

16 January 2013

Mr. John Traversy  
Secretary General  
Canadian Radio-television and  
Telecommunications Commission  
OTTAWA, Ontario  
K1A 0N2

Dear Mr. Traversy:

***Re: Telecom Notice of Consultation CRTC 2012-669: Northwestel Modernization Plan***

1. Northwestel Inc. (“Northwestel” or the “Company”) submits its comprehensive plan to modernize its network infrastructure (the “Modernization Plan” or “Plan”) pursuant to paragraph 41 of Telecom Notice of Consultation CRTC 2012-669, *Review of Northwestel Inc.’s Regulatory Framework, Modernization Plan, and related matters*), wherein the Commission directed the Company to develop and file a Modernization Plan.
2. Certain information contained in the Plan and attachments is filed in confidence with the Commission pursuant to section 39 of the *Telecommunications Act* and the directions provided by the Commission in the Appendix to Broadcasting and Telecom Information Bulletin CRTC 2010-61, *Procedures for filing confidential information and requesting its disclosure in Commission proceedings*, 23 December 2010, as amended in Telecom Information Bulletin CRTC 2010-961-1, 26 October 2012 (collectively, Bulletin 2010-961) for the reasons stated therein. Abridged versions of the documents are provided for the public record.

Yours truly,



Dallas Yeulett  
Senior Manager, Regulatory Compliance

CC: Interested Parties TNC CRTC 2011-302

**TELECOM NOTICE OF CONSULTATION**

**CRTC 2012-669**

**NORTHWESTEL INC.  
NETWORK MODERNIZATION PLAN  
FOR YEARS 2013 TO 2017**

**UPDATED  
16 JANUARY 2013**

**Modernization Plan**  
**Table of Contents**

<u>Section</u>	<u>Subject</u>	<u>Paragraph</u>
1.0	EXECUTIVE SUMMARY	E1
2.0	REGULATORY BACKGROUND	
2.1	Telecom Regulatory Policy 2011-771	1
	2.1.1 Enhanced Calling Features	6
	2.1.2 Preparing for Local Competition	8
2.2	Telecom Notice of Consultation 2012-669	10
2.3	Broadcasting Decision CRTC 2012-574	14
3.0	OBJECTIVES AND CONSTRAINTS	
3.1	Multiple Competing Objectives	17
3.2	Constraints on the Updated Plan	22
3.3	Regulated and Forborne Services	27
4.0	CONFIDENTIALITY	29
5.0	NORTHWESTEL'S VISION AND COMMITMENT TO THE NORTH	
5.1	Northwestel's Profile and Presence in the North	32
5.2	Strong Commitment to Quality of Service	37
5.3	Achievement of Southern Standards is only possible through External Funding	40
5.4	The Technological Solution for Northwestel's Network	54
5.5	Using Fixed Wireless to Meet the Basic Service Objective	71
	5.5.1 <i>Regulatory Precedents</i>	73
	5.5.2 <i>Equal Access</i>	80
	5.5.3 <i>Features Not Available with Fixed Wireless</i>	82
	5.5.4 <i>The Migration to Fixed Wireless</i>	84
	5.5.5 <i>The PES Tariff Continues to Apply</i>	85
	5.5.6 <i>Continued Reliance on Contribution to Meet the BSO</i>	86
6.0	PRIMARY DRIVERS OF THE MODERNIZATION PLAN	87
7.0	DETAILS OF THE MODERNIZATION PLAN	
7.1	Overview of the Modernization Plan	93
	7.1.1 <i>Removal of the Astral Funding</i>	95
	7.1.2 <i>Modernization Activities Since the Initial Plan</i>	99
7.2	Wireless Modernization	100
	7.2.1 <i>Criteria and Dependencies</i>	102
	7.2.2 <i>End State</i>	107
7.3	High Speed Internet (HSI) Modernization	110
	7.3.1 <i>Criteria and Dependencies</i>	112
	7.3.2 <i>End State</i>	116
7.4	Voice Modernization	122

	7.4.1	<i>Criteria and Dependencies</i>	127
	7.4.2	<i>End State</i>	132
	7.5	Transport Upgrades	137
	7.6	Business Systems Evolution (BSE)	140
	7.7	Satellite Voice Replacements	144
	7.8	SR500 Wireless Voice Systems	145
	7.9	Fuel Storage Systems	147
	7.10	Wholesale Connect Service	150
8.0		THE COMMISSION'S REVIEW OF THE MODERNIZATION PLAN	155
9.0		CONCLUSIONS	157

### ATTACHMENTS

1. Upgrading Wireless Services - Details by Community
2. Upgrading HSI Services - Details by Community
3. Upgrading Wireline Switches - Details by Community
4. Providing Enhanced Calling Features (ECF) - Details by Community
5. Providing Local Number Portability (LNP) - Details by Community
6. Upgrading Terrestrial Transport Network - Details by Community
7. Upgrading Satellite Voice Services - Details by Community
8. Wholesale Connect Availability - Details by Community

## 1.0 **EXECUTIVE SUMMARY**

E1. In Telecom Regulatory Policy CRTC 2011-771, *Northwestel Inc. – Review of regulatory framework*, 14 December 2011 (“TRP 2011-771”), the Commission issued its decision with regard to the review of Northwestel Inc.’s (“Northwestel” or “the Company”) price cap regulatory framework and directed Northwestel to develop and file a comprehensive plan to modernize its network infrastructure. In addition, in TRP 2011-771, the Commission identified a further process to review the Company’s modernization plan and stated that it would undertake a holistic review of Northwestel’s regulatory framework, and all of the Company’s telecommunications services, to ensure that the benefits of such a regime can be properly realized by subscribers.

E2. As a result of the Commission’s directions, a network modernization plan was filed by the Company on 3 July 2012, now referred to as the “Astral Plan” (or “the Initial Plan”). The comprehensive capital investment proposed by Northwestel in the Initial Plan was premised on the Commission’s approval of BCE’s purchase of the assets and shares of Astral Media Inc. (Astral), as announced by BCE on 16 March 2012. In Broadcasting Decision CRTC 2012-574, *Astral broadcasting undertakings – Change of effective control*, 18 October 2012 (“Decision 2012-574”), the Commission denied BCE’s application to change the effective control of Astral’s broadcasting undertakings and as well disqualified BCE’s proposal to fund the expansion of wireless and wireless broadband services in the North from the eligible tangible benefits package resulting from the Astral transaction.

E3. In Telecom Notice of Consultation 2012-669, *Review of Northwestel’s Regulatory Framework, Modernization Plan and related Matters*, 6 December 2012 (“TNC 2012-669”), the Commission set out the process, scope and timelines for the holistic review of Northwestel’s regulatory framework and the Company’s telecommunications services first identified in TRP 2011-77. As well, the Commission noted that Northwestel could file any updates to its modernization plan in light of Broadcasting Decision 2012-574.

E4. Given the removal of the Astral funding, Northwestel undertook a full review of its capital spending plans, resulting in the development and filing of a new modernization plan as of 16 January 2013 herein, now referred to as the Modernization Plan (or “the Updated Plan”).

E5. In the Initial Plan, the Company projected a baseline capital expenditure (CAPEX) over the five years, 2013 to 2017, of \$233 million, excluding the Astral component and associated funding. In view of the uncertainty surrounding recent regulatory filings that have not yet been disposed of by the Commission, the current regulatory agenda for a holistic review of Northwestel's regulatory framework and competitive pressures, Northwestel has had to temper its previous revenue forecast to some degree. However, the Company does commit at this time to work with a C.I. of (#), which is higher than the industry norm, in order to maintain the overall CAPEX level of \$233 million, as per the Initial Plan.

E6. Should any of the competitive or regulatory pressures result in significantly lower revenues than the Company currently projects, it is conceivable that the Company might have to scale back CAPEX as a result. However, this does mean that the Company will not deliver the services set out in this Modernization Plan. What it does mean is that, in the event that revenues are lower than expected, it may take somewhat longer than five years to deliver all the service objectives set out herein.

E7. The Company's five year capital budget of \$233 million can be sub-divided into two main pieces; the larger piece of (#) allocated to the Project Spending (e.g. major enhancements such as service upgrades and geographic expansion) portion of the Modernization Plan spending and (#) allocated to Core Spending. The CAPEX will increase from an average over the five year period of 2007-2011 from just over (#) to almost (#) at the end of the Modernization Plan.

E8. The magnitude of the challenge of providing telecommunications services to all remote communities served by Northwestel, at a level comparable to Southern Canada, is considerable. Northwestel serves approximately (#) NAS, in 96 communities, distributed across approximately four million square kilometers of the most inhospitable territory in Canada, representing over 40% of Canada's land mass.

E9. If the Company is to satisfy the BSO across its territory, the Modernization Plan has to rely on the involvement of external funding. Northwestel strongly feels that all funding options must be considered, including funding from sources other than normal revenues and contribution. In developing this Modernization Plan, the Company has been actively pursuing

partnerships with several third parties in an effort to secure funding for service expansion and upgrades. Several of these proposals are detailed in confidence to the Commission in the Modernization Plan.

E10. The Company seeks to satisfy the Commission's regulatory objectives, as well as the market demands of its customers and the Company's customer service goals and objectives. However, the costs of providing telecommunications services in the North are significant and investing to meet Southern service standards is just not possible without external funding. Despite these constraints, the Company's Modernization Plan, wherever economically feasible, and in some cases where it is not, strives to deliver enhanced technology platforms to facilitate improved service delivery to its customers and to allow customer choice of competitive local telecommunications suppliers in the North.

E11. In designing this Modernization Plan, as it did for the Astral Plan, Northwestel has considered, and attempted to balance, various competing interests and demands. While the Commission has expressed a strong desire for the continued expansion of Enhanced Calling Features ("ECF"), the services overwhelmingly demanded by Northwestel's customers, and by the Territorial governments, are wireless and broadband expansion and enhancements. In order to satisfy the Commission's expectations in regard to ECF, Northwestel commits to providing ECF to all the communities without ECF by the end of the Modernization Plan.

E12. With the Astral funding gone, the Company has to more closely filter its proposed spending for each service by such criteria as population levels, terrestrial or satellite communities, and sources of external funding, among other considerations.

E13. The key projects of the Modernization Plan include:

- Advancements in wireless services;
- Upgrading and expansion of HSI;
- Completion of ECF;
- Strategic switch replacements;
- Upgrading transport;
- Business systems evolution;
- Satellite voice replacements;
- SR500 system upgrades;
- Local Number Portability;

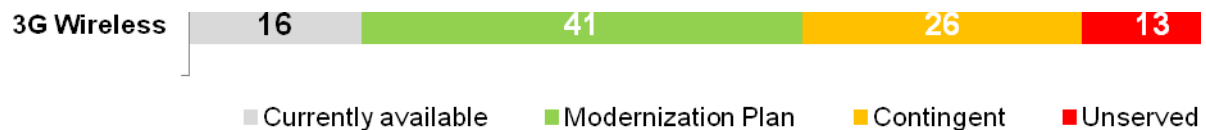
- Fuel storage systems; and
- Wholesale Connect Service.

E14. Further detail on the provisioning of the various services and components in the Updated Plan, and the criteria for a community getting service or being upgraded, if applicable, as well as the end state for various services or components at the end of the Modernization Plan is provided in Section 7 herein. Some highlights of the Company's Modernization Plan are shown below.

### **Wireless Services**

E15. Chart 1 illustrates the number of communities that currently have 3G wireless, those that will be provisioned in the Modernization Plan, those that are contingent on external funding and those that will remain unserved.

#### **Chart 1**



E16. The Modernization Plan will deliver 3G wireless to forty-one additional communities by the end of 2017. There are also twenty-six communities that could receive 3G wireless, contingent on the Company securing external funding to assist with the capital costs.

### **High Speed Internet Services (HSI)**

E17. HSI provisioning is based on various criteria, including whether or not the community is satellite based or terrestrial based. The major limitation on what the Company can offer broadband subscribers in any given community is the cost of backhaul transport capacity, particularly in satellite communities and this is a major cost constraint on service deliverables.



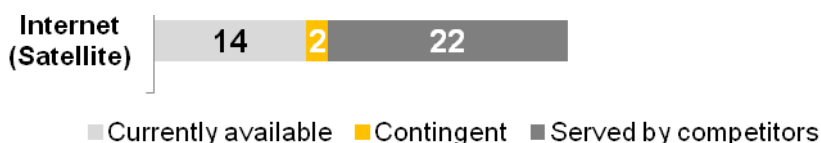
E18. As shown in Chart 2, for terrestrial communities, all fifty-eight communities will get upgraded with access to higher speeds, with one of those communities contingent on external funding.

Chart 2



E19. As shown in Chart 3, for satellite communities, due to the high cost of satellite backhaul, these communities are very expensive to serve. Should two contingent communities get external funding, in conjunction with fourteen communities currently served by the Company and twenty-two communities currently served by an alternate service provider, all satellite communities in Northwestel's operating territory will be served.

Chart 3



Voice Modernization

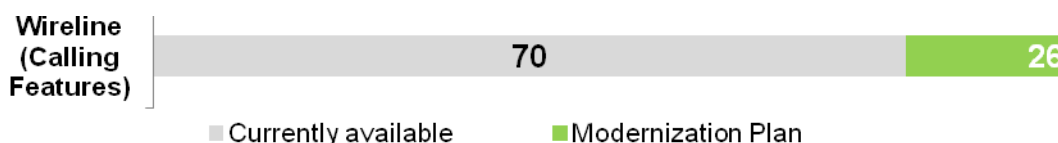
E20. The primary driver of the Company's voice modernization plans is to provision ECF to all communities that do not have it today, as per the Commission's expectation in TRP 2011-771. The Company commits to providing ECF, independent of external funding arrangements, but if external funding is successful, a fixed wireless solution would be deployed in some communities.

E21. While a lower switch age may be the by-product of providing ECF and other network functionality, as per the criteria for voice modernization, switch replacement is not a fundamental driver of Northwestel's Modernization Plan. However, by the end of the

Modernization Plan, the average age of the switches in the Company's network will have decreased substantially from seventeen to eight years.

E22. Chart 4 shows twenty-six communities getting ECF in the Modernization Plan, with all 96 communities having ECF at the end of the Modernization Plan.

Chart 4



E23. As a result of ECF being provisioned to all remaining communities over the course of the Modernization Plan, there will be an additional benefit of providing LNP to those communities. In respect to LNP, there are also other circumstances, where a community will get the benefit of LNP as a by-product of other upgrades occurring in the network, as described in Section 7.

E24. As shown in Chart 5, six communities have LNP today as a result of LNI requests and LNP provisioning activities in 2012. The Modernization Plan will deliver LNP to an additional fifty-one communities as a result of other upgrades occurring in the network. There are another sixteen communities where the provisioning of LNP would be contingent on external funding.

Chart 5



E25. There are many other projects and service enhancements included in Northwestel's Modernization Plan such as transport upgrades to add capacity to specific communities and to support various transport projects. The Company also plans to replace its aging satellite voice network in order to improve service quality and to achieve greater capacity in the thirty-eight satellite communities. In addition, the Company will replace the SR500 (subscriber radio)

access network systems that provide wireless voice service in the Upper Halfway Region of Northern British Columbia, as well as the rural areas in the Yukon and the Northwest Territories.

E26. As a result of transport and IP backbone upgrades undertaken in the Modernization Plan, Wholesale Connect will be available in 57 of 58 terrestrial communities. This will be a significant improvement from the 30 communities where Wholesale Connect is currently available, providing competitors with high quality backbone connectivity.

E27. Other modernization projects include enhancements in the Company's Business Systems and upgrades to fuel storage systems.

E28. The Company submits that the Modernization Plan constitutes an appropriate and aggressive response to the Commission's challenge to Northwestel to update its infrastructure in a timely manner to ensure that Northern customers receive telecommunications services, both regulated and forborne, comparable to those available to Southern Canada in terms of choice, quality, and reliability. The Company's Modernization Plan has been designed to deliver the maximum benefits to the most people in the most cost effective manner in view of the available funding.

E29. Northwestel has undertaken a full and detailed review of its five year spending plans for the North to deliver as many upgraded services as possible across its operating territory and to satisfy wherever possible the different demands of the Commission, customers, Governments and other stakeholders.

## **2.0 REGULATORY BACKGROUND**

### **2.1 Telecom Regulatory Policy CRTC 2011-771**

1. In Telecom Regulatory Policy CRTC 2011-771, *Northwestel Inc. – Review of regulatory framework*, 14 December 2011 ("TRP 2011-771"), the Commission issued its decision with regard to the review of Northwestel Inc.'s ("Northwestel" or "the Company") price cap regulatory framework.

2. In TRP 2011-771, the Commission stated that the Company had “failed to make the necessary investments in its network as evidenced by the company’s aging infrastructure and the unavailability of services in many remote communities comparable to those provided in the rest of Canada”<sup>1</sup> and that the “age of Northwestel’s equipment is likely affecting the quality and reliability of its services...”<sup>2</sup>. The Commission also noted that the Company had failed to meet the required monthly standards across all quality of service indicators 29 times during the period 2007 to 2010.<sup>3</sup> At the same time however, the Commission acknowledged that Northwestel’s overall capital spending had been in line with industry standards during the most recent five years while under price cap regulation.<sup>4</sup>

3. Based on a perceived causal link between the Company’s level of network investment, and what was seen as poor service quality, the Commission determined that it was necessary to increase its regulatory oversight of Northwestel, and directed Northwestel to develop and file a comprehensive plan to modernize its network infrastructure. Specifically, the Commission stated:

40. ...the Commission directs Northwestel to develop and file within six months of the date of this decision a comprehensive plan to modernize its network infrastructure. The plan is to address how Northwestel intends to update its infrastructure in a timely manner to ensure that northern customers receive telecommunications services, both regulated and forborne, comparable to those available to Southern Canada in terms of choice, quality, and reliability as well as how the company intends to fund or finance the costs to modernize its network.

