

Figure 3: Account Set-up

No contract, no credit check & no monthly bills

Step 1 - Purchase phone

Step 2 - Choose Package

Step 3 - Purchase phone card
Activate & top-up your account

Please see the appendices for packages, rates, features and frequently asked questions.

Technical Requirements

Budget Notes

K-Net is able to make recommendations regarding telecom and network interconnections, suppliers, contractors and other technical requirements. 200' guyed towers are recommended in the community to provide moderate, line of sight coverage to support the outdoor lifestyle and short-distance travel. Winter roads will ideally be used to transport tower, building and other telecom materials to the site in order to reduce shipping costs. LAN equipment will be connected to the K-Net Services POP. All hardware will be located in the network modular shelter at the cellular tower site. The shelter is a secure, self-contained, standalone telecom building with 24-hour backup power. The dMARC and dMAG terminal are contained within the shelter, allowing the local technician to manage user accounts remotely. Tower collocation with NAV Canada and/or bell Canada is possible but costly and approval is timely, Bell will not grant unescorted access to the CO Building. Ideally the First Nation will own the tower, site and equipment. Photos and specifications of recommended equipment are attached in the appendices.

3.1 Project Management

3.2 Tower

3.4 Shipping

3.5 Shelter

3.3 Equipment

Economic and Social Impact

The community will realize a number of economic and social benefits when becoming a partner in the cellular network including:

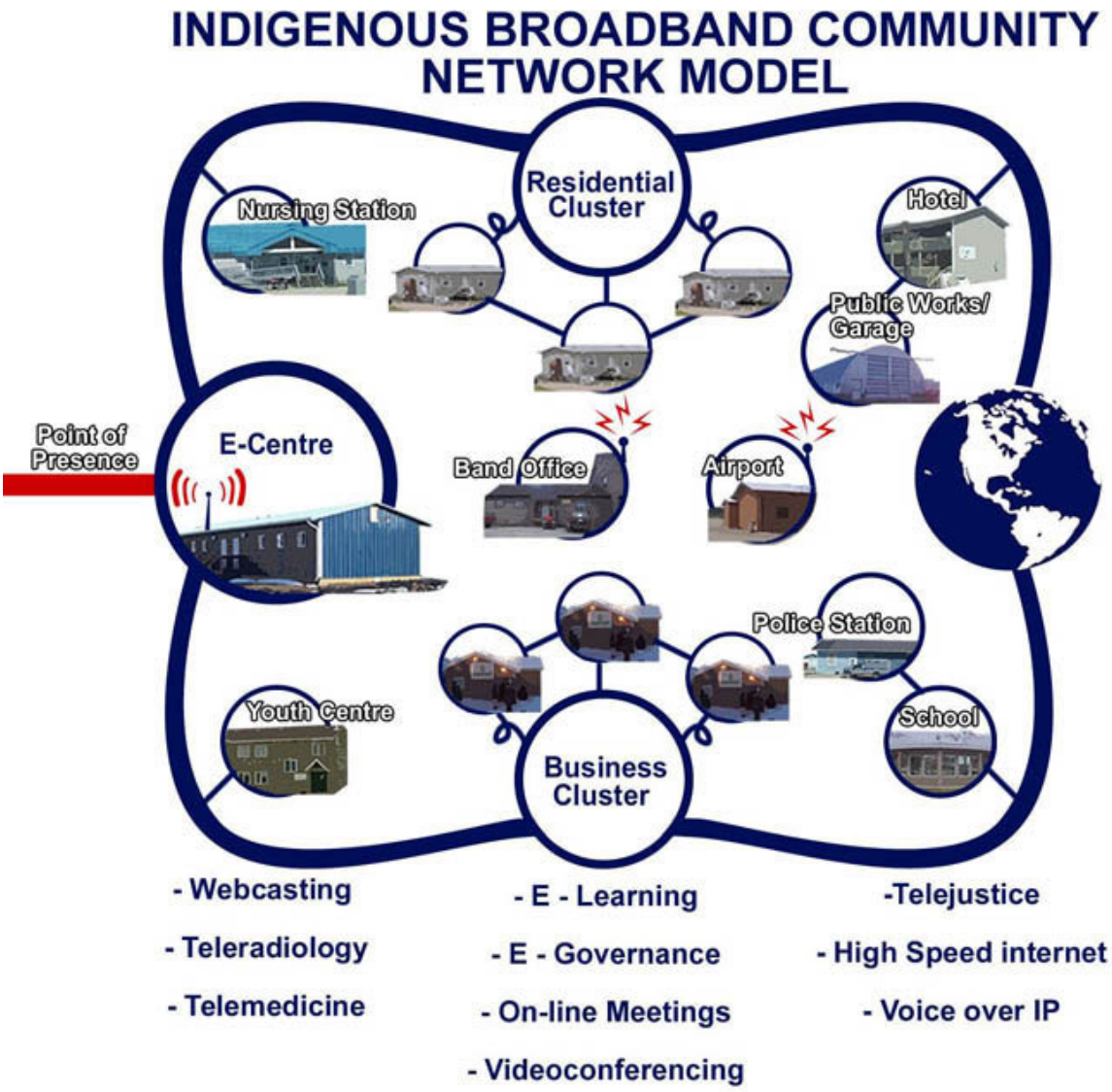
- Develop and sustain essential telecommunications services
- Improve local connectivity solutions and broadband applications
- Increase telecommunications access to community users and provide service to customers visiting the community
- Support the sustainability of the broadband network
- Establish a sustainable business case for present and future social and economic development
- Support employment and training for the local technical team
- Provide another revenue stream for the community.
- Sustain the community's native language.