41. The plan should include the amount of capital to be invested (by location/community, if applicable) and the purpose of the investment. This information is to be provided for the total company, and broken down between regulated and forborne services (e.g. local, long distance, Internet, and wireless). Further, the company is also to identify any of its non-telecommunications services (e.g. cable operations) that utilize its telecommunications infrastructure, as well as any contribution expected from these non-telecommunications services.

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<sup>1</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 27.

<sup>2</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 26.

<sup>3</sup> Telecom Regulatory Policy TRP 2011-771, footnote 4.

<sup>4</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 37.

4. As a result of the Commission's findings and directions, a network modernization plan was filed by the Company on 3 July 2012. That is now referred to as the "Astral Plan" (or "the Initial Plan").

5. In TRP 2011-771, the Commission also proposed a further process to review the Company's modernization plan and stated that:

"it will undertake a holistic review of Northwestel's regulatory framework, and all of the company's telecommunications services, to ensure that the benefits of such a regime can be properly realized by subscribers. This review will include an examination of a modernization plan for Northwestel's network infrastructure..."<sup>5</sup>

#### *2.1.1 Enhanced Calling Features (ECF)*

6. In the proceeding resulting in TRP 2011-771, Northwestel proposed a two-year service improvement plan ("SIP") to provide Enhanced Calling Features ("ECF") to the final 29 communities served by the Company that did not have such services. The Commission denied Northwestel's SIP funding request, but nonetheless stated that it "expects Northwestel will make the enhanced calling features available to... six communities [Burwash Landing, Enterprise, Gjoa Haven, Tsiigehtchic, Wekweti, and Whati] within six months of the date of this decision".<sup>6</sup> The Company has already completed a switch upgrade in Gjoa Haven which has enabled ECF in that community. In its 3 April 2012 letter to the Commission, the Company advised that in its view it was more appropriate, and in the best interests of all parties, to address the ECF upgrade for the five remaining communities as part of its broader modernization plan.

7. The Commission also stated that in its modernization plan, Northwestel should include the details of the provision of ECF to the final 23 communities, and how the Company planned to replace its aging SR500 radio systems, which was the subject of a separate SIP proposal that the Commission also denied.<sup>7</sup>

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<sup>5</sup> Telecom Regulatory Policy TPR 2011-771, paragraph 30.

<sup>6</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 96.

<sup>7</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 96.

### *2.1.2 Preparing for Local Competition*

8. In TRP 2011-771, the Commission also found that “it would be appropriate to implement facilities-based local competition throughout Northwestel’s operating territory at this time”.<sup>8</sup> The Commission directed the Company to “provide local number portability in Fort Nelson, Inuvik, Iqaluit, Whitehorse, and Yellowknife within six months of a request by a competitive local exchange carrier (CLEC), or a proposed CLEC, to offer local service in these locations”.<sup>9</sup> The Commission determined that Northwestel would be responsible for the costs to implement local competition, including local number portability (“LNP”), except where the timing of required switch upgrades/replacements was advanced from the timing in the modernization plan to accommodate a competitor’s schedule. In that case the competitor would be responsible for any incremental costs incurred by Northwestel to finance such upgrades/replacements earlier than scheduled in the modernization plan. In Q3 2012, in order to facilitate the entry of local competitors, Northwestel provided LNP in the aforementioned communities of Fort Nelson, Inuvik, Iqaluit, Whitehorse, and Yellowknife.

9. In TRP 2011-771, the Commission also ordered that the Company’s tariffs for local interconnection and component unbundling be filed within 90 days, which was done in April 2012. Those tariffs were subsequently approved by the Commission in July 2012. To date, the Company has received CLEC local network interconnection (“LNI”) requests in all five communities identified above.

## **2.2 Telecom Notice of Consultation 2012-669**

10. In Telecom Notice of Consultation 2012-669, *Review of Northwestel’s Regulatory Framework, Modernization Plan and related Matters*, 6 December 2012 (“TNC 2012-669”), the Commission set out the process, scope and timelines for the holistic review referred to in TRP 2011-771.

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<sup>8</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 51.

<sup>9</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 59.

11. In TNC 2012-669, the Commission noted that Northwestel's modernization plan outlined the details of a projected \$273 million in capital expenditures over five years from 2013 to 2017. The Company proposed, among other things, to:

- extend wireless services to all 96 communities in Northwestel's serving territory;
- upgrade and expand high-speed Internet services across its serving territory;
- install new switches that will support enhanced calling features, local number portability and local network interconnection;
- support transport upgrades (both terrestrial and satellite), and increase backbone diversity; and
- replace its aging satellite voice network with an Internet Protocol based network.<sup>10</sup>

12. In TNC 2012-669, the Commission further noted that:

"Northwestel submitted that the funding of investments set out in the Modernization Plan would be divided into two parts: the basic foundation of \$233 million, referred to as the "Base Component," and the "Astral Component" of \$40 million. In Broadcasting Decision 2012-574, the Commission denied the application by BCE Inc., on behalf of Astral Media Inc. (Astral), for authority to change the effective control of Astral's broadcasting undertakings. Consequently, the funding for the "Astral Component" was not approved".<sup>11</sup>

13. Also in TNC 2012-669, the Commission stated its intention to "review Northwestel's Modernization Plan, as well as any updates that the company may wish to make to the plan in light of Broadcasting Decision 2012-574, to consider whether the plan addresses the Commission's concerns set out in Telecom Regulatory Policy 2011-771."<sup>12</sup>

### **2.3 Broadcasting Decision CRTC 2012-574**

14. The comprehensive capital investment proposed by Northwestel in the Initial Plan was premised on the Commission's approval of BCE's purchase of the assets and shares of Astral Media Inc. (Astral), as announced by BCE on 16 March 2012. The spin-off of that purchase

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<sup>10</sup> Telecom Notice of Consultation TNC 2012-669, paragraph 8.

<sup>11</sup> Telecom Notice of Consultation TNC 2012-669, paragraph 9.

<sup>12</sup> Telecom Notice of Consultation TNC 2012-669, paragraph 10.

would have allowed BCE to deploy \$40 million of the Astral public benefits funding to deliver wireless and High-Speed Internet (HSI) services in all 96 communities in northern Canada, in addition to a series of switch replacements, expansion of ECF and upgrading of various transport routes. In Broadcasting Decision CRTC 2012-574, *Astral broadcasting undertakings – Change of effective control*, 18 October 2012 (“Decision 2012-574”), the Commission denied BCE’s application to change the effective control of Astral’s broadcasting undertakings.

15. In Decision 2012-574, the Commission disqualified BCE’s proposal to fund the expansion of wireless and wireless broadband services in the North from the eligible tangible benefits package resulting from the Astral transaction, stating:

The tangible benefits package proposed by BCE would undoubtedly result in significant investment in the Canadian broadcasting system. The Commission notes however that certain initiatives fall outside the guidelines established in Commission policy and general practice. In particular, BCE did not demonstrate that the Northwestel broadband proposal would benefit the broadcasting system.<sup>13</sup>

16. As a result of Decision 2012-574, the fundamental premise underlying the Northern investment proposed in the Astral Plan has been disallowed by the Commission. Consequently, the Company has had to undertake a full review of its modernization plans to evaluate and determine the best options for delivering enhanced telecommunications services to its customers over the five year period of 2013-2017, given a smaller funding envelope. That review has resulted in the development and filing of a new modernization plan as of 16 January 2013 herein, now referred to as the Modernization Plan (or “the Updated Plan”). Furthermore, as a result of the Commission’s comments in CRTC 2012-574 in regard to the disqualification of potential funding of Northwestel’s broadband services in the North from the Astral tangible benefits package, the Updated Plan has completely removed any potential funding benefit associated with the Astral transaction.

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<sup>13</sup> Broadcasting Decision CRTC 2012-574, paragraph 59.



### 3.0 **OBJECTIVES AND CONSTRAINTS**

#### 3.1 **Multiple Competing Objectives**

17. In designing this Modernization Plan, as it did for the Astral Plan, Northwestel has considered, and attempted to balance, various competing interests and demands. For example, in TRP 2011-771, the Commission indicated that the Company had not invested sufficiently in its network infrastructure, even though it noted that in recent years the Company has experienced levels of capital spending consistent with industry standards. Northwestel was therefore expected to increase its capital spending, at the same time that the Commission, customers and Governments have all indicated that they do not want rate increases.

18. The Company has attempted to balance competing demands for different types of services within the realities of a finite capital budget. For example, while the Commission has expressed a strong desire for the continued expansion of ECF, the services overwhelmingly demanded by Northwestel's customers, and by the Territorial governments, are wireless and broadband expansion and enhancements. In order to satisfy the Commission's expectations in regard to ECF, Northwestel commits to providing ECF to all the remaining communities by the end of the Modernization Plan.<sup>14</sup>

19. In addition to meeting ongoing growth demands, the Company must also continue to invest in supporting the core infrastructure and other business evolution requirements, including the evolving competitive environment.

20. The Company notes that its five year capital budget of \$233 million can be sub-divided into two main pieces; the larger piece of (#) allocated to the Project Spending (e.g. major enhancements such as service upgrades and geographic expansion) portion of the Modernization Plan spending and (#) allocated to Core Spending. It is the larger piece of (#) that represents the planned spending on wireless and HSI upgrades, voice modernization (including ECF), transport upgrades and other service modernization described later in this Modernization Plan.

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<sup>14</sup> The Company's proposed solution for 13 communities is to provision with a fixed wireless switch, contingent on external funding. If the funding does not materialize, Northwestel will provide ECF in those communities with a wireline switch.

21. Another major consideration for Northwestel is to ensure that money is well spent, on investments that will not only accommodate rapidly changing technology, but also provide sustainable service and revenues for many years to come. In this regard, the Company will seek to the maximum extent possible to ensure that scarce capital resources are not spent on equipment and technologies that may quickly become obsolete in just a few short years. Instead, the Company must anticipate and plan for a future whereby whatever products and services may be developed by the Company or its competitors, its network infrastructure and service platforms, which will be IP-enabled, and flexible and robust enough to readily accommodate all customer market demands and choice of competitor suppliers.

### **3.2 Constraints on the Updated Plan**

22. In the Initial Plan, the Company projected a baseline capital expenditure (CAPEX) over the five years, 2013 to 2017, of \$233 million, excluding the Astral component and associated funding. Based on the Company's revenue projections in early 2012, that CAPEX resulted from the Company's commitment at that time to spend (#) of operating revenues (i.e., the capital intensity level or C.I.). Such a spending level is favourable in comparison to other ILECs, including for example, Bell Canada, which reported capital intensity of 15.7% in 2011 and 16% in 2010<sup>15</sup>, and TELUS, which reported capital intensity of 18% in 2011 and 2010<sup>16</sup>.

23. In view of the uncertainty surrounding recent regulatory filings that have not yet been disposed of by the Commission, including Northwestel's V-Connect and Wholesale Connect tariff filings, its application to recover certain LNI costs, through a Z-factor adjustment, and the current regulatory agenda for a holistic review of Northwestel's regulatory framework, Northwestel has had to temper the previous revenue forecast to some degree. If the Company continued to apply the original C.I. of (#) to the current revenue forecast, over five years, it would result in a \$10 million reduction in capital in the Updated Plan. However, the Company does commit at this time to work with a C.I. of (#), which is higher than the industry norm, in order to maintain the overall CAPEX level of \$233 million, as per the Initial Plan. The CAPEX will increase from an average over the five year period of 2007-2011 from just over (#) to almost (#) at the end of the Modernization Plan.

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<sup>15</sup> See BCE Inc.'s 2011 Annual Report , p. 49.

<sup>16</sup> See Telus' 2011 Annual Report , p. 68.

24. Chart 1 below illustrates Northwestel's total proposed CAPEX over the five year Modernization Plan, with the project spending overlaid on the core spending.

(#)

25. It is not a given however that the Company will be in a position to maintain a clear line of sight towards a CAPEX of \$233 million when looking as far as 2017, particularly if the revenue forecast is not met. There are a number of revenue pressures that are likely to develop over that timeframe, stemming from both the competitive environment and CRTC regulatory decisions. For example, should the Company's tariff rate proposals on various retail and wholesale services, such as V-Connect and Wholesale Connect, be significantly modified by the Commission, then certainly lower revenues would result. For example, in its Reply Comments in the regulatory process that ensued from the Company's filing of its Wholesale Connect tariff, Northwestel estimated the impact on its revenues that would result from the approval of a lower profit margin than what was filed by the Company.<sup>17</sup> The Company also notes that competitive pricing pressures are likely to materialize in various retail product portfolios.

26. Should any of those competitive or regulatory pressures result in significantly lower revenues than the Company currently projects, it is conceivable that the Company might have to scale back CAPEX as a result. However, this does mean that the Company will not deliver the

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<sup>17</sup> See Northwestel's Final Reply to Comments on Tariff Notice 883A, 18 November 2012.

services set out in this Modernization Plan. What it does mean is that, in the event that revenues are lower than expected, it may take somewhat longer than five years to deliver all the service objectives set out herein.

### **3.3 Regulated and Forborne Services**

27. The Modernization Plan entails a mixture of regulated and forborne telecom services. Further, significant parts of the Modernization Plan consist of “shared infrastructure” investments that will be used to deliver all numerous types of services. For example, infrastructure that is generally considered forborne (e.g. wireless switches) will be used to deliver both forborne as well as regulated services (e.g. calling features). Many components of the Modernization Plan cannot be easily or accurately delineated and assigned to a specific regulatory category. In fact, attached to this document are a number of Attachments for each type of service (e.g. Attachment 1 - Upgrading Wireless Services – Details by Community, Attachment 2 – Upgrading HSI Services – Details by Community) which sets out the capital expenditure by community for deploying a service (or a service upgrade). However, the CAPEX figures of each appendix are not always mutually exclusive to that Attachment. For example, if a fixed wireless voice switch is to be used to provide ECF and LNP in a particular community, that CAPEX may appear in Attachment 4 – Providing ECF – Details by Community and as well as again in Attachment 5 – Providing LNP – Details by Community. To be clear, the overall figure of \$233 million CAPEX does not contain any double counting.

28. The shared infrastructure approach to network configuration makes it difficult, if not impossible, to differentiate between what specific network assets are regulated versus forborne, or dedicated to telecom versus broadcast services. In TRP 2011-771, the Commission requested that the Modernization Plan “identify any of its non-telecommunications services (e.g. cable operations) that utilize its network infrastructure, as well as any contribution expected from these non-telecommunications services”.<sup>18</sup> This distinction between telecommunications and non-telecommunications services, and how revenues from one service may cross-subsidize the other, does not align with the reality of how Northwestel operates. For example, the Company’s cable assets are not held in a separate legal entity, but instead they form part of Northwestel’s

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<sup>18</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 41.

combined assets. They are not operated separately from the rest of the Company. The revenues derived from the Company's cable operations are consolidated with the revenues earned in all of the other parts of the business, and are used to pay the business's consolidated expenses. Similarly, Northwestel's capital plans are developed for the entire business, using the revenues earned from its consolidated operations. Revenues from one business line are not segregated and assigned to any specific expenses or investments associated with that business line. Therefore the question of how Northwestel's non-telecommunications assets are expected to contribute to the Company's network infrastructure cannot be readily answered. For these reasons, the Company is not able to provide the breakdown requested by the Commission in paragraph 41 of TPR 2011-771.

#### **4.0 CONFIDENTIALITY**

29. In preparing this Modernization Plan, Northwestel has been very aware that virtually the entire submission consists of highly sensitive competitive information. The Plan lays bare a five year road map explicitly showing how much the Company plans to spend on its strategic capital investments, when, where, and on what services and technologies. Nothing could be more confidential, as it is simply the most competitively sensitive information the Company possesses. This type of information would be invaluable to the Company's competitors.

30. The Company's approach to confidentiality in this submission is generally as follows: The CAPEX of the entire Updated Plan is placed on the public record, but the capital intensity ratio and the expected revenue targets that the CAPEX is based on, along with the breakdown of capital expenditures in any individual year, is provided to the Commission in confidence. The names of communities receiving upgrades of various services (e.g., wireless, internet or ECF) is placed on the public record, but the plan for any specific community, including the date upon which it will be upgraded, is provided in confidence to the Commission.

31. Certain information contained in the Plan and attachments is filed in confidence with the Commission pursuant to section 39 of the *Telecommunications Act* and the directions provided by the Commission in the Appendix to Broadcasting and Telecom Information Bulletin CRTC 2010-61, *Procedures for filing confidential information and requesting its disclosure in Commission proceedings*, 23 December 2010, as amended in Telecom Information Bulletin

CRTC 2010-961-1, 26 October 2012 (collectively, Bulletin 2010-961) for the reasons stated therein. Abridged versions of the documents are provided for the public record.

## **5.0 NORTHWESTEL'S VISION AND COMMITMENT TO THE NORTH**

### **5.1 Northwestel's Profile and Presence in the North**

32. Northwestel is the incumbent local telephone service provider in Canada's North. The Company serves a population of 121,000 in 96 communities, 72 of which are considered "remote". These communities are scattered across approximately 4 million square kilometers of territory. The Company has (#) NAS across the North, as well as internet, cable TV, wireless and data services in certain communities. By comparison, all other ILECs combined serve a population of approximately 34 million across approximately 6 million square kilometers of territory. No ILEC serves a territory as broad, or a population as low, as Northwestel.

33. The Company is the largest private sector employer of permanent residents in the North. With (#) employees, in 2012 it spent (#) on salaries, benefits and other compensation. In 2012, the Company also had annual capital expenditures over (#) and expenditures on goods and services totaling (#).

34. Northwestel has won awards for, among other things, its achievements as one of Canada's Top 100 diversity employers and for energy conservation and awareness in the Arctic. The Company is also heavily involved in sponsoring and providing other support to Northern charities in such areas as health care, higher education, sporting events and Northern culture.

35. In 2011, Northwestel provided annual contributions of over \$580,000 in cash and in-kind donations to community groups, including a multi-year contribution of \$250,000 to the 2012 Arctic Winter Games. In 2012, Northwestel continued its commitment to invest in northern art and culture, active living and health care, education, and the environment. Significant annual investments were made to Northern community groups, including the Northwestel Festival of Trees in partnership with the Yukon Hospital Foundation, Yukon Quest, and the Northwestel Directory Cover Art Competition. Education initiatives included the Directory Recycling Program in conjunction with schools across the North, and awarding six Northwestel Northern Futures

Scholarships to outstanding Northern students. Northwestel also sponsored National Aboriginal Day celebrations in several Northern communities. With \$250,000 going towards the highly successful 2012 Arctic Winter Games, Northwestel provided approximately \$590,000 in cash and in-kind donations to local community groups over the last year. In 2012, Northwestel was honoured to be named a Top Employer for Young People, Top Diversity Employer for the second year in a row and short-listed for Canada's Top 100 Employers.

36. By any measure, Northwestel is a leading economic contributor to Canada's North, investing in its people, communities and services.

## **5.2 Strong Commitment to Quality of Service**

37. In TRP 2011-771, the Commission stated that it had concerns with the quality and reliability of Northwestel's services, and that the Company's quality of service reports filed during the recent price cap period indicated that problems occurred consistently.<sup>19</sup> The Commission also concluded that the age of the Company's equipment was likely a contributing factor to these perceived poor service results.

38. Northwestel addressed these issues in its Part 1 Application, filed on 3 April 2012, to modify the retail quality of service regime applicable to the Company (the "Quality of Service Application"), in respect to the frequency of the tracking requirement in remote areas (quarterly instead of monthly) and the use of a force majeure provision under specific circumstances regarding community access. In the Quality of Service Application, the Company demonstrated that, contrary to the impression left by the Commission's comments in TRP 2011-771, the Company's quality of service results during the most recent price cap period were comparable to the results achieved under rate of return regulation between 2002 and 2006, when the Commission approved capital spending. When adjusted for the indicator that applies to servicing "remote" locations, which is unique to Northwestel, the Company's quality of service results was comparable to the results of other ILECs. Furthermore, there was no correlation between the age of Northwestel's switching equipment and the frequency of service outages.

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<sup>19</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 26.

39. In Telecom Decision CRTC 2012-504, *Northwestel Inc. – Application to modify certain reporting requirements for retail quality of service*, 20 September 2012 (Decision 2012-504), the Commission denied Northwestel's request to modify the frequency of the tracking requirements in remote areas and to introduce a force majeure provision. The Commission noted concerns with the proposed use of quarterly instead of monthly data in the remote areas. The Commission also felt that a force majeure mechanism was not needed in the absence of a retail rate adjustment plan and that Northwestel could provide the Commission with adjusted data, with explanations, for quality of service results that the Company viewed were adversely impacted by events beyond its control.<sup>20</sup> Decision 2012-504 did not raise any questions about any specific or underlying quality of service issues for Northwestel.

### **5.3 Achievement of Southern Standards is only Possible through External Funding**

40. In TRP 2011-771, the Commission requested Northwestel to address how it could deliver telecommunications services in the North that were comparable to the telecommunications services delivered by the ILECs in the South. The Commission concluded that Northwestel must invest further in its network to ensure that remote communities have services that are comparable to those provided in Southern Canada. While this service objective is certainly desirable, and Northwestel would very much like to achieve this objective as part of its normal capital spending plans, achieving Southern service levels in the North is quite simply uneconomic and unachievable without some form of external funding.

41. In previous decisions, the Commission had recognized the relatively high costs associated with achieving the Basic Service Objective ("BSO") in remote areas, and on several occasions denied SIP funding requests from Northwestel to complete ECF expansion throughout the North precisely because it was not cost effective.<sup>21</sup>

42. By the time of the TRP 2011-771 regulatory proceeding, Northwestel had reduced the number of communities without ECF from 67 in 2000 to 29 in 2011. All of this (except for four communities funded in Telecom Decision CRTC 2003-39) was accomplished through economic

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<sup>20</sup> Telecom Decision CRTC 2012-504, paragraphs 12 and 13.

<sup>21</sup> See for example Decision CRTC 2000-746, *Long-distance competition and improved service for Northwestel customers*, at paragraph 25; and Telecom Decision CRTC 2003-39, *Northwestel Inc. – Initial annual review of supplemental funding*, at paragraphs 77-80.



spending, or where equipment was being replaced for service-related reasons and the addition of ECF could be done at a reasonable incremental cost. Note however, it took eleven years to accomplish. The provision of ECF to all of Northwestel's customers continues to be a desirable objective, and during the TRP 2011-771 proceeding, Northwestel sought a final push to complete this work, requesting SIP funding of \$2.6 million. The Commission once again refused funding.

43. What this history clearly shows is that Northwestel has diligently and continuously advanced towards the goal of the provision of ECF to all remote communities within its serving territory, despite the Commission's repeated findings that such an investment was not justified on a cost basis. This is an example of where Northwestel has sought to bring its customers services comparable to Southern Canada, but the uneconomic nature of such an investment has been an impediment to achieving service parity. The achievement of this objective will now be even more challenging with the introduction of local competition, which was permitted by TRP 2011-771.

44. The magnitude of the challenge of providing telecommunications services to all remote communities served by Northwestel, at a level comparable to Southern Canada, is considerable. Northwestel serves approximately (#) NAS, in 96 communities, distributed across approximately four million square kilometers of the most inhospitable territory in Canada, representing over 40% of Canada's land mass. Notably, Northwestel's territory even has a much lower population density and a more challenging geography than Alaska, which has five times the population and one-third the land mass.

45. While over 40% of Northwestel's customers are located in two communities (Whitehorse and Yellowknife), all other customers are distributed over the remaining 94 communities; **70% of which have fewer than 500 customers. In 2012, the 72 remote communities served by the Company<sup>22</sup> had combined NAS of (#), averaging only (#) NAS per community.** The communities for which the Commission expected Northwestel to provision ECF within six months of TRP 2011-771 have an even smaller average NAS base. In extreme

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<sup>22</sup> In paragraph 44 of Decision CRTC 2000-746, a remote community was defined as:

- there are fewer than two full-time technicians based there; and
- the community is accessible only by air, or a technician traveling to the community by road would normally take three hours or more for the round trip from where the technician is normally based.

contrast, Southern Canada enjoys much higher population densities, a much milder climate, a longer construction season, generally reliable and punctual transportation, and of course, far lower operating costs per NAS.

46. This leads one to conclude that, if the Company is to satisfy the BSO across its territory, the Updated Plan has to rely on the involvement of external funding. Northwestel strongly feels that all funding options must be considered, including funding from sources other than normal revenues and contribution. For example, the Company has previously partnered with the Yukon Government on a significant initiative to bring wireless services to the Yukon. In addition, Industry Canada has provided funding for broadband expansion in the North. In developing this Modernization Plan, the Company has been actively pursuing partnerships with several third parties in an effort to secure funding for service expansion and upgrades.

47. On 15 January 2013, Northwestel entered into a partnership with Falcon Communications GP (“Falcon”) that will greatly improve wireless broadband Internet services in several Northwest Territories’ communities, and add additional network capacity across that territory. Falcon is the General Partner of Broadband Business Alliance Limited Partnership and has acted as the Federal Government’s community champion for the Northwest Territories Broadband Project since 2005. The Broadband Business Alliance consists of the Akaitcho Regional Investment Corporation, Dehcho Economic Corporation, Denendeh Investments LP, and the Tetlit Gwich’in Council. Project funding is provided in part by Infrastructure Canada’s Canada Strategic Infrastructure Fund.

48. (#)

(#) The Northwestel portion is included in its overall commitment of \$233 million but the Falcon portion is not (i.e., raising the total capital investment to approximately (#), once the Falcon portion is included).<sup>23</sup>

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<sup>23</sup> The Company notes that the \$14.8 million announced by Falcon in its Jan 15<sup>th</sup> 2013 Press Release included funds provided in 2011 and 2012 to deliver high speed internet to some communities, as well as funds previously provided for terrestrial transport upgrades. In addition, Falcon will be contributing to the cost of satellite backhaul. Of the \$14.8 million announced by Falcon, (#) relates to funding not yet spent that will be used in the Modernization Plan, although as noted above, that (#) is not part of Northwestel’s \$233 million CAPEX commitment.

49. In addition to its partnership with Falcon, Northwestel is also actively pursuing several other funding arrangements with third parties.

50.

(#)

51. (#)

(#)

52. (#)

(#)

53. At this particular point in Canada's history, when the climate of the North is changing, and the region is becoming more and more strategic for resource development and national security, the use of partnerships and third party funding seems to be a logical long term fit to drive economic development in the North. One can hardly find a better case for the use of third party funding arrangements than for the future cooperative expansion and modernization of the North's telecommunications infrastructure. The Commission must recognize that it is unrealistic and unreasonable to expect Northwestel to carry the full financial burden of uneconomic infrastructure modernization in the North.

#### **5.4 The Technological Solution for Northwestel's Network**

54. In designing this Modernization Plan, similar to its approach in designing the Astral Plan, the Company considered the relative size of the communities throughout its operating territory, the existing services and technologies available in those communities and the most cost-effective and efficient approach for delivering a broad service platform to each community over the next five years and beyond. However, as noted earlier, the funding envelope for CAPEX in the Updated Plan is smaller than in the Initial Plan. Therefore, while the technology platforms remain largely the same, with the Astral funding gone, the Company has to more closely filter its proposed spending by such criteria as population levels, terrestrial or satellite communities, and sources of external funding, among other considerations. The criteria for each service platform are described in further detail in Section 7.0 of this Updated Plan.

### Broadband Services

55. In five terrestrial communities with cable plant with a population level over 2500, the Company will upgrade the plant to allow for (#) download and (#) upload internet data speeds, using DOCSIS 3.0 technology. In two terrestrial communities with a population level under 2500, the Company will deliver internet speeds up to (#) down and (#) up.

56. In all terrestrial communities that are DSL based, the Company will upgrade the wireline DSL infrastructure to allow for (#) download and (#) upload speeds, utilizing fibre to the node (FTTN) and ADSL 2+ technology.

57. For satellite communities, due to the backhaul issues described below, the Company can only commit to internet speeds of up to 1.5 Mbps down and 384 Kbps up.

58. The expansion of broadband services to various terrestrial or satellite communities, as noted in the charts in Section 7.3, is contingent on the Company's successful obtainment of third party funding as described earlier in this Modernization Plan.

### Wireless Services

59. The Company's overall wireless plans are premised on the objective of launching 3G wireless in new sites and upgrading 2G sites to 3G service. The wireless access infrastructure is capable of providing data speeds up to 21 Mbps in satellite communities and up to 42 Mbps in terrestrial communities. As such, from an access perspective only, the Company could theoretically provide internet service that meets the Commission's target of 5 Mbps down and 1 Mbps up. However, the major limitation on what the Company can offer subscribers in any given community is the cost of backhaul transport capacity, particularly in satellite communities, where Northwestel has no control over the backhaul network and the associated transponder costs. Northwestel purchases its satellite backhaul service from Telesat, and at present there is no alternative supplier to serve all of these communities. Therefore, where wireless is used to deliver broadband services, the Company can only commit to Internet speeds of up to 1.5 Mbps down and 384 Kbps up. The Company notes that this offer is comparable to speeds offered by

alternate providers, such as SSI Micro's services<sup>24</sup> in Nunavut, a company that received significant funding from the Federal Government to provide broadband services to that territory.

60. Despite the gating limitation for backhaul, that does not mean the Company is not working to address this issue. The Company recently trialed 3G over satellite in conjunction with Telesat in order to ensure that its 3G solution is viable. These tests went well. However, at present, while the technology and satellite capacity exists to offer higher speed, the costs are prohibitively high, limiting the Company from offering these higher speeds, especially in communities with smaller populations.

61. Another example of how the Company is seeking innovative means to increase broadband offerings in satellite served communities is (#)

(#)

62. The Company's plans to expand its 3G wireless platform to a number of communities, as shown in the chart in Section 7.2 is also contingent on securing third party funding arrangements.

#### Transport Network

63. The Updated Plan also includes funding to support transport upgrades. These upgrades will include a combination of installing new fiber, upgrading fiber electronics for higher capacity and upgrading microwave radio systems. Some communities are connected by fibre, others by high speed microwave or by lower capacity microwave and thirty-eight are served by satellite. In

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<sup>24</sup> <http://www.qiniq.com/broadband-pricing>.

the Updated Plan, some communities on low capacity microwave will be upgraded to high capacity microwave and some high capacity microwave communities will be upgraded to fibre.

64. As a result of these investments in transport, total terrestrial transport capacity will increase from (#) to (#) Gbps.

65. The Updated Plan will also upgrade fibre electronic systems and microwave radio systems. It will also install a new fiber facility from Stewart Crossing to Dawson, enabling turn up of a fibre system between Whitehorse and Dawson City.

66. The Company has set aside a further (#) in the Updated Plan to increase strategic transport. This is in addition to transport upgrades of (#) that relate to specific projects outlined in this Modernization Plan. The purpose of this set aside is to ensure that the Company can participate in major fibre build projects that are presently being proposed for the North. While the Company is not sure exactly what project will come to fruition, the Company clearly needs some funds to be set aside to participate in these ventures (in accordance with anticipated territorial Governments expectations). These projects will generally be led by third parties with proposals to increase transport capacity or to create route diversity for existing facilities. Potential projects include: (#)

(#)

67. The Modernization Plan will also result in “survivability” in all 96 communities. The term “survivability” refers to the ability of a community to maintain local calling even in the case of a transport backhaul failure. Currently 89 of the 96 communities have survivability. However, there are 7 small communities that do not; meaning that if the backhaul network goes down, local phone service in that community will not work. Under upgraded provisioning arrangements in the Updated Plan, these seven communities will be able to make local calls, including for emergency services, even if the primary backhaul facility is lost. The seven communities that will get survivability, similar to the Company’s Initial Plan, are:

- Stewart Crossing.
- Burwash Landing.
- Upper Liard.
- Keno.
- Pink Mountain.
- Upper Halfway.
- Dettah.

#### Voice Services

68. Using both wireline and fixed wireless switches, the Company will commit to delivering ECF to all 96 communities in its operating territory by the end of the Updated Plan, despite the fact that providing this service in several communities is not economically viable. As a result of upgrades for ECF, by the end of 2017, the average age of the switches in the Company's network will have decreased from seventeen to eight years.

#### SR-500 Fixed Wireless and Satellite Voice Upgrades

69. The Company plans to replace the aging SR500 systems over the next five years, at a total cost of (#).

70. The Company also plans to replace its aging satellite voice network, in order to improve service quality and to achieve greater capacity. The Time Division Multiplexing (TDM) Telephone Earth System (TES) Hughes voice system that currently delivers meshed voice to the Company's 38 satellite communities is manufacturer discontinued. The Updated Plan will replace this system with an IP satellite meshed voice network in 36 remaining communities at a cost of (#). Two communities already saw a replacement in 2012 at a cost of (#).

### **5.5 Using Fixed Wireless to meet the Basic Service Objective**

71. The Company has determined that for many small communities a fixed wireless solution is the most effective and cost efficient way of preserving and extending the Company's ability to



offer the BSO throughout the North.<sup>25</sup> The fixed wireless switch chosen by the Company to serve specific Northern communities in the Modernization Plan is manufactured by (#)

(#)

72. By using fixed wireless technology, this allows Northwestel to more effectively provision ECF to all remaining communities, even for those that are not economic. This allows the Company to achieve the BSO across its entire operating territory.

#### 5.5.1 Regulatory Precedents

73. It has long been recognized that the BSO is technology neutral and can be satisfied with a number of technologies, including fixed wireless. For example, in Telecom Decision CRTC 2005-29, *Request by Societe en commandite Telebec to annex part of Bell Canada's serving territory in order to provide telephone service to Lac Gagnon, Quebec*. ("Decision 2005-29"), Telebec sought to extend the BSO into a sector of Lac Gagnon that it would annex from Bell Canada. The project was based on Telebec serving both sectors in Lac Gagnon on a more economic basis than would occur with Bell Canada serving one sector and Telebec serving the other. Telebec indicated that there would be an overall cost savings of \$608,000 that would be attributable to the installation of a single wireless system for both sectors using code division multiple access (CDMA) radio technology.

74. In approving the annexation of territory, the Commission stated that:

"Telebec plans to provide service to Lac Gagnon using CDMA radio, which is the least-cost technology and the same technology that Bell Canada had planned to use in its territory"<sup>26</sup>.