New opportunities can be realized in the near future to build on the cellular service. In addition to providing improved access to communication and safety when traveling, and when on the land; new health, education, employment and language applications can be realized. This change management process can positively affect the way in which our people learn and share and strengthen our culture and way of life.

When I'm in the bush and I get a moose, I have to rush back to the community to get help to bring the animal back. With the community cellular service, I will be able to call for help. - Cellular Technician May, 2008.

This cellular service is going to be valuable especially for our youth, and our communities will own it! This is a very exciting project. – Cellular Technician May, 2008

Appendix A: Broadband Community Network Model



Appendix B Cellular Technician Job Description

Community Communications Technician

JOB SUMMARY:

Working approximately half time with the Community Cable Network and half time with the Community Cellular Network, the Community Technician is responsible for the installation and regular maintenance and repair of the local broadband and cellular network including hardware and software support for all users. S/he installs the network in all new workstations (video, audio and data services and traffic) and identifies and solves problems in all parts of the network. The Community Technician provides a full range of technical\computer\cellular support to local organizations and community members including the Keewaytinook Internet High School and the Telehealth project. S\he installs, provides training on, and does back-up technical support for community video workstations, cellular devices, IP phones, computers, modems, etc.

ACCOUNTABILITY:

The Community Technician is supervised by and is directly accountable to the local community leadership and their assigned local supervisor working in partnership with the K-Net Community Liaison Coordinator for the cellular project along with other K-Net team members including the Kuhkenah Network Manager.

QUALIFICATIONS:

1. Minimum of grade twelve; strong preference will be given to candidates holding diplomas in technology, computer science or electronics.

2. Must have a minimum of two years experience working with computers, software and ICT's (volunteer\personal experience counts) and a demonstrated ability to start and maintain people-based services.

3. Ability to speak Oji-Cree or Ojibway is a very strong asset.

4. Strong oral and written communications skills (includes oral: listening and feeding back, giving clear and non-threatening instruction; written: reports, forms and checklists).