The Commission approved the annexation of territory and also permitted Telebec to include the Lac Gagnon project in its SIP.

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<sup>25</sup> In the Company's Initial Plan, communities with a population less than 700 would receive a fixed wireless switch. In the Updated Plan, those communities would only get a new switch, which would still be a fixed wireless one, if the community is eligible for an upgrade due to other modernization criteria.

<sup>26</sup> Telecom Decision CRTC 2005-29, paragraph 18.

75. Other examples of using fixed wireless to satisfy the BSO are illustrated by Telecom Decision CRTC 2002-34, *Regulatory Framework for second price cap period*, 30 May 2002 (“Decision 2002-34”) and by Bell Canada’s SIP tracking reports that were filed on an annual basis, pursuant to Decision 2002-34. In Decision 2002-34, the Commission noted that:

“Bell Canada submitted that it used the least-cost wireline or fixed wireless technology in estimating the up-front cost of serving each locality. Wireline technologies were used where the unserved locality was close to existing wireline facilities. Fixed wireless technologies were used where the unserved locality was close to an existing radio tower, or where the locality was remote and could not be served in a cost-effective way by wireline facilities”.<sup>27</sup>

76. In approving various SIP proposals in Decision 2002-34, the Commission noted that:

“Based on its examination of the Aliant Telecom, Bell Canada and TELUS SIPs, the Commission finds that, as required by Decision 99-16, they: (i) use least-cost technology; (ii) provide a tracking plan; and (iii) generally comply with the BSO, subject to the modifications discussed below relating to Internet access and/or CMS”.<sup>28</sup>

It is noteworthy that the Commission endorsed the use of least-cost technology, which in Bell’s case was fixed wireless, and that the Commission as well noted that the SIPs generally satisfy the BSO, with the only modifications applying to internet access and/or CMS.

77. Subsequent to Decision 2002-34, Bell Canada filed various SIP tracking reports in the mid-2000s. For example, in its 2005 SIP tracking report, Bell Canada stated that:

“The Georgian Bay and surrounding area constitute a major region where the provision of service via wireless has proven to be the most cost-effective option. This area which covers approximately 3,500 square kilometres and contains a total of 38 localities with over 1,700 premises, is served by eight different exchanges. These 38 localities have been consolidated into 19 larger localities for ease of managing the provision of wireless service for this vast area. The Company has determined that the most cost-effective means of provisioning service in these localities is through the use of CDMA, rather than wireline service, which was the choice of technology identified in the Company’s original SIP roll-out. Consequently, consistent with the Commission’s directive to incorporate least-cost technology in the Company’s SIP, the Company plans to deploy service in

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<sup>27</sup> Telecom Decision CRTC 2002-34, paragraph 822.

<sup>28</sup> Telecom Decision CRTC 2002-34, paragraph 839. Note that CMS (Call Management Services) refers to switch-based features.

these areas via wireless technology, in many cases, utilizing existing towers in the Company's wireless network.<sup>29</sup>

78. Given the precedents set by Telebec in Lac Gagnon and Bell Canada in Georgian Bay, it is clear that fixed wireless has been deployed on several occasions to satisfy the BSO and all these occasions have been endorsed by the Commission.

79. It is also noteworthy that in April 2012, the CRTC Vice-Chair of Telecommunications at that time publicly acknowledged the appropriateness of the use of fixed wireless to achieve the BSO:

“We are also in the process of introducing local telephone competition in the North, as well as in rural and remote areas. The incumbent companies will still need to offer basic telephone service to residents, though they can now meet this obligation using wireless technology”.<sup>30</sup>

#### *5.5.2 Equal Access*

80. In regard to equal access, in Decision CRTC 2000-746, the Commission approved Northwestel's plan to install equal access facilities in Yellowknife, Whitehorse, Iqaluit, Inuvik and Fort Nelson by 1 January 2001. The Commission approved the plan, subject to an annual review of equal access progress and expenditures. In conducting these reviews, starting in 2002, the Commission concluded that no further roll-out of equal access was necessary.

81. In the Updated Plan, similar to the Initial Plan, there are no planned capital expenditures to extend equal access capabilities into the remote communities. This is consistent with the Commission's ruling in Decision 2000-746, and as well recognizes that some of the new switches that will be deployed are wireless ones that do not lend themselves to equal access functionality.

#### *5.5.3 Features Not Available with Fixed Wireless*

82. Under a fixed wireless solution, there are some features that are not available, primarily dial-up internet and facsimile. Fixed wireless will however deliver HSI to the North and will

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<sup>29</sup> Bell Canada 2005 SIP Tracking Report, filed 31 March 2005.

<sup>30</sup> Leonard Katz, April 27, 2012, to the National Symposium of the Law Society of Upper Canada, Ottawa, Ontario.

overcome all the inherent difficulties presented to customers who would otherwise have to use dial-up internet in accessing a multi-media world. Therefore, the inability of fixed wireless services to accommodate dial-up services is really moot.

83. A fixed wireless solution is also unable to process facsimile transmissions. Again, with the broad platform of services offered by HSI, including email transmissions and accompanying Word and PDF file documents, the need for facsimile would also be supplanted by the options offered by a broadband solution.

#### *5.5.4 The Migration to Fixed Wireless*

84. As the Company introduces wireless switches into its network in specific communities, there will be a migration period in each community to move customers from a wireline to a wireless switch. The migration period has not been determined at this time, but it must be sufficiently long for both the Company and the customer to get fully familiar with the operations and features of a wireless switch. Customers will be encouraged to migrate to the wireless switch so that they can enjoy features, such as ECF, and the broadband platform of services, including HSI, that would not be available on a wireline switch. Following this migration period, and after ample experience has been gained by the Company and its customers, Northwestel will turn down and de-commission those wireline switches that have been replaced by wireless switches.

#### *5.5.5 The PES Tariff Continues to Apply*

85. The Company also confirms that the transition of its wireline network to a wireless model in some of its remote communities would have no impact on the regulatory regime that applies today. The tariffs for PES would continue to apply and the Company further confirms its view that fixed wireless services are not forborne.

#### *5.5.6 Continued Reliance on Contribution to Meet the BSO*

86. Northwestel's Updated Plan is a capital investment plan to provide the network infrastructure to deliver wireless and broadband to the North to the maximum extent possible

given the Company's projected CAPEX funding envelope. Northwestel serves approximately (#) residential NAS in High-Cost Serving Areas, in 94 communities, dispersed across approximately four million square kilometers of the most inhospitable territory in Canada. The Company's operating costs in serving this vast territory on a daily basis are considerable and subsidies are still required. The Company's ability to deliver the Updated Plan, similar to its Initial Plan, is premised on continued receipt of its existing contribution subsidy.

## **6.0 PRIMARY DRIVERS OF THE MODERNIZATION PLAN**

87. The primary drivers of the Updated Plan continue to be the Commission's directives in TRP 2011-771, customer demands in the North and the Company's ongoing customer service objectives.

88. In TRP-2011, the Commission was concerned about the age of Northwestel's equipment and switches, and held the perception that switch age was impacting the quality of services offered to the Company's customers. The Commission was also concerned about the availability of ECF in a number of remote communities. In regard to HSI services, while the Commission did not give any express direction in TRP 2011-771, it is clear from the public record of other proceedings that the Commission views the availability of HSI throughout rural and remote parts of Canada as a key regulatory objective.<sup>31</sup> Wireless availability is similarly of great importance.

89. From the customer perspective, most of the inquiries and interventions in the proceeding leading up to TRP 2011-771 were focused on wireless and HSI availability and not features or service quality per se. When parties made comments about "quality of service in the North", they generally meant that they wanted similar speeds and access to HSI and 3G wireless services as available in Southern Canada. That sentiment was echoed by local government bodies who wanted HSI and wireless services throughout all rural and remote parts of Northern Canada.

90. From a customer service perspective, the Company cannot lose sight of its primary objective of maintaining service integrity and reliability across its vast territory. Northwestel's

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<sup>31</sup> For example, see Obligation to Serve, Telecom Regulatory Policy 2011-291.

operating territory has the lowest population density of any serving area in Canada. The harsh climate shortens the construction season, limits access to some communities to specific time windows, and impacts service results in remote areas. The costs of providing service are high and prices in most areas do not come close to covering provisioning or repair costs. Given these conditions, maintaining a high quality telecommunications infrastructure on a day-to-day basis is critical in the Canadian North.

91. In addition to the primary drivers described above, Northwestel has social and environmental responsibilities and must operate in accordance with environmentally sound business practices and in compliance with Federal and Territorial fuel storage regulations. The Company is subject to regulations that vary by territory and according to whether the property involved is Crown land, Aboriginal land or subject to Aboriginal claims. In 2009, there were also changes in the Federal environmental regulations (to be implemented over a transition period), and the Company continues to work closely with Federal regulators to ensure that it is compliant in all these areas.

92. In the Modernization Plan, the Company seeks to satisfy the Commission's regulatory objectives, as well as the market demands of its customers and the Company's customer service goals and objectives. However, the costs of providing telecommunications services in the North are significant and investing to meet Southern service standards is just not possible without external funding. Despite these constraints, the Company's Updated Plan, wherever economically feasible, and in some cases where it is not, strives to deliver enhanced technology platforms to facilitate improved service delivery to its customers and to allow customer choice of competitive local telecommunications suppliers in the North.

## **7.0 DETAILS OF THE MODERNIZATION PLAN**

### **7.1 Overview of the Modernization Plan**

93. In this section, Northwestel describes the structure of the Updated Plan, its various service components, and the eligibility criteria and end state for each service component. The key projects of the Updated Plan include:

- Advancements in wireless services;

- Upgrading and expansion of HSI;
- Completion of ECF;
- Strategic switch replacements;
- Upgrading transport;
- Business systems evolution;
- Satellite voice replacements;
- SR500 system upgrades;
- Local Number Portability;
- Fuel storage systems; and
- Wholesale Connect Service.

94. The planned enhancements in the Updated Plan are consistent with the Company's Initial Plan in terms of technology platforms and service objectives. However, one of the challenges in meeting the multiple objectives and demands of our customers, the Governments and other stakeholders, as set out in Section 3.0, is that without the Astral public benefits, Northwestel now finds itself more dependent on third party funding arrangements to achieve all the multiple and varying objectives that are on the table.

#### *7.1.1 Removal of the Astral Funding*

95. With the Astral funding envelope removed, the Updated Plan cannot economically deliver the full extent of services to all communities contemplated by the Astral Plan. The Astral Plan would have allowed the Company to deliver 3G wireless to all unserved communities, ensuring that all 96 communities across its operating territory would have 3G wireless. That wireless roll-out would have delivered high speed internet to an additional 45 communities. The Astral Plan would have funded switch upgrades in twenty-seven communities by the end of 2017 and extended ECF to all remaining communities.

96. Notwithstanding the removal of the Astral funding, Northwestel states that its Updated Plan continues to extend and upgrade wireless and internet service to a number of communities in the North. The Updated Plan achieves the Basic Service Objective for voice and ECF, by extending ECF to all 29 communities noted in TRP 2011-771, with three completed in 2012, and

26 to be completed by the end of the Modernization Plan. The only question in respect to ECF is the type of switch to be provisioned in 13 communities, which would depend on whether or not external funding is obtained. The Modernization Plan also facilitates greater competition in the North, with LNP currently available in six communities and plans for LNP in other specific communities that meet the Company's criteria as set out in this Section 7. The Company notes however that not all communities will receive 3G wireless and that part of its 3G rollout plan is dependent on third party funding.

97. In respect of High Speed Internet ("HSI") provisioning in the Updated Plan, the Company will upgrade the speeds in 58 terrestrial communities in comparison to only 17 communities that would have been upgraded in the Initial Plan. The satellite communities pose a much greater challenge for HSI delivery. In satellite communities, the delivery of HSI in the Company's Initial Plan was originally premised on the wide deployment of the 3G technology platform, which cannot be economically accomplished now in the absence of funding for satellite backhaul from Astral or other external funding sources.

98. Further details on each of the service components in the Company's Updated Plan are described in the following sections.

#### *7.1.2 Modernization Activities since the Initial Plan*

99. Since the Company's Initial Plan on 3 July 2012, the Company has continued its efforts to modernize its network on a number of fronts. These initiatives include:

##### Wireless

- 2G wireless was introduced in Igloolik, Nunavut in December 2012.
- 3G wireless was launched in Dawson City and Watson Lake in the Yukon, and Norman Wells and Fort Simpson in the North West Territories. These represent some of the larger communities that were upgraded from 2G based on consumer demand and economics.
- As part of the Nunavut trade show, 3G wireless satellite was successfully trialed in Iqaluit in September, which was the first successful trial in Canada.

##### HSI

- Upgraded Internet to 5M/512K in Iqaluit in November 2012.
- In Carcross, Yukon, the Company launched Video and Cable HSI Service, becoming the 7<sup>th</sup> community with HSI on cable plant.



- Satellite DSL will be introduced in Rankin Inlet and Cambridge Bay, both in Nunavut, in January 2013.

#### Switch Upgrades

- New switches providing calling features were added in Aklavik, NWT and Faro, Yukon, in Q4, as committed to in the Initial Plan. (Gjoa Haven was completed in Q2, 2012).
- A switch replacement was implemented in Pond Inlet, Nunavut as part of the Company's ongoing modernization activities in Q3, 2012.

#### Transport

- Whitehorse to Dawson City route - Fibre for 50% of the distance to Dawson City (Carmacks to Stewart Crossing) was completed. Final piece from Stewart Crossing to Dawson City is scheduled for 2013.
- Completed fibre link on Deh Cho Bridge across the MacKenzie River in the NWT, connecting Yellowknife to Southern Canada via high speed fibre.

#### LNP

- Implemented LNP in 5 communities.

#### Business Systems Evolution (BSE)

- Business Systems Evolution – Implemented Customer Care and Billing for telecom and wireless lines of business in one system, giving one-stop shopping across the full territory. Service representatives can handle installations and activations for both lines of business in one call.

- (#)

(#)

#### Other

- The Company has begun the process of upgrading fuel system storage secondary containment and leak detection systems in remote areas.

## **7.2 Wireless Modernization (3G)**

100. Providing a high quality wireless service (3G) is a major challenge in the remote areas of Northwestel's territory. Commercial deployment of next-generation wireless services to most Northern communities cannot be done in an economically justified manner, given the very small population base of these communities. It is simply too expensive and there are no simple solutions.

101. Today, only sixteen of ninety-six Northern communities have access to 3G wireless and a further twenty-eight only have 2G (i.e., CDMA). A majority (fifty-two) of the Northern communities currently have no access to wireless services.

### 7.2.1 *Criteria and Dependencies (Wireless)*

102. In the Company's planning process for wireless services, the first step was to segment the 96 communities into terrestrial or satellite communities. There are 58 terrestrial served and 38 satellite served communities. Each segment has its own criteria that must be satisfied for the provisioning of 3G services.

103. The criteria for the provisioning of 3G wireless services are as follows:

#### Wireless Criteria

##### Terrestrial Communities:

- a. Communities with a population over 500.
- b. Communities with a population less than 500, if:
  - i) covered as a byproduct of the Voice Criteria (see below), or
  - ii) externally funded (i.e. third party arrangement).

##### Satellite Communities:

- a. Communities with a positive Business Case, or
- b. Communities without a positive Business Case, if:
  - i) covered as a byproduct of the Voice Criteria (see below), or
  - ii) externally funded (i.e. third party arrangement.)

104. For Terrestrial communities, what this means is that first and foremost, if a community has a population of over 500, it will be provisioned with 3G wireless (42 Mbps). For those communities that have a population of less than 500, they will be served with 3G wireless, if either of the two conditions identified above are met. For example, if the Voice Criteria (see below) determines that a community will get ECF, the community will be provisioned with a wireless switch which will enable 3G. If a terrestrial community is the beneficiary of external funding, that community will also receive a wireless switch which will enable 3G.

105. For Satellite communities, as identified earlier, the problem with provisioning wireless (and HSI) is not the access. The access arrangements in satellite communities are typically no different than those in terrestrial communities. For satellite communities, the problem is the cost

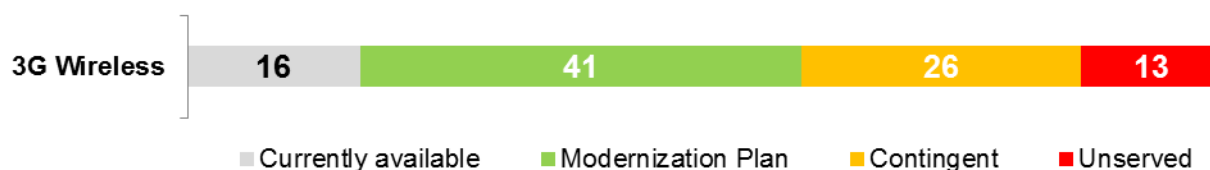
of the backhaul network to connect the customer to the world. Transponder space is very expensive and Northwestel has no control over this critical component. That piece of the network is controlled by Telesat.

106. What this means is that the first criteria for providing 3G wireless (21 Mbps) is a positive business case. Failing that, there are certain circumstances whereby a satellite community without a positive business case would be provisioned with 3G wireless. Again, if the Voice Criteria determines that that community will get ECF and as well would be provided by a wireless switch, the community will get 3G wireless. Similarly, if a satellite community is the beneficiary of external funding, that community will also receive a wireless switch, also enabling 3G.