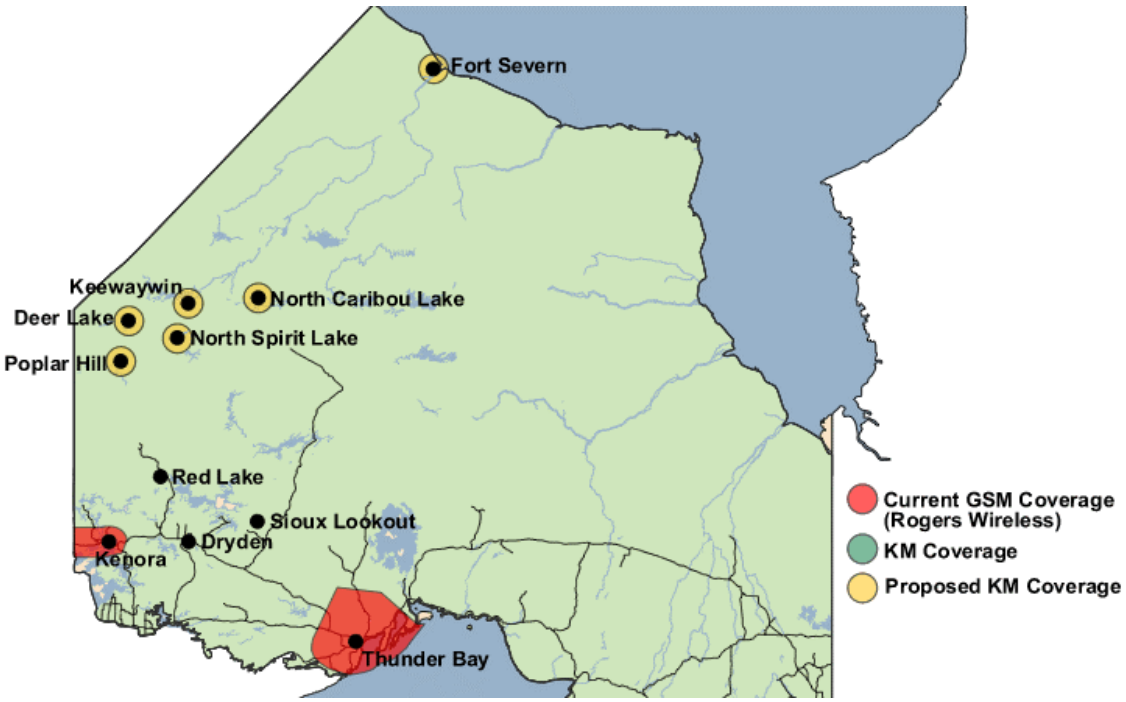
5. Knowledge of the services provided by Keewaytinook Okimakanak and K-Net.

Appendix C: Cellular Training Schedule

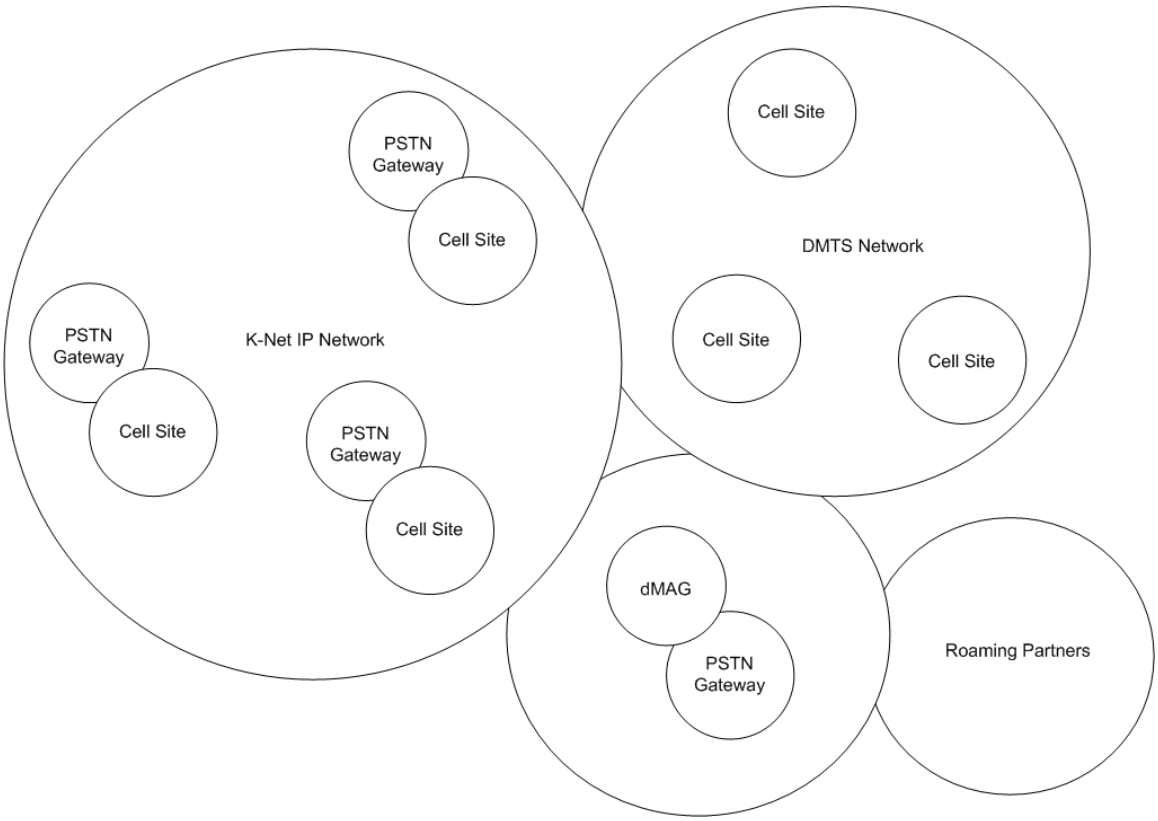
Tuesday, April 28					
Sno	Task			Time	Duration	Coordinator
1	Training at KNET Location			9.00AM- 5.00PM	Sioux Lookout	David
	i	System Overview - Technical				
	ii	System Hardware Setup				
		a	BTS assembling			
		b	dMARC installing and networking			
	i	Subscriber Provisioning				
	ii	Configuarton Setup				
	iii	OAM Walk though				
	iv	CDR Operations				
	v	System Backup and Restore				
	vi	Operational Scenarios & Procedures				
	Overview on dMAG, setup of SS7 / ISUP/ MAP Links					
	i	System Overview - Technical				
	ii	System Hardware Setup				
		a	dMAG installing and networking			
		b	SS7/ISUP Link setup			
		c	Bearer setup			
		d	dMAG GUI configuration			
	iii	Configuring dMAG				
	Work on dMAG setup at DMTS with DMTS Switch Engineer			9.00AM- 5.00PM	Dryden	Roger, Gaurav
Wednesday, April 29						
1	dMARC+ BTS setup			9.00AM-11.00 AM	Dryden	Roger, Gaurav, David, KNET
	i	Power on BTS & dMARC				
	ii	Configure the IP and configs in dMARC				
	iii	Restart the server				
	iv	Provision the MS in GUI				
	v	Check all the test cases of ATP for standalone mode				
	vi	Question and Answers session				
3	ISUP setup			11.00AM - 5.00 PM	Dryden	Roger, Gaurav, David, KNET
	i	Setup & Power dMAG server				
	ii	Make all connection				
	iii	Begin dMAG activation				
	iv	Establish ISUP Signalling and Bearer				
	v	Circuit and Route Validation				
	vi	ISUP Calls				
	vi	Run through all the test cases of ATP				
Thursday, April 29						
1	ATP Signoff			9.00 AM- 12.00 AM	Dryden	Lemko and KNET
	i	ATP testing				
	ii	ATP Signoff				
2	Question and Answer session			1.00- AM - 5.00 PM		