### 7.2.2 End State (Wireless)

107. Chart 1 below illustrates the number of communities that currently have 3G wireless, those that will be provisioned in the Modernization Plan, those that are contingent on external funding and those that will remain unserved.

**Chart 1**



108. As shown in Chart 1, the Modernization Plan will deliver 3G wireless to forty-one additional communities by the end of 2017. In addition, there are twenty-six communities that could receive this service, dependent on the Company securing external funding to assist with the capital costs. While this still leaves thirteen communities that would be unserved, and not to diminish their importance, those communities have a combined population of approximately 1400, representing approximately 1% of the population of Northwestel's territory, similar to the Canadian average.<sup>32</sup>

<sup>32</sup> See CRTC Telecommunications Monitoring Report for 2012.

109. See Attachment 1 for further details by community showing the current wireless status, the provisioning of 3G wireless services, where applicable, the year of delivery, population, the projected CAPEX by community and relevant funding arrangements, where applicable.

### **7.3 High Speed Internet (HSI)**

110. The availability of HSI services in the North is also a major challenge for the Company, and was one of the concerns giving rise to perceptions of poor quality of service in the proceeding leading up to TRP 2011-771. Consumers and businesses alike are seeking better HSI connectivity, access and speeds.

111. Today, 71 northern communities have some form of HSI service from Northwestel and a further 22 communities in Nunavut are served by SSI Micro. That leaves three communities in British Columbia that have no access to the internet and noted earlier, the Company has a proposed funding arrangement to address this situation.

#### *7.3.1 Criteria and Dependencies (HSI)*

112. The Company's criteria for provisioning HSI in the Modernization Plan consider whether or not the service platform in the community is cable or DSL, and for DSL communities, whether or not the backbone network is terrestrial or satellite based.

113. The criteria for the upgrade of HSI services for cable and DSL platforms are as follows:

#### HSI Criteria

##### Cable Communities (Population Based Criteria):

- a) Population over 2500 - Upgraded ((#) (#)).
- b) Population under 2500 – Upgraded ((#) (#)).

##### DSL Communities (Terrestrial or Satellite Criteria):

###### Terrestrial Communities:

- a) Currently served DSL communities - Upgraded ((#) (#)).

b) Currently unserved; contingent on external funding ((#)  
(#))

Satellite Communities:

a) Currently unserved; contingent on external funding (up to 1.5 Mbps down / 384 Kbps up).

114. For cable communities, the Company will upgrade its cable plant in seven communities which are eligible as per the above-noted criteria to provide higher speeds at a cost of (#). For currently served DSL communities, speeds will be upgraded.

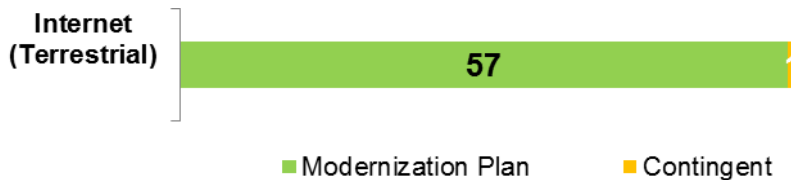
115. The schedule for the cable system upgrades is shown in Table 1 below. The schedule for the DSL upgrades is shown in Attachment 2 due the larger number of impacted communities.

Table 1 (#)

7.3.2 End State (HSI)

116. The application of the above-noted terrestrial criteria results in fifty-eight communities receiving upgrades in the Modernization Plan, as shown in Chart 2 below:

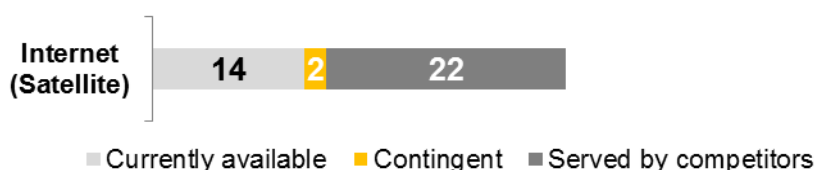
Chart 2



117. The last remaining terrestrial HSI upgrade shown in Chart 2 is contingent on external funding. Should that come to fruition, consumers and business will benefit from faster speeds and improved access arrangements for HSI across all the terrestrial communities in the Company's territory.

118. The application of the satellite criteria in the Modernization Plan has a less positive and uncertain outcome, as shown by Chart 3 below.

Chart 3



119. As noted earlier, due to the high cost of satellite backhaul, currently provided by Telesat in the far North, satellite communities are very expensive to serve. Therefore, the Company can only commit to speeds of up to 1.5 Mbps down / 384 Kbps up. As shown in Chart 3, there are two communities that would get service contingent on funding from (#)

(#). Should this occur, given the 22 communities currently served by an alternate service provider, between Northwestel and the alternate service provider, all satellite communities in Northwestel's operating territory will be served at a minimum speed of up to 1.5 Mbps down / 384 Kbps up.

120. In summary, should Northwestel be successful in receiving external funding for one terrestrial community, when added to the 57 planned terrestrial HSI upgrades by the Company, this would result in 100% of terrestrial customers having HSI service. In satellite communities, if alternate service providers are included and external funding is achieved, all customers in satellite communities will have access to the internet, at a speed of at least up to 1.5 Mbps down and 384 Kbps up.

121. See Attachment 2 for more detailed information showing the delivery of HSI upgrades for the relevant communities, the year of upgrade, type of technology, projected speed, CAPEX and funding arrangements, where applicable.

#### **7.4 Voice Modernization**

122. In developing its approach to voice modernization in the Updated Plan, the Company's major considerations were the regulatory and stakeholder objectives for ECF and other services and the lower CAPEX for switch replacements than would have been available in the Astral Plan. In its planning process, the Company realized that setting a broad objective for switch replacements based on a specific switch age in the Updated Plan was not realistic. Unlike the Astral Plan, which was based on the wide deployment of fixed wireless switches, such a deployment was not considered the optimum use of the available capital today. Therefore, it should be noted that, while a lower switch age may be the by-product of providing ECF and other network functionality, it is not a fundamental driver of Northwestel's Modernization Plan. Rather, the lower switch ages that come about in the Company's Updated Plan are a function of applying the criteria for voice modernization, as set out further below.

123. The Company reiterates that the age of a switch does not directly correlate to its reliability or quality of service. For example, the three switches in Fort Nelson, Inuvik and Yellowknife are all over twenty years old. All of them are running smoothly, have not caused any operational problems and are vendor supported up to 2018. Furthermore, Northwestel has invested considerably in these switches over the past ten years to accommodate equal access and long distance competition, with a further investment in 2012 to accommodate local competition. It is not reasonable to suggest that these or other switches should be replaced merely because they are older than certain other switches.

124. In addition to the investments for LNP in the three switches noted above, from 2007 until the end of 2012, Northwestel replaced seven switches in its network. For example, as identified in the Company's letter of 3 April 2012, Northwestel replaced the switch serving Gjoa Haven in June 2012 at a cost of (#). In addition to Gjoa Haven, three other communities received new switches in 2012. These were Faro in the Yukon, Aklavik in the Northwest Territories and Pond Inlet in Nunavut.

125. The faster timing of switch replacements under the Modernization Plan, in comparison to the plan filed in the proceeding leading up to TRP 2011-771, should satisfy the regulatory objectives of ECF.

126. Attachment 3 of the Modernization Plan identifies all the switches in the Company's territory, and shows the original projected date for a switch upgrade in the Company's submission for the TRP 2011-771 proceeding, the new upgrade date (if applicable), the switch age at end of 2017, CAPEX and funding arrangements, if applicable, among other data. Attachment 3 shows that the average age of the switches in the Company's network at the end of the Modernization Plan will decrease substantially from seventeen to eight years.

#### *7.4.1 Criteria and Dependencies (Voice Modernization)*

127. The criteria for the Company in developing its overall plans for voice modernization were the Commission's expectations in TRP 2011-771, in respect to the delivery of ECF to all Northerners, and the customer and community demands expressed in the TRP 2011-771 proceeding. At the time of TRP 2011-771 in December 2011, there were 29 communities in the Company's territory without ECF. Three of these were upgraded to provide ECF in 2012 (Gjoa Haven, Aklavik and Faro), leaving 26 to be provisioned in the Modernization Plan. Gjoa Haven was one of the six communities noted by the Commission, where community stakeholders have specifically requested ECF.

128. So, simply put, the primary criteria for voice modernization is to provide ECF wherever it is not currently available, to satisfy both regulatory, consumer and community demands, as follows:

#### ECF Criteria – Provision all communities that do not have ECF today

a) Six communities noted by CRTC in TRP 2011-771:

- i) wireline – Gjoa Haven (completed in 2012).
- ii) fixed wireless – Burwash Landing, Whati, Tsiigehtchic, Wekweti, Enterprise (all planned for (#)).

b) All remaining communities (23) without ECF:

- i) wireline (12).
- ii) fixed wireless (11).

129. The criteria, by its very definition, will result in all communities receiving ECF. However, the Company points out that not all ECF provisioning can be done on a positive economic basis.



The Company commits to doing all communities, but its proposed solution will vary depending upon whether or not it obtains external funding.<sup>33</sup>

130. As a result of ECF being provisioned to all remaining communities over the course of the Modernization Plan, there will be an additional benefit of providing LNP to those communities. In respect to LNP, there are also other circumstances, aside from the provisioning of ECF, where a community will get the benefit of LNP as a by-product of other upgrades occurring in the network.

131. The criteria for LNP being provided to a community are as follows:

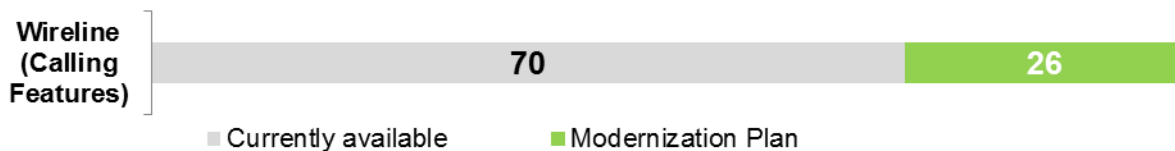
LNP Criteria: A community will be upgraded if:

- a) LNP Status complete in 2012 (Whitehorse, Yellowknife, Iqaluit, Fort Nelson, Inuvik), or
- b) it has a population over 1600, or
- c) it will receive ECF, or
- d) it is served by a remote tethered off a LNP capable switch, or
- e) it gets a fixed wireless switch.

#### 7.4.2 End State (Voice Modernization)

132. Chart 4 shows twenty-six communities getting ECF in the Modernization Plan, with all 96 communities having ECF at the end of the Modernization Plan.

Chart 4

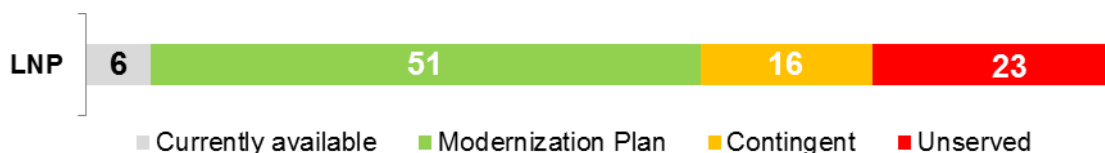


<sup>33</sup> The Company's proposed solution for 13 communities is to provision with a fixed wireless switch, contingent on external funding. If the funding does not materialize, Northwestel will provide ECF in those communities with a wireline switch.

133. See Attachment 4 for more detailed information by community, schedule and projected CAPEX for the Company's ECF provisioning plans for each of the 29 communities referenced in TRP 2011-771, with three communities already completed in 2012.

134. In terms of LNP, Chart 5 below illustrates the number of communities that will receive LNP over the next five years as a result of the various network upgrade criteria set out above.

Chart 5



135. As shown in Chart 5, six communities have LNP today as a result of LNI requests and LNP provisioning activities in 2012. The Modernization Plan will deliver LNP to an additional 51 communities as a result of other upgrades occurring in the network. There are another sixteen communities where the provisioning of LNP would be contingent on external funding. While this leaves twenty-three communities that are not currently projected to receive LNP, those communities have an average population of approximately 800.

136. See Attachment 5 for more detailed information on LNP projections by community, projected dates, CAPEX, external funding dependencies and related data.

## **7.5 Transport Upgrades**

137. In respect to transport upgrades which would add needed capacity in many communities, the Company will spend (#).

138. The CAPEX also includes funding of (#) to support strategic transport projects and to address additional capacity and/or route diversity. These projects are dependent on partnering with third parties.

139. See Attachment 6 for a listing by community, where applicable, for planned additional transport capacity by the end of the Modernization Plan for communities on terrestrial routes. Satellite capacity is not allocated on a community basis ( (#) (#)) and therefore is not included in Attachment 6.

## **7.6 Business Systems Evolution (BSE)**

140. As part of the Modernization Plan, the Company will spend (#) to upgrade and increase its ability to deliver services to its customers and replace unsupported systems.

141. Northwestel as a full communications service provider must continually invest in upgrading its Information Technology (IT) business systems. A portion of the spending noted above is required to modernize customer service processes and systems. In 2012, Northwestel began the integration of multiple call centre customer care and billing systems. This improves service by giving customers “one stop” shopping, simplifying contact with the Company, as opposed to the customer having to deal with multiple calling agents because the existing IT systems do not handle more than one line of business.

142. At the end of 2012, the integration of the customer care and billing systems for telecom and wireless was largely complete. In 2013, work will continue on the (#)

(#).

143. The Company also plans to upgrade its (#)

(#).

## **7.7 Satellite Voice Replacements**

144. The Company also plans to replace its aging satellite voice network at a cost of (#), in order to improve service quality and to achieve greater capacity. The TDM TES Hughes voice system that currently delivers meshed voice to the Company’s satellite communities is

manufacturer discontinued. The existing system is subject to more frequent hardware failures due to aging parts, spares are becoming scarce, and existing support arrangements will end in (#) by which time the Company will have replaced the TDM TES Hughes voice system with an IP satellite meshed voice network in 38 communities. Two communities were replaced in 2012 at a cost of (#), with (#) to be undertaken in the Modernization Plan for the remaining 36 communities.

See Attachment 7 for a list of communities benefiting from the satellite voice replacements, the year of upgrade and associated CAPEX.

### **7.8 SR500 Wireless Voice Systems**

145. In the Initial Plan, the Company proposed to replace its aging SR500 (subscriber radio) access network systems. The SR500 systems provide wireless voice service in the Upper Halfway Region of Northern British Columbia, the Yukon and the Northwest Territories. The equipment is manufacturer discontinued and unsupported.

146. In the Modernization Plan, the Company plans to replace the SR500 systems over the next five years, at a total cost of (#). The schedule for replacement of the SR500 systems in specific communities is shown in Table 2 below:

(#)

(#)

### **7.9 Fuel Storage Systems**

147. In addition to its telecommunications obligations, Northwestel must also uphold its environmental responsibilities in the North.

148. Since 2011, Northwestel has undertaken the process of upgrading its fuel storage systems, in keeping with the environmental regulations in Northern Canada, particularly in regard to changes in Federal regulations. Those changes, which were subject to a transition period, were in the area of heightened protection for leak detection and secondary containment for fuel storage systems. To incorporate these changes, the Company has been upgrading its fuel storage systems across its operating territory to ensure it is fully compliant with all applicable regulations.

149. Over the period of 2011-2014, the Company will spend (#) on fuel storage upgrade activities, with (#) spent by the end of 2012, leaving (#) to be spent in the Modernization Plan. Upgrade activities include implementing a secondary containment and remote leak detection system in 146 sites.

#### **7.10 Wholesale Connect Service**

150. On 8 March 2012, Northwestel filed Tariff Notice 883, to introduce a new backbone service for competitors, known as Wholesale Connect Service, with nominal interim rates of \$1. On 3 April 2012, in Telecom Order CRTC 2012-203, the Commission approved on an interim basis the Company's Tariff Notice 883.

151. On 22 May 2012, Northwestel filed Tariff Notice 883A, which amended Tariff Notice 883 to provide appropriate rates, which was supported by an economic study and accompanying costs. The record of that proceeding is now closed and the Company is awaiting the Commission's determination.

152. Wholesale Connect Service is a terrestrial Layer 3 Internet Protocol Virtual Private Network Wide Area Network solution with Class of Service (CoS) options. This service is available to wholesale customers in Northwestel's operating communities that are served by fibre and/or high capacity (OC-3 and above) microwave radio transport facilities. Wholesale Connect provides competitors with high-quality backbone connectivity, allowing the transport of communications traffic across the Company's IP backbone network between competitors' selected Points-of-Presence ("PoPs", or individually a "PoP"), which in turn enables competitors to provide their own end-users with telecommunications services.

153. Wholesale Connect is now available to 30 communities that are currently served by fibre or high capacity microwave. These communities have been categorized into four distinct types or bands (Type A, Type B, Type C and Breakout Communities) based on location and underlying transport and network facilities. Type A communities are Core IP PoP communities served by fibre transport. Type B communities are served by fibre transport facilities, backhauled to Type A communities. Type C communities are served by a hybrid of high capacity digital microwave radio and fibre, backhauled to Type A communities. As a result of the upgrades to the Company's transport and IP backbone network in the Modernization Plan, 27 communities will be added to Wholesale Connect and 1 Type C community will be upgraded to a Type B community. Once the Modernization Plan is completed, Wholesale Connect will be available in 57 of 58 terrestrial communities (excluding Keno City which is served by low capacity microwave and has fewer than 20 full-time residents). This is a significant improvement enabling competitors to access the transport network.

154. See Attachment 8 for a list of communities that will benefit from the backbone connectivity offered by Wholesale Connect.

## **8.0 THE COMMISSION'S REVIEW OF THE MODERNIZATION PLAN**

155. From the Company's perspective, it is not seeking nor expecting the Commission to approve, reject or alter the Modernization Plan. Nonetheless, Northwestel understands that the Commission had a number of concerns regarding the Company's investments plans and the availability of wireless and Internet services in the North, and that is why it ordered a Modernization Plan and the holistic review in TNC 2012-669. Northwestel notes that the Modernization Plan covers regulated, forborne and non-telecom services. Northwestel submits that the Commission has no clear authority to make orders respecting forborne and non-telecom services. Any attempt to regulate shared infrastructure and operations would require a new regulatory framework (e.g. the creation of a split rate base), along with a determination to impose regulation on forborne services (or even non-telecom services).

156. Having said all that, the Company understands that a review of the Modernization Plan will form a key component to the holistic review. Comments concerning the Modernization Plan

received from interested parties will clearly help inform the Commission's view of the plan. Ultimately, the Commission's overall assessment of the Modernization Plan will be a key consideration as it decides on the appropriate regulatory framework for Northwestel for 2014 and beyond, and how the regulatory framework allows Northwestel to meet its goal of extending and upgrading wireline voice (including ECF), wireless and Internet services to Northern Canadians. As such, while a direct approval of the plan is not appropriate, clearly the reasonableness of the Plan will impact the Commission's final determination as to the design of the new regulatory regime for Northwestel.

## **9.0 CONCLUSIONS**

157. The Company submits that the Modernization Plan constitutes an appropriate and aggressive response to the Commission's challenge to Northwestel; that the Company develop a "plan [...] to address how [it] intends to update its infrastructure in a timely manner to ensure that northern customers receive telecommunications services, both regulated and forborne, comparable to those available to Southern Canada in terms of choice, quality, and reliability [...]"<sup>34</sup> The Company's Modernization Plan has been designed to deliver the maximum benefits to the most people in the most cost effective manner in view of the available funding.

158. Northwestel has undertaken a full and detailed review of its five year spending plans for the North to deliver as many upgraded services as possible across its operating territory and to satisfy wherever possible the different demands of the Commission, customers, Governments and other stakeholders.

159. Notwithstanding the removal of the Astral funding, Northwestel notes that this Modernization Plan continues to extend and upgrade wireless and internet service to a number of communities in the North. It achieves the Basic Service Objective for voice and ECF, by extending ECF to all 29 communities noted in TRP 2011-771. The Company has committed to the provisioning of ECF to all these communities by the end of 2017, even though it is not economic to do so, and the Commission has rejected numerous requests for extra funding to make this happen. The Modernization Plan also facilitates greater competition in the North, with LNP currently implemented in five major communities and plans for LNP in other specific

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<sup>34</sup> Telecom Regulatory Policy TRP 2011-771, paragraph 40.

communities that meet the Company's criteria as set out in this Updated Plan, as well as extending Wholesale Connect to almost every terrestrial community.

160. Without the Astral funding however, it is not possible for the Company to deliver the full scope and breadth of service platforms to all 96 communities. To assist in this area, the Company has sought out a number of sources of external funding. It is unknown at this time how many of these initiatives will come to fruition; hence, in the Modernization Plan, service delivery to certain communities is contingent on such funding being secured. That is the reality in the North, where the costs of service for Northwestel are much higher than those of the ILECs that operate in Southern Canada. Nevertheless, the Company has committed to an extremely aggressive capital intensity ratio in order to deliver the Modernization Plan based on anticipated revenues, including anticipated external funding, within the next five years. Should any competitive or regulatory pressures result in significantly lower revenues than the Company currently projects, the Company may have to take longer to achieve these plans.

161. The Company looks forward to the public hearing launched by the Commission in order to discuss what the Commission and the Company can do to address the various challenges and hurdles to the deployment of the Modernization Plan while meeting the various objectives set out by the Commission in TRP 2011-771 and TNC 2012-669.

--- End of Document ---



Upgrading Northwestel's Wireless Services to 3G - Details by Community

Territory	Community	Type	Population	Current Wireless Status	In Plan	Year in Plan		Nwtel Capital		3rd Party Funding		3rd Party Funding Source	
AB	HIGH LEVEL	Terrestrial	4,128	3G	Available		(#)	(#)		(#)		(#)	
BC	BLUEBERRY	Terrestrial	203	3G	Available		(#)	(#)		(#)		(#)	
BC	BOB QUINN LAKE	Satellite	50	None	None		(#)	(#)		(#)		(#)	
BC	DEASE LAKE	Terrestrial	74	None	None		(#)	(#)		(#)		(#)	
BC	FORT NELSON	Terrestrial	4,790	3G	Available		(#)	(#)		(#)		(#)	
BC	FORT WARE	Satellite	260	None	None		(#)	(#)		(#)		(#)	
BC	GOOD HOPE LAKE	Terrestrial	75	None	None		(#)	(#)		(#)		(#)	
BC	ISKUT	Terrestrial	364	None	None		(#)	(#)		(#)		(#)	
BC	LOWER POST	Terrestrial	123	None	None		(#)	(#)		(#)		(#)	
BC	MOULD CREEK	Terrestrial	25	None	None		(#)	(#)		(#)		(#)	
BC	MUNCHO LAKE	Terrestrial	25	None	None		(#)	(#)		(#)		(#)	
BC	PINK MOUNTAIN	Terrestrial	100	3G	Available		(#)	(#)		(#)		(#)	
BC	PROPHET RIVER	Terrestrial	100	3G	Available		(#)	(#)		(#)		(#)	
BC	TELEGRAPH CREEK	Terrestrial	250	None	None		(#)	(#)		(#)		(#)	
BC	TOAD RIVER	Terrestrial	20	None	None		(#)	(#)		(#)		(#)	
BC	UPPER HALFWAY	Terrestrial	100	3G	Available		(#)	(#)		(#)		(#)	
BC	WONOWON	Terrestrial	102	None	None		(#)	(#)		(#)		(#)	
NT	AKLAVIK	Terrestrial	657	None	Included		(#)	(#)		(#)		(#)	
NT	BEHCHOKO	Terrestrial	2,066	None	Included		(#)	(#)		(#)		(#)	
NT	COLVILLE LAKE	Satellite	156	None	Included		(#)	(#)		(#)		(#)	
NT	DELINE	Satellite	553	None	Included		(#)	(#)		(#)		(#)	
NT	DETTAH	Terrestrial	262	3G, 4G	Available		(#)	(#)		(#)		(#)	
NT	ENTERPRISE	Terrestrial	103	3G	Available		(#)	(#)		(#)		(#)	
NT	FORT GOOD HOPE	Terrestrial	589	None	Included		(#)	(#)		(#)		(#)	
NT	FORT LIARD	Terrestrial	597	3G	Available		(#)	(#)		(#)		(#)	
NT	FORT MCPHERSON	Terrestrial	788	None	Included		(#)	(#)		(#)		(#)	
NT	FORT PROVIDENCE	Terrestrial	773	None	Included		(#)	(#)		(#)		(#)	
NT	FORT RESOLUTION	Terrestrial	485	None	Included		(#)	(#)		(#)		(#)	

Upgrading Northwestel's Wireless Services to 3G - Details by Community

Territory	Community	Type	Population	Current Wireless Status	In Plan	Year in Plan		Nwtel Capital		3rd Party Funding		3rd Party Funding Source	
NT	FORT SIMPSON	Terrestrial	1,267	2G	Included		(#)	(#)		(#)		(#)	(#)
NT	FORT SMITH	Terrestrial	2,492	3G, 4G	Available		(#)	(#)		(#)		(#)	(#)
NT	GAMETI	Satellite	315	None	Included		(#)	(#)		(#)		(#)	(#)
NT	HAY RIVER	Terrestrial	4,025	3G, 4G	Available		(#)	(#)		(#)		(#)	(#)
NT	INUVIK	Terrestrial	3,524	3G	Available		(#)	(#)		(#)		(#)	(#)
NT	JEAN MARIE RIVER	Terrestrial	71	None	Included		(#)	(#)		(#)		(#)	(#)
NT	KAKISA	Terrestrial	58	None	Included		(#)	(#)		(#)		(#)	(#)
NT	LUTSELK'E	Satellite	307	None	Included		(#)	(#)		(#)		(#)	(#)
NT	NAHANNI BUTTE	Satellite	116	None	Included		(#)	(#)		(#)		(#)	(#)
NT	NORMAN WELLS	Terrestrial	847	2G	Included		(#)	(#)		(#)		(#)	(#)
NT	PAULATUK	Satellite	351	None	Included		(#)	(#)		(#)		(#)	(#)
NT	SACHS HARBOUR	Satellite	133	None	Included		(#)	(#)		(#)		(#)	(#)
NT	TROUT LAKE	Satellite	110	None	Included		(#)	(#)		(#)		(#)	(#)
NT	TSIIGEHTCHIC	Terrestrial	125	None	Included		(#)	(#)		(#)		(#)	(#)
NT	TUKTOYAKTUK	Terrestrial	929	3G	Available		(#)	(#)		(#)		(#)	(#)
NT	TULITA	Terrestrial	556	None	Included		(#)	(#)		(#)		(#)	(#)
NT	ULUKHAKTOK	Satellite	489	None	Included		(#)	(#)		(#)		(#)	(#)
NT	WEKWETI	Satellite	147	None	Included		(#)	(#)		(#)		(#)	(#)
NT	WHA TI	Terrestrial	509	None	Included		(#)	(#)		(#)		(#)	(#)
NT	WRIGLEY	Terrestrial	113	None	Included		(#)	(#)		(#)		(#)	(#)
NT	YELLOWKNIFE	Terrestrial	20,188	3G, 4G	Available		(#)	(#)		(#)		(#)	(#)
NU	ARCTIC BAY	Satellite	766	None	Included		(#)	(#)		(#)		(#)	(#)
NU	ARVIAT	Satellite	2,431	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	BAKER LAKE	Satellite	2,025	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	CAMBRIDGE BAY	Satellite	1,652	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	CAPE DORSET	Satellite	1,452	None	Included		(#)	(#)		(#)		(#)	(#)
NU	CHESTERFIELD INLET	Satellite	397	None	Included		(#)	(#)		(#)		(#)	(#)
NU	CLYDE RIVER	Satellite	949	None	Included		(#)	(#)		(#)		(#)	(#)

Upgrading Northwestel's Wireless Services to 3G - Details by Community

Territory	Community	Type	Population	Current Wireless Status	In Plan	Year in Plan		Nwtel Capital		3rd Party Funding		3rd Party Funding Source	
NU	CORAL HARBOUR	Satellite	905	None	Included		(#)	(#)		(#)		(#)	(#)
NU	GJOA HAVEN	Satellite	1,152	None	Included		(#)	(#)		(#)		(#)	(#)
NU	GRISE FJORD	Satellite	158	None	Included		(#)	(#)		(#)		(#)	(#)
NU	HALL BEACH	Satellite	739	None	Included		(#)	(#)		(#)		(#)	(#)
NU	IGLOOLIK	Satellite	1,736	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	IQALUIT	Satellite	7,168	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	KIMMIRUT	Satellite	467	None	Included		(#)	(#)		(#)		(#)	(#)
NU	KUGAARUK	Satellite	750	None	Included		(#)	(#)		(#)		(#)	(#)
NU	KUGLUKTUK	Satellite	1,458	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	PANGNIRTUNG	Satellite	1,514	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	POND INLET	Satellite	1,507	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	QIKIQTARJUAQ	Satellite	547	None	Included		(#)	(#)		(#)		(#)	(#)
NU	RANKIN INLET	Satellite	2,817	2G	Included		(#)	(#)		(#)		(#)	(#)
NU	REPULSE BAY	Satellite	909	None	Included		(#)	(#)		(#)		(#)	(#)
NU	RESOLUTE BAY	Satellite	260	None	Included		(#)	(#)		(#)		(#)	(#)
NU	SANIKILUAQ	Satellite	831	None	Included		(#)	(#)		(#)		(#)	(#)
NU	TALOYOAK	Satellite	909	None	Included		(#)	(#)		(#)		(#)	(#)
NU	WHALE COVE	Satellite	413	None	Included		(#)	(#)		(#)		(#)	(#)
YT	BEAVER CREEK	Terrestrial	105	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	BURWASH LANDING	Terrestrial	110	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	CARCROSS	Terrestrial	454	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	CARMACKS	Terrestrial	504	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	CHAMPAGNE	Terrestrial	25	None	None		(#)	(#)		(#)		(#)	(#)
YT	DAWSON CITY	Terrestrial	1,998	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	DESTRUCTION BAY	Terrestrial	47	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	FARO	Terrestrial	405	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	HAINES JUNCTION	Terrestrial	856	2G	Included		(#)	(#)		(#)		(#)	(#)
YT	KENO	Terrestrial	20	None	Included		(#)	(#)		(#)		(#)	(#)

Upgrading Northwestel's Wireless Services to 3G - Details by Community

Territory	Community	Type	Population	Current Wireless Status	In Plan	Year in Plan		Nwtel Capital		3rd Party Funding		3rd Party Funding Source
YT	MARSH LAKE	Terrestrial	511	3G	Available		(#)	(#)		(#)		(#)
YT	MAYO	Terrestrial	474	2G	Included		(#)	(#)		(#)		(#)
YT	OLD CROW	Satellite	235	2G	Included		(#)	(#)		(#)		(#)
YT	PELLY CROSSING	Terrestrial	330	2G	Included		(#)	(#)		(#)		(#)
YT	ROSS RIVER	Terrestrial	374	2G	Included		(#)	(#)		(#)		(#)
YT	STEWART CROSSING	Terrestrial	35	2G	Included		(#)	(#)		(#)		(#)
YT	SWIFT RIVER	Terrestrial	10	None	None		(#)	(#)		(#)		(#)
YT	TAGISH	Terrestrial	253	2G	Included		(#)	(#)		(#)		(#)
YT	TESLIN	Terrestrial	516	2G	Included		(#)	(#)		(#)		(#)
YT	UPPER LIARD	Terrestrial	178	2G	Included		(#)	(#)		(#)		(#)
YT	WATSON LAKE	Terrestrial	1,650	2G	Included		(#)	(#)		(#)		(#)
YT	WHITEHORSE	Terrestrial	27,703	3G, 4G	Available		(#)	(#)		(#)		(#)
<b>Grand Total</b>			<b>125,195</b>					(#)		(#)		

2G CDMA 1x, CDMA, EVDO  
3G Satellite = HSPA (up to 21Mbps), Terrestrial = HSPA+ (up to 42Mbps)  
4G LTE

Upgrading Northwestel's HSI Services - Details by Community

Territory	Community	Type	Population	In Plan	Year	Current HSI Status	Modernization HSI Speed and Method	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
AB	HIGH LEVEL	Terrestrial	4,128	Included		(#) Cable (50M/1M)	(#)	(#)	(#)	(#)
BC	BLUEBERRY	Terrestrial	203	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	BOB QUINN LAKE	Satellite	50	Included		(#) No HSI	(#)	(#)	(#)	(#)
BC	DEASE LAKE	Terrestrial	74	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	FORT NELSON	Terrestrial	4,790	Included		(#) Cable (50M/1M)	(#)	(#)	(#)	(#)
BC	FORT WARE	Satellite	260	Included		(#) No HSI	(#)	(#)	(#)	(#)
BC	GOOD HOPE LAKE	Terrestrial	75	Included		(#) No HSI	(#)	(#)	(#)	(#)
BC	ISKUT	Terrestrial	364	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	LOWER POST	Terrestrial	123	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	MOULD CREEK	Terrestrial	25	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	MUNCHO LAKE	Terrestrial	25	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	PINK MOUNTAIN	Terrestrial	100	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	PROPHET RIVER	Terrestrial	100	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	TELEGRAPH CREEK	Terrestrial	250	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	TOAD RIVER	Terrestrial	20	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	UPPER HALFWAY	Terrestrial	100	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
BC	WONOWON	Terrestrial	102	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	AKLAVIK	Terrestrial	657	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	BEHCHOKO	Terrestrial	2,066	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	COLVILLE LAKE	Satellite	156	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	DELINE	Satellite	553	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	DETTAH	Terrestrial	262	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	ENTERPRISE	Terrestrial	103	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT GOOD HOPE	Terrestrial	589	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT LIARD	Terrestrial	597	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT MCPHERSON	Terrestrial	788	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT PROVIDENCE	Terrestrial	773	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT RESOLUTION	Terrestrial	485	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT SIMPSON	Terrestrial	1,267	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	FORT SMITH	Terrestrial	2,492	Included		(#) Cable (16M/1M)	(#)	(#)	(#)	(#)
NT	GAMETI	Satellite	315	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	HAY RIVER	Terrestrial	4,025	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	INUUVIK	Terrestrial	3,524	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	JEAN MARIE RIVER	Terrestrial	71	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	KAKISA	Terrestrial	58	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	LUTSELK'E	Satellite	307	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	NAHANNI BUTTE	Satellite	116	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	NORMAN WELLS	Terrestrial	847	Included		(#) Cable (16M/1M)	(#)	(#)	(#)	(#)
NT	PAULATUK	Satellite	351	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	SACHS HARBOUR	Satellite	133	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)