Appendix D: Cellular Community Liaison Job Description

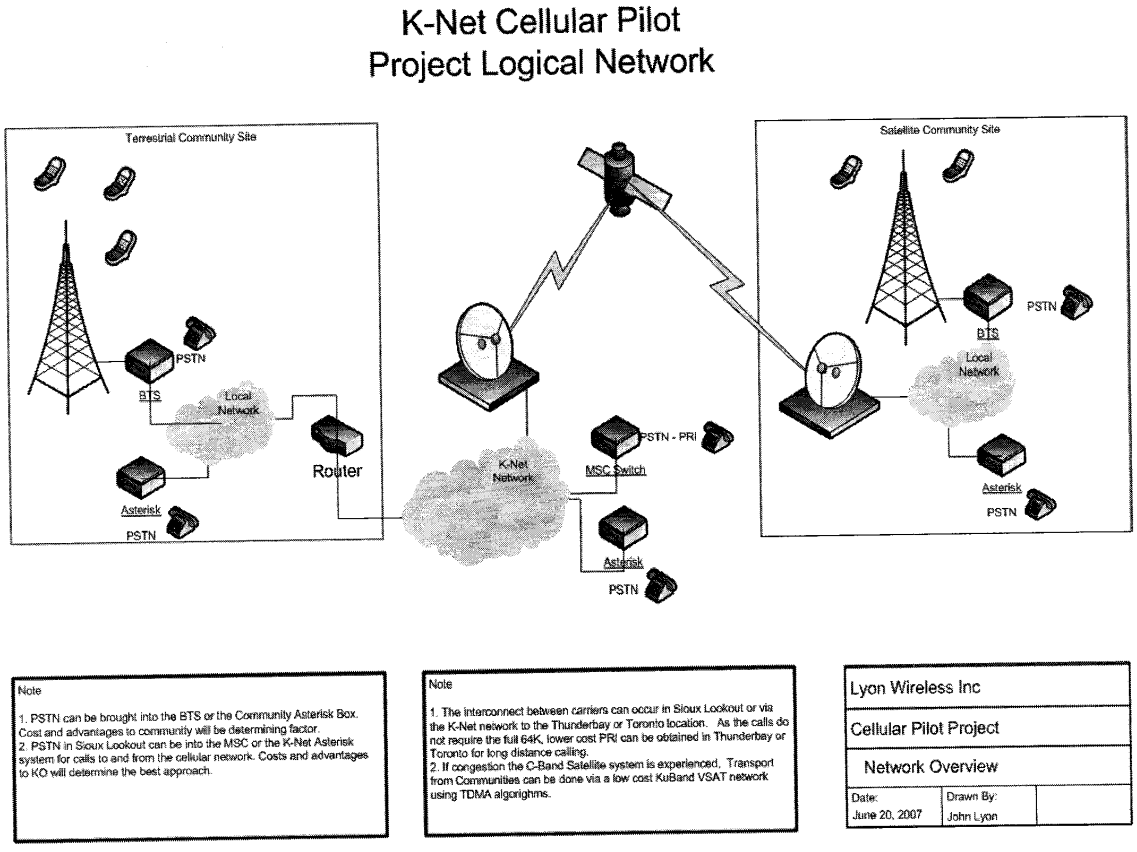
Appendix E: Regional Cellular Coverage Map



Appendix F: KM Diagram



APPENDIX B – NETWORK DIAGRAM



Appendix G: Packages & Rates

Cards, Phones and Accessories are available at your community cellular office.

$40

Expires 30 days from activation
SMS Text, Voicemail, Call Forward, Call Waiting
Top up account online with credit card.

Local Calling Area	5c/minute
Long Distance	+5c/minute
Extended calling area	+10c/minute

Appendix I: Frequently Asked Questions

Keewaytinook Mobile

How does it work?
No contract, no credit check & no monthly bills

Step 1 - Purchase phone

Step 2 - Purchase phone card

Step 3 – Activate & top-up your account

If I disconnect my cell phone, is there a charge for me to connect again?
No, we don't charge you to connect or disconnect your cell phone service. You can come and go at any time for free.

Does KM have contracts?
No, we do not use long-term service contracts.

Where will my phone work?
The KM prepaid mobile wireless service will work on the KM Community Network and in the DMTS extended calling area. The airtime and LD per minute usage rates will be higher when a customer is on the DMTS network. If you require service in other area of Northern Ontario, Canada or North America you will have to purchase a full service package from an existing GSM carrier. Rogers Wireless and Dryden Mobility both offer GSM service in Canada and have roaming with other North American carriers.

Do I pay when someone calls me?
You pay for the amount of time that your phone is in use. You can receive calls from long distance numbers without paying long distance.

Can I call Long Distance?
Yes, the KM prepaid service allows you to make local and LD calls at the designated rates. You also have the option to use conventional LD calling cards to make a long distance calls.

How do I pick my number? Can I keep my existing number?
Unfortunately, you cannot keep your existing number. When you sign up, your community cellular network office will provide you with a phone list, and you may choose your new cell phone number from that list.

Why does caller ID sometimes not work?

For KM customers calling other KM customers, Caller ID will display as normal. However, when interconnecting with other networks, gateway numbers will appear on Caller ID. If you call the gateway number back, you will not reach the caller.

Where can I buy minutes, phones and cards?
Phone cards and phones are available from your community KM office. You can top-up your account buy purchasing minutes online with a credit card.

Who do I call for help with my phone?
There is a cellular technician in your community.

Will SMS text messages show up on Caller ID?
Yes, SMS text messages will show the message sender in all cases, even if it is a message from another network.

How do I switch to KM from my existing network?
If you have signed a long-term service contract with another carrier, you may have to buy your way out of the contract. If you are currently with Telus or one of the Mobility companies your existing digital cell phone is CDMA rather than GSM and will not work on the KM network. You will need to buy a new cell phone.

Will my existing cellular phone and service plan work on the KM network?
The KM network will support roaming for customers of all of the Canadian and most US carriers that use the GSM standard.

What is the difference between GSM and CDMA?
Digital cellular systems use two main competing network technologies: Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA). GSM, being an international standard, is better suited for national and international roaming, provided you own a quad-band cell phone (850/900/1800/1900 MHz). On a GSM phone your account information along with your contact list and other personal data are stored on a SIM card (Subscriber Identity Module) which is a small chip you can freely remove from your phone. When you get a new mobile device, you can simply insert your SIM card into it and it will work with your current account information and contact list. If you travel to another country, it is also possible to purchase a prepaid SIM card which you can use to avoid roaming fees. To upgrade your phone, you simply swap the SIM card in the back. The chief GSM carriers in the United States are Cingular Wireless, recently merged with AT&T Wireless, and T-Mobile USA. CDMA on the other hand is a mostly North American technology that was established earlier than GSM. It is currently making progress in other parts of the world, but the coverage is still limited compared to the GSM technology. Support for CDMA is virtually non-existent in Europe because the European Union mandates the sole use of GSM. On a CDMA phone, your account information is programmed into your cellular phone. If you want to change your phone, you have to contact your