Upgrading Northwestel's HSI Services - Details by Community

Territory	Community	Type	Population	In Plan	Year	Current HSI Status	Modernization HSI Speed and Method	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
NT	TROUT LAKE	Satellite	110	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	TSIHGEHTCHIC	Terrestrial	125	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	TUKTOYAKTUK	Terrestrial	929	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	TULITA	Terrestrial	556	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	ULUKHAKTOK	Satellite	489	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	WEKWETI	Satellite	147	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
NT	WHA TI	Terrestrial	509	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	WRIGLEY	Terrestrial	113	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NT	YELLOWKNIFE	Terrestrial	20,188	Included		(#) Cable (50M/1M)	(#)	(#)	(#)	(#)
NU	ARCTIC BAY	Satellite	766	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	ARVIAT	Satellite	2,431	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	BAKER LAKE	Satellite	2,025	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	CAMBRIDGE BAY	Satellite	1,652	no		(#) DSL (2.5M/384K)	(#)	(#)	(#)	(#)
NU	CAPE DORSET	Satellite	1,452	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	CHESTERFIELD INLET	Satellite	397	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	CLYDE RIVER	Satellite	949	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	CORAL HARBOUR	Satellite	905	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	GJOA HAVEN	Satellite	1,152	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	GRISE FJORD	Satellite	158	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	HALL BEACH	Satellite	739	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	IGLOOLIK	Satellite	1,736	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	IQALUIT	Satellite	7,168	no		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
NU	KIMMIRUT	Satellite	467	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	KUGAARUK	Satellite	750	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	KUGLUKTUK	Satellite	1,458	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	PANGNIRTUNG	Satellite	1,514	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	POND INLET	Satellite	1,507	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	QIKIQTARJUAQ	Satellite	547	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	RANKIN INLET	Satellite	2,817	no		(#) DSL (2.5M/384K)	(#)	(#)	(#)	(#)
NU	REPULSE BAY	Satellite	909	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	RESOLUTE BAY	Satellite	260	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	SANIKILJUAQ	Satellite	831	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	TALOYOAK	Satellite	909	no		(#) No HSI	(#)	(#)	(#)	(#)
NU	WHALE COVE	Satellite	413	no		(#) No HSI	(#)	(#)	(#)	(#)
YT	BEAVER CREEK	Terrestrial	105	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	BURWASH LANDING	Terrestrial	110	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	CARCROSS	Terrestrial	454	Included		(#) Cable (16M/1M)	(#)	(#)	(#)	(#)
YT	CARMACKS	Terrestrial	504	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	CHAMPAGNE	Terrestrial	25	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	DAWSON CITY	Terrestrial	1,998	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)

Upgrading Northwestel's HSI Services - Details by Community

Territory	Community	Type	Population	In Plan	Year	Current HSI Status	Modernization HSI Speed and Method	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
YT	DESTRUCTION BAY	Terrestrial	47	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	FARO	Terrestrial	405	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	HAINES JUNCTION	Terrestrial	856	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	KENO	Terrestrial	20	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	MARSH LAKE	Terrestrial	511	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	MAYO	Terrestrial	474	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	OLD CROW	Satellite	235	no		(#) DSL (1.5M/384K)	(#)	(#)	(#)	(#)
YT	PELLY CROSSING	Terrestrial	330	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	ROSS RIVER	Terrestrial	374	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	STEWART CROSSING	Terrestrial	35	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	SWIFT RIVER	Terrestrial	10	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	TAGISH	Terrestrial	253	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	TESLIN	Terrestrial	516	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	UPPER LIARD	Terrestrial	178	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	WATSON LAKE	Terrestrial	1,650	Included		(#) DSL (5M/512K)	(#)	(#)	(#)	(#)
YT	WHITEHORSE	Terrestrial	27,703	Included		(#) Cable (50M/1M)	(#)	(#)	(#)	(#)
<b>Grand Total</b>			<b>125,195</b>					<b>(#)</b>	<b>(#)</b>	

**Upgrading Northwestel's Wireline Switches - Details by Community**

Territory	Community	Type	Population	In Plan	Upgrade Year		Switch Type Post Modernization		Switch Age as of Dec 2012		Switch Age by Jan 2018		NWTEL Capital
AB	HIGH LEVEL	Terrestrial	4,128	No upgrade required		(#)		(#)		(#)		(#)	(#)
BC	BLUEBERRY	Terrestrial	203	No upgrade required		(#)		(#)		(#)		(#)	(#)
BC	BOB QUINN LAKE	Satellite	50	Included		(#)		(#)		(#)		(#)	(#)
BC	DEASE LAKE	Terrestrial	74	No upgrade required		(#)		(#)		(#)		(#)	(#)
BC	FORT NELSON	Terrestrial	4,790	No upgrade required		(#)		(#)		(#)		(#)	(#)
BC	FORT WARE	Satellite	260	Included		(#)		(#)		(#)		(#)	(#)
BC	GOOD HOPE LAKE	Terrestrial	75	Included		(#)		(#)		(#)		(#)	(#)
BC	ISKUT	Terrestrial	364	Included		(#)		(#)		(#)		(#)	(#)
BC	LOWER POST	Terrestrial	123	Included		(#)		(#)		(#)		(#)	(#)
BC	MOULD CREEK	Terrestrial	25	Included		(#)		(#)		(#)		(#)	(#)
BC	MUNCHO LAKE	Terrestrial	25	Included		(#)		(#)		(#)		(#)	(#)
BC	PINK MOUNTAIN	Terrestrial	100	Included		(#)		(#)		(#)		(#)	(#)
BC	PROPHET RIVER	Terrestrial	100	Included		(#)		(#)		(#)		(#)	(#)
BC	TELEGRAPH CREEK	Terrestrial	250	Included		(#)		(#)		(#)		(#)	(#)
BC	TOAD RIVER	Terrestrial	20	Included		(#)		(#)		(#)		(#)	(#)
BC	UPPER HALFWAY	Terrestrial	100	Included		(#)		(#)		(#)		(#)	(#)
BC	WONOWON	Terrestrial	102	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	AKLAVIK	Terrestrial	657	Included		(#)		(#)		(#)		(#)	(#)
NT	BECHOKO	Terrestrial	2,066	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	COLVILLE LAKE	Satellite	156	Included		(#)		(#)		(#)		(#)	(#)
NT	DELINE	Satellite	553	Included		(#)		(#)		(#)		(#)	(#)
NT	DETTAH	Terrestrial	262	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	ENTERPRISE	Terrestrial	103	Included		(#)		(#)		(#)		(#)	(#)
NT	FORT GOOD HOPE	Terrestrial	589	Included		(#)		(#)		(#)		(#)	(#)
NT	FORT LIARD	Terrestrial	597	Included		(#)		(#)		(#)		(#)	(#)
NT	FORT MCPHERSON	Terrestrial	788	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	FORT PROVIDENCE	Terrestrial	773	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	FORT RESOLUTION	Terrestrial	485	Included		(#)		(#)		(#)		(#)	(#)
NT	FORT SIMPSON	Terrestrial	1,267	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	FORT SMITH	Terrestrial	2,492	Included		(#)		(#)		(#)		(#)	(#)
NT	GAMETI	Satellite	315	Included		(#)		(#)		(#)		(#)	(#)
NT	HAY RIVER	Terrestrial	4,025	Included		(#)		(#)		(#)		(#)	(#)
NT	INUUVIK	Terrestrial	3,524	No upgrade required		(#)		(#)		(#)		(#)	(#)
NT	JEAN MARIE RIVER	Terrestrial	71	Included		(#)		(#)		(#)		(#)	(#)
NT	KAKISA	Terrestrial	58	Included		(#)		(#)		(#)		(#)	(#)
NT	LUTSELK'E	Satellite	307	Included		(#)		(#)		(#)		(#)	(#)
NT	NAHANNI BUTTE	Satellite	116	Included		(#)		(#)		(#)		(#)	(#)



**Upgrading Northwestel's Wireline Switches - Details by Community**

Territory	Community	Type	Population	In Plan	Upgrade Year	Switch Type Post Modernization	Switch Age as of Dec 2012	Switch Age by Jan 2018	NWTEL Capital
NT	NORMAN WELLS	Terrestrial	847	No upgrade required		(#)	(#)	(#)	(#)
NT	PAULATUK	Satellite	351	Included		(#)	(#)	(#)	(#)
NT	SACHS HARBOUR	Satellite	133	Included		(#)	(#)	(#)	(#)
NT	TROUT LAKE	Satellite	110	Included		(#)	(#)	(#)	(#)
NT	TSIIGEHTCHIC	Terrestrial	125	Included		(#)	(#)	(#)	(#)
NT	TUKTOYAKTUK	Terrestrial	929	No upgrade required		(#)	(#)	(#)	(#)
NT	TULITA	Terrestrial	556	Included		(#)	(#)	(#)	(#)
NT	ULUKHAKTOK	Satellite	489	Included		(#)	(#)	(#)	(#)
NT	WEKWETI	Satellite	147	Included		(#)	(#)	(#)	(#)
NT	WHA TI	Terrestrial	509	Included		(#)	(#)	(#)	(#)
NT	WRIGLEY	Terrestrial	113	Included		(#)	(#)	(#)	(#)
NT	YELLOWKNIFE	Terrestrial	20,188	No upgrade required		(#)	(#)	(#)	(#)
NU	ARCTIC BAY	Satellite	766	No upgrade required		(#)	(#)	(#)	(#)
NU	ARVIAT	Satellite	2,431	Included		(#)	(#)	(#)	(#)
NU	BAKER LAKE	Satellite	2,025	Included		(#)	(#)	(#)	(#)
NU	CAMBRIDGE BAY	Satellite	1,652	Included		(#)	(#)	(#)	(#)
NU	CAPE DORSET	Satellite	1,452	No upgrade required		(#)	(#)	(#)	(#)
NU	CHESTERFIELD INLET	Satellite	397	Included		(#)	(#)	(#)	(#)
NU	CLYDE RIVER	Satellite	949	No upgrade required		(#)	(#)	(#)	(#)
NU	CORAL HARBOUR	Satellite	905	No upgrade required		(#)	(#)	(#)	(#)
NU	GJOA HAVEN	Satellite	1,152	Included		(#)	(#)	(#)	(#)
NU	GRISE FJORD	Satellite	158	Included		(#)	(#)	(#)	(#)
NU	HALL BEACH	Satellite	739	No upgrade required		(#)	(#)	(#)	(#)
NU	IGLOOLIK	Satellite	1,736	Included		(#)	(#)	(#)	(#)
NU	IQALUIT	Satellite	7,168	No upgrade required		(#)	(#)	(#)	(#)
NU	KIMMIRUT	Satellite	467	Included		(#)	(#)	(#)	(#)
NU	KUGAARUK	Satellite	750	No upgrade required		(#)	(#)	(#)	(#)
NU	KUGLUKTUK	Satellite	1,458	No upgrade required		(#)	(#)	(#)	(#)
NU	PANGNIRTUNG	Satellite	1,514	No upgrade required		(#)	(#)	(#)	(#)
NU	POND INLET	Satellite	1,507	No upgrade required		(#)	(#)	(#)	(#)
NU	QIKIQTARJUAQ	Satellite	547	Included		(#)	(#)	(#)	(#)
NU	RANKIN INLET	Satellite	2,817	Included		(#)	(#)	(#)	(#)
NU	REPULSE BAY	Satellite	909	No upgrade required		(#)	(#)	(#)	(#)
NU	RESOLUTE BAY	Satellite	260	Included		(#)	(#)	(#)	(#)
NU	SANIKILUAQ	Satellite	831	No upgrade required		(#)	(#)	(#)	(#)
NU	TALOYOAK	Satellite	909	No upgrade required		(#)	(#)	(#)	(#)
NU	WHALE COVE	Satellite	413	Included		(#)	(#)	(#)	(#)

**Upgrading Northwestel's Wireline Switches - Details by Community**

Territory	Community	Type	Population	In Plan	Upgrade Year	Switch Type Post Modernization	Switch Age as of Dec 2012	Switch Age by Jan 2018	NWTeI Capital
YT	BEAVER CREEK	Terrestrial	105	Included		(#)	(#)	(#)	(#)
YT	BURWASH LANDING	Terrestrial	110	Included		(#)	(#)	(#)	(#)
YT	CARCROSS	Terrestrial	454	Included		(#)	(#)	(#)	(#)
YT	CARMACKS	Terrestrial	504	Included		(#)	(#)	(#)	(#)
YT	CHAMPAGNE	Terrestrial	25	No upgrade required		(#)	(#)	(#)	(#)
YT	DAWSON CITY	Terrestrial	1,998	No upgrade required		(#)	(#)	(#)	(#)
YT	DESTRUCTION BAY	Terrestrial	47	Included		(#)	(#)	(#)	(#)
YT	FARO	Terrestrial	405	Included		(#)	(#)	(#)	(#)
YT	HAINES JUNCTION	Terrestrial	856	No upgrade required		(#)	(#)	(#)	(#)
YT	KENO	Terrestrial	20	Included		(#)	(#)	(#)	(#)
YT	MARSH LAKE	Terrestrial	511	No upgrade required		(#)	(#)	(#)	(#)
YT	MAYO	Terrestrial	474	Included		(#)	(#)	(#)	(#)
YT	OLD CROW	Satellite	235	Included		(#)	(#)	(#)	(#)
YT	PELLY CROSSING	Terrestrial	330	Included		(#)	(#)	(#)	(#)
YT	ROSS RIVER	Terrestrial	374	Included		(#)	(#)	(#)	(#)
YT	STEWART CROSSING	Terrestrial	35	Included		(#)	(#)	(#)	(#)
YT	SWIFT RIVER	Terrestrial	10	Included		(#)	(#)	(#)	(#)
YT	TAGISH	Terrestrial	253	Included		(#)	(#)	(#)	(#)
YT	TESLIN	Terrestrial	516	Included		(#)	(#)	(#)	(#)
YT	UPPER LIARD	Terrestrial	178	Included		(#)	(#)	(#)	(#)
YT	WATSON LAKE	Terrestrial	1,650	No upgrade required		(#)	(#)	(#)	(#)
YT	WHITEHORSE	Terrestrial	27,703	No upgrade required		(#)	(#)	(#)	(#)
<b>Grand Total</b>			<b>125,195</b>				<b>(#)</b>	<b>(#)</b>	<b>(#)</b>

Upgrading with Enhanced Calling Features

Territory	Community	Type	Population	Current ECF Availability	In Plan	Year in Plan		NWTel Capital		Switch Type
AB	HIGH LEVEL	Terrestrial	4,128	Yes	Available		(#)		(#)	
BC	BLUEBERRY	Terrestrial	203	Yes	Available		(#)		(#)	
BC	BOB QUINN LAKE	Satellite	50	No	Included		(#)		(#)	Wireline
BC	DEASE LAKE	Terrestrial	74	Yes	Available		(#)		(#)	
BC	FORT NELSON	Terrestrial	4,790	Yes	Available		(#)		(#)	
BC	FORT WARE	Satellite	260	No	Included		(#)		(#)	Wireline
BC	GOOD HOPE LAKE	Terrestrial	75	No	Included		(#)		(#)	Wireline
BC	ISKUT	Terrestrial	364	No	Included		(#)		(#)	Wireline
BC	LOWER POST	Terrestrial	123	No	Included		(#)		(#)	Wireline
BC	MOULD CREEK	Terrestrial	25	No	Included		(#)		(#)	Wireline
BC	MUNCHO LAKE	Terrestrial	25	No	Included		(#)		(#)	Wireline
BC	PINK MOUNTAIN	Terrestrial	100	Yes	Available		(#)		(#)	
BC	PROPHET RIVER	Terrestrial	100	No	Included		(#)		(#)	Wireless
BC	TELEGRAPH CREEK	Terrestrial	250	No	Included		(#)		(#)	Wireline
BC	TOAD RIVER	Terrestrial	20	No	Included		(#)		(#)	Wireline
BC	UPPER HALFWAY	Terrestrial	100	Yes	Available		(#)		(#)	
BC	WONOWON	Terrestrial	102	Yes	Available		(#)		(#)	
NT	AKLAVIK	Terrestrial	657	Yes	Available*		(#)		(#)	Wireline
NT	BEHCHOKO	Terrestrial	2,066	Yes	Available		(#)		(#)	
NT	COLVILLE LAKE	Satellite	156	No	Included		(#)		(#)	Wireline
NT	DELINE	Satellite	553	Yes	Available		(#)		(#)	
NT	DETTAH	Terrestrial	262	Yes	Available		(#)		(#)	
NT	ENTERPRISE	Terrestrial	103	No	Included		(#)		(#)	Wireless
NT	FORT GOOD HOPE	Terrestrial	589	Yes	Available		(#)		(#)	
NT	FORT LIARD	Terrestrial	597	Yes	Available		(#)		(#)	
NT	FORT MCPHERSON	Terrestrial	788	Yes	Available		(#)		(#)	
NT	FORT PROVIDENCE	Terrestrial	773	Yes	Available		(#)		(#)	
NT	FORT RESOLUTION	Terrestrial	485	Yes	Available		(#)		(#)	