carrier and have them reprogram your new phone. You will also need to re-enter your contact list and calendar information into your new phone. Essentially to upgrade a CDMA phone, the carrier must deactivate the old phone then activate the new one. The old phone becomes useless. CDMA phones are not usable internationally. CDMA networks support over 270 million subscribers worldwide. Major CDMA carriers are Sprint PCS, Verizon and Bell mobility Telus. Multimedia messages, video, high-speed Internet access, digital camera and PDA functions can found on both technologies.

What is a SIM card?
A Subscriber Identity Module (SIM) card is a tiny removable chip that fits into the back of your phone that allows phones to be instantly activated, interchanged, swapped out and upgraded, all without carrier intervention. The SIM itself is tied to the network, rather than the actual phone. Phones that are card-enabled can be used with any GSM carrier. CDMA carriers do not use SIM cards. They require proprietary handsets that are linked to one carrier only.
By purchasing a SIM card with minutes and a local number in the country you are visiting, you can make calls against the card to save yourself international roaming charges from your carrier back home.

Will my Blackberry (PDA) work on the KM network?
The KM network will support Blackberry if you are currently with a GSM carrier.

Do you have internet or data capability?
The KM network supports the GSM EDGE data standard for both SMS text messaging and Internet browser applications.

Appendix J: Equipment & Technical Specifications

Notes

Community Cellular Service

Budgeted Statement of Income (loss)

Ten-year Service Expansion - First Nation Community Projection Template

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Notes
Community Cellular Service Operations												
Revenue	**1.1** Cellular Telephones	7,219	433	505	578	0	650	0	722	0	794	penetration * phones * 0.75 * 1.1
	1.2 Pre-paid Phone Cards	42,000	50,400	58,800	67,200	67,200	75,600	75,600	84,000	84,000	92,400	Community Resale **$40**/month/customer
	1.3 Broadband Rebate			1,838	2,100	2,100	2,363	2,363	2,625	2,625	2,888	Broadband Rebate from K-Net
	Subtotal	49,219	50,833	61,143	69,878	69,300	78,612	77,963	87,347	86,625	96,082	
Operating Costs	**2.1** Site Utilities	12,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	500/month (power & gateway)
	2.2 Administration	7,383	7,625	9,171	10,482	10,395	11,792	11,694	13,102	12,994	14,412	10% of rev. to admin
	2.3 Pre-paid Software	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	Lemko/Primus/DrydenTel?
	2.4 Cellular Telephones	6,563	394	459	525	0	591	0	656	0	722	Cellular telephones ($100 each)* 75% of cust
	2.5 Network & Bandwidth Usage	1,313	1,575	1,838	2,100	2,100	2,363	2,363	2,625	2,625	2,888	Intra-community Broadband $15/customer/ye
	2.6 Gateway Circuits	613	735	858	980	980	1,103	1,103	1,225	1,225	1,348	Local Cell-Bell $7/customer/year
	2.7 Technical Support	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	Technician/manager wages - part-time
	2.8 Office & Equipment	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	$2,000/year for office equipment & supplies
	Total Operating Costs	52,870	37,829	39,826	41,587	40,975	43,347	42,659	45,108	44,344	46,869	
Balance		-$ 3,651.56	$ 13,004.41	$ 21,317.02	$ 28,290.88	$ 28,325.00	$ 35,264.73	$ 35,303.13	$ 42,238.59	$42,281.25	$ 49,212.45	
Variables												
Target Population		350	350	350	350	350	350	350	350	350	350	Average pop on reserve (350)
Penetration Rate		25.0%	30.0%	35.0%	40.0%	40.0%	45.0%	45.0%	50.0%	50.0%	55.0%	Canadian cellular penetration rate 58%
Capital Investment												
	3.1 Project Management		$ 53,000.00									1 community liaison, coordination, planning & t
	3.2 Tower		$ 47,000.00									2 200' guyed tower
	3.3 dMarc & BTS		$ 75,000.00									3 equipment, licensing & setup
	3.4 Commissioning & Shipping		$ 45,000.00									4 Shipping & labour, site prep & engineering
	3.5 Shelter		$ 30,000.00									5 Stand-alone building for POP & equip
			$ 250,000.00									Seek Capital funding from NOHFC ($250K/sit