Upgrading with Enhanced Calling Features

Territory	Community	Type	Population	Current ECF Availability	In Plan	Year in Plan		NWTEL Capital		Switch Type
NT	FORT SIMPSON	Terrestrial	1,267	Yes	Available		(#)		(#)	
NT	FORT SMITH	Terrestrial	2,492	Yes	Available		(#)		(#)	
NT	GAMETI	Satellite	315	No	Included		(#)		(#)	Wireless
NT	HAY RIVER	Terrestrial	4,025	Yes	Available		(#)		(#)	
NT	INUVIK	Terrestrial	3,524	Yes	Available		(#)		(#)	
NT	JEAN MARIE RIVER	Terrestrial	71	Yes	Available		(#)		(#)	
NT	KAKISA	Terrestrial	58	Yes	Available		(#)		(#)	
NT	LUTSELK'E	Satellite	307	Yes	Available		(#)		(#)	
NT	NAHANNI BUTTE	Satellite	116	No	Included		(#)		(#)	Wireless
NT	NORMAN WELLS	Terrestrial	847	Yes	Available		(#)		(#)	
NT	PAULATUK	Satellite	351	No	Included		(#)		(#)	Wireless
NT	SACHS HARBOUR	Satellite	133	No	Included		(#)		(#)	Wireless
NT	TROUT LAKE	Satellite	110	No	Included		(#)		(#)	Wireless
NT	TSIIGEHTCHIC	Terrestrial	125	No	Included		(#)		(#)	Wireless
NT	TUKTOYAKTUK	Terrestrial	929	Yes	Available		(#)		(#)	
NT	TULITA	Terrestrial	556	Yes	Available		(#)		(#)	
NT	ULUKHAKTOK	Satellite	489	Yes	Available		(#)		(#)	
NT	WEKWETI	Satellite	147	No	Included		(#)		(#)	Wireless
NT	WHA TI	Terrestrial	509	No	Included		(#)		(#)	Wireless
NT	WRIGLEY	Terrestrial	113	No	Included		(#)		(#)	Wireless
NT	YELLOWKNIFE	Terrestrial	20,188	Yes	Available		(#)		(#)	
NU	ARCTIC BAY	Satellite	766	Yes	Available		(#)		(#)	
NU	ARVIAT	Satellite	2,431	Yes	Available		(#)		(#)	
NU	BAKER LAKE	Satellite	2,025	Yes	Available		(#)		(#)	
NU	CAMBRIDGE BAY	Satellite	1,652	Yes	Available		(#)		(#)	
NU	CAPE DORSET	Satellite	1,452	Yes	Available		(#)		(#)	
NU	CHESTERFIELD INLET	Satellite	397	Yes	Available		(#)		(#)	
NU	CLYDE RIVER	Satellite	949	Yes	Available		(#)		(#)	

Upgrading with Enhanced Calling Features

Territory	Community	Type	Population	Current ECF Availability	In Plan	Year in Plan		NWTEL Capital		Switch Type
NU	CORAL HARBOUR	Satellite	905	Yes	Available		(#)		(#)	
NU	GJOA HAVEN	Satellite	1,152	Yes	Available*		(#)		(#)	Wireline
NU	GRISE FJORD	Satellite	158	Yes	Available		(#)		(#)	
NU	HALL BEACH	Satellite	739	Yes	Available		(#)		(#)	
NU	IGLOOLIK	Satellite	1,736	Yes	Available		(#)		(#)	
NU	IQALUIT	Satellite	7,168	Yes	Available		(#)		(#)	
NU	KIMMIRUT	Satellite	467	Yes	Available		(#)		(#)	
NU	KUGAARUK	Satellite	750	Yes	Available		(#)		(#)	
NU	KUGLUKTUK	Satellite	1,458	Yes	Available		(#)		(#)	
NU	PANGNIRTUNG	Satellite	1,514	Yes	Available		(#)		(#)	
NU	POND INLET	Satellite	1,507	Yes	Available		(#)		(#)	
NU	QIKIQTARJUAQ	Satellite	547	Yes	Available		(#)		(#)	
NU	RANKIN INLET	Satellite	2,817	Yes	Available		(#)		(#)	
NU	REPULSE BAY	Satellite	909	Yes	Available		(#)		(#)	
NU	RESOLUTE BAY	Satellite	260	Yes	Available		(#)		(#)	
NU	SANIKILUAQ	Satellite	831	Yes	Available		(#)		(#)	
NU	TALOYOAK	Satellite	909	Yes	Available		(#)		(#)	
NU	WHALE COVE	Satellite	413	Yes	Available		(#)		(#)	
YT	BEAVER CREEK	Terrestrial	105	No	Included		(#)		(#)	Wireless
YT	BURWASH LANDING	Terrestrial	110	No	Included		(#)		(#)	Wireless
YT	CARCROSS	Terrestrial	454	Yes	Available		(#)		(#)	
YT	CARMACKS	Terrestrial	504	Yes	Available		(#)		(#)	
YT	CHAMPAGNE	Terrestrial	25	Yes	Available		(#)		(#)	
YT	DAWSON CITY	Terrestrial	1,998	Yes	Available		(#)		(#)	
YT	DESTRUCTION BAY	Terrestrial	47	No	Included		(#)		(#)	Wireless
YT	FARO	Terrestrial	405	Yes	Available*		(#)		(#)	Wireline
YT	HAINES JUNCTION	Terrestrial	856	Yes	Available		(#)		(#)	
YT	KENO	Terrestrial	20	Yes	Available		(#)		(#)	

Upgrading with Enhanced Calling Features

Territory	Community	Type	Population	Current ECF Availability	In Plan	Year in Plan		NWTEL Capital		Switch Type
YT	MARSH LAKE	Terrestrial	511	Yes	Available		(#)	(#)		
YT	MAYO	Terrestrial	474	Yes	Available		(#)	(#)		
YT	OLD CROW	Satellite	235	Yes	Available		(#)	(#)		
YT	PELLY CROSSING	Terrestrial	330	No	Included		(#)	(#)		Wireless
YT	ROSS RIVER	Terrestrial	374	Yes	Available		(#)	(#)		
YT	STEWART CROSSING	Terrestrial	35	Yes	Available		(#)	(#)		
YT	SWIFT RIVER	Terrestrial	10	No	Included		(#)	(#)		Wireline
YT	TAGISH	Terrestrial	253	Yes	Available		(#)	(#)		
YT	TESLIN	Terrestrial	516	Yes	Available		(#)	(#)		
YT	UPPER LIARD	Terrestrial	178	Yes	Available		(#)	(#)		
YT	WATSON LAKE	Terrestrial	1,650	Yes	Available		(#)	(#)		
YT	WHITEHORSE	Terrestrial	27,703	Yes	Available		(#)	(#)		

\* Of the 29 communities referenced in TRP 2011-771, 3 Communities were completed in 2012

Upgrading with Local Number Portability

Territory	Community	Type	Population	In Plan	Year	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
AB	HIGH LEVEL	Terrestrial	4,128	Available		(#)	(#)	(#)
BC	BLUEBERRY	Terrestrial	203	None		(#)	(#)	(#)
BC	BOB QUINN LAKE	Satellite	50	Included		(#)	(#)	(#)
BC	DEASE LAKE	Terrestrial	74	None		(#)	(#)	(#)
BC	FORT NELSON	Terrestrial	4,790	Available		(#)	(#)	(#)
BC	FORT WARE	Satellite	260	Included		(#)	(#)	(#)
BC	GOOD HOPE LAKE	Terrestrial	75	Included		(#)	(#)	(#)
BC	ISKUT	Terrestrial	364	Included		(#)	(#)	(#)
BC	LOWER POST	Terrestrial	123	Included		(#)	(#)	(#)
BC	MOULD CREEK	Terrestrial	25	Included		(#)	(#)	(#)
BC	MUNCHO LAKE	Terrestrial	25	Included		(#)	(#)	(#)
BC	PINK MOUNTAIN	Terrestrial	100	Included		(#)	(#)	(#)
BC	PROPHET RIVER	Terrestrial	100	Included		(#)	(#)	(#)
BC	TELEGRAPH CREEK	Terrestrial	250	Included		(#)	(#)	(#)
BC	TOAD RIVER	Terrestrial	20	Included		(#)	(#)	(#)
BC	UPPER HALFWAY	Terrestrial	100	Included		(#)	(#)	(#)
BC	WONOWON	Terrestrial	102	None		(#)	(#)	(#)
NT	AKLAVIK	Terrestrial	657	Included		(#)	(#)	(#)
NT	BECHOKO	Terrestrial	2,066	Included		(#)	(#)	(#)
NT	COLVILLE LAKE	Satellite	156	Included		(#)	(#)	(#)
NT	DELINE	Satellite	553	Included		(#)	(#)	(#)
NT	DETTAH	Terrestrial	262	None		(#)	(#)	(#)
NT	ENTERPRISE	Terrestrial	103	Included		(#)	(#)	(#)
NT	FORT GOOD HOPE	Terrestrial	589	Included		(#)	(#)	(#)
NT	FORT LIARD	Terrestrial	597	Included		(#)	(#)	(#)
NT	FORT MCPHERSON	Terrestrial	788	None		(#)	(#)	(#)
NT	FORT PROVIDENCE	Terrestrial	773	None		(#)	(#)	(#)
NT	FORT RESOLUTION	Terrestrial	485	Included		(#)	(#)	(#)

Upgrading with Local Number Portability

Territory	Community	Type	Population	In Plan	Year	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
NT	FORT SIMPSON	Terrestrial	1,267	None		(#)	(#)	(#)
NT	FORT SMITH	Terrestrial	2,492	Included		(#)	(#)	(#)
NT	GAMETI	Satellite	315	Included		(#)	(#)	(#)
NT	HAY RIVER	Terrestrial	4,025	Included		(#)	(#)	(#)
NT	INUVIK	Terrestrial	3,524	Available		(#)	(#)	(#)
NT	JEAN MARIE RIVER	Terrestrial	71	Included		(#)	(#)	(#)
NT	KAKISA	Terrestrial	58	Included		(#)	(#)	(#)
NT	LUTSELK'E	Satellite	307	Included		(#)	(#)	(#)
NT	NAHANNI BUTTE	Satellite	116	Included		(#)	(#)	(#)
NT	NORMAN WELLS	Terrestrial	847	None		(#)	(#)	(#)
NT	PAULATUK	Satellite	351	Included		(#)	(#)	(#)
NT	SACHS HARBOUR	Satellite	133	Included		(#)	(#)	(#)
NT	TROUT LAKE	Satellite	110	Included		(#)	(#)	(#)
NT	TSIGEHTCHIC	Terrestrial	125	Included		(#)	(#)	(#)
NT	TUKTOYAKTUK	Terrestrial	929	None		(#)	(#)	(#)
NT	TULITA	Terrestrial	556	Included		(#)	(#)	(#)
NT	ULUKHAKTOK	Satellite	489	Included		(#)	(#)	(#)
NT	WEKWETI	Satellite	147	Included		(#)	(#)	(#)
NT	WHA TI	Terrestrial	509	Included		(#)	(#)	(#)
NT	WRIGLEY	Terrestrial	113	Included		(#)	(#)	(#)
NT	YELLOWKNIFE	Terrestrial	20,188	Available		(#)	(#)	(#)
NU	ARCTIC BAY	Satellite	766	None		(#)	(#)	(#)
NU	ARVIAT	Satellite	2,431	Included		(#)	(#)	(#)
NU	BAKER LAKE	Satellite	2,025	Included		(#)	(#)	(#)
NU	CAMBRIDGE BAY	Satellite	1,652	Included		(#)	(#)	(#)
NU	CAPE DORSET	Satellite	1,452	None		(#)	(#)	(#)
NU	CHESTERFIELD INLET	Satellite	397	Included		(#)	(#)	(#)
NU	CLYDE RIVER	Satellite	949	None		(#)	(#)	(#)



Upgrading with Local Number Portability

Territory	Community	Type	Population	In Plan	Year	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
NU	CORAL HARBOUR	Satellite	905	None	(#)	(#)	(#)	(#)
NU	GJOA HAVEN	Satellite	1,152	None	(#)	(#)	(#)	(#)
NU	GRISE FJORD	Satellite	158	Included	(#)	(#)	(#)	(#)
NU	HALL BEACH	Satellite	739	None	(#)	(#)	(#)	(#)
NU	IGLOOLIK	Satellite	1,736	Included	(#)	(#)	(#)	(#)
NU	IQALUIT	Satellite	7,168	Available	(#)	(#)	(#)	(#)
NU	KIMMIRUT	Satellite	467	Included	(#)	(#)	(#)	(#)
NU	KUGAARUK	Satellite	750	None	(#)	(#)	(#)	(#)
NU	KUGLUKTUK	Satellite	1,458	None	(#)	(#)	(#)	(#)
NU	PANGNIRTUNG	Satellite	1,514	None	(#)	(#)	(#)	(#)
NU	POND INLET	Satellite	1,507	None	(#)	(#)	(#)	(#)
NU	QIKIOTARJUAQ	Satellite	547	Included	(#)	(#)	(#)	(#)
NU	RANKIN INLET	Satellite	2,817	Included	(#)	(#)	(#)	(#)
NU	REPULSE BAY	Satellite	909	None	(#)	(#)	(#)	(#)
NU	RESOLUTE BAY	Satellite	260	Included	(#)	(#)	(#)	(#)
NU	SANIKILUAQ	Satellite	831	None	(#)	(#)	(#)	(#)
NU	TALOYOAK	Satellite	909	None	(#)	(#)	(#)	(#)
NU	WHALE COVE	Satellite	413	Included	(#)	(#)	(#)	(#)
YT	BEAVER CREEK	Terrestrial	105	Included	(#)	(#)	(#)	(#)
YT	BURWASH LANDING	Terrestrial	110	Included	(#)	(#)	(#)	(#)
YT	CARCROSS	Terrestrial	454	Included	(#)	(#)	(#)	(#)
YT	CARMACKS	Terrestrial	504	Included	(#)	(#)	(#)	(#)
YT	CHAMPAGNE	Terrestrial	25	Included	(#)	(#)	(#)	(#)
YT	DAWSON CITY	Terrestrial	1,998	Included	(#)	(#)	(#)	(#)
YT	DESTRUCTION BAY	Terrestrial	47	Included	(#)	(#)	(#)	(#)
YT	FARO	Terrestrial	405	None	(#)	(#)	(#)	(#)
YT	HAINES JUNCTION	Terrestrial	856	Included	(#)	(#)	(#)	(#)
YT	KENO	Terrestrial	20	Included	(#)	(#)	(#)	(#)

Upgrading with Local Number Portability

Territory	Community	Type	Population	In Plan	Year	NWTEL Capital	3rd Party Funding	3rd Party Funding Source
YT	MARSH LAKE	Terrestrial	511	Included		(#)	(#)	(#)
YT	MAYO	Terrestrial	474	Included		(#)	(#)	(#)
YT	OLD CROW	Satellite	235	Included		(#)	(#)	(#)
YT	PELLY CROSSING	Terrestrial	330	Included		(#)	(#)	(#)
YT	ROSS RIVER	Terrestrial	374	Included		(#)	(#)	(#)
YT	STEWART CROSSING	Terrestrial	35	Included		(#)	(#)	(#)
YT	SWIFT RIVER	Terrestrial	10	Included		(#)	(#)	(#)
YT	TAGISH	Terrestrial	253	Included		(#)	(#)	(#)
YT	TESLIN	Terrestrial	516	Included		(#)	(#)	(#)
YT	UPPER LIARD	Terrestrial	178	Included		(#)	(#)	(#)
YT	WATSON LAKE	Terrestrial	1,650	Included		(#)	(#)	(#)
YT	WHITEHORSE	Terrestrial	27,703	Available		(#)	(#)	(#)
<b>Grand Total</b>							(#)	(#)

Upgrading Northwestel's Terrestrial Transport Network - Details by Community

Territory	Community	Population	Current Transport Capacity		Transport Capacity by Jan 2018	
NT	AKLAVIK	657		(#)		(#)
YT	BEAVER CREEK	105		(#)		(#)
NT	BEHCHOKO	2,066		(#)		(#)
BC	BLUEBERRY	203		(#)		(#)
YT	BURWASH LANDING	110		(#)		(#)
YT	CARCROSS	454		(#)		(#)
YT	CARMACKS	504		(#)		(#)
YT	CHAMPAGNE	25		(#)		(#)
YT	DAWSON CITY	1,998		(#)		(#)
BC	DEASE LAKE	74		(#)		(#)
YT	DESTRUCTION BAY	47		(#)		(#)
NT	DETTAH	262		(#)		(#)
NT	ENTERPRISE	103		(#)		(#)
YT	FARO	405		(#)		(#)
NT	FORT GOOD HOPE	589		(#)		(#)
NT	FORT LIARD	597		(#)		(#)
NT	FORT MCPHERSON	788		(#)		(#)
BC	FORT NELSON	4,790		(#)		(#)
NT	FORT PROVIDENCE	773		(#)		(#)
NT	FORT RESOLUTION	485		(#)		(#)
NT	FORT SIMPSON	1,267		(#)		(#)
NT	FORT SMITH	2,492		(#)		(#)
BC	GOOD HOPE LAKE	75		(#)		(#)
YT	HAINES JUNCTION	856		(#)		(#)
NT	HAY RIVER	4,025		(#)		(#)
AB	HIGH LEVEL	4,128		(#)		(#)
NT	INUVIK	3,524		(#)		(#)
BC	ISKUT	364		(#)		(#)
NT	JEAN MARIE RIVER	71		(#)		(#)
NT	KAKISA	58		(#)		(#)
YT	KENO	20		(#)		(#)
BC	LOWER POST	123		(#)		(#)
YT	MARSH LAKE	511		(#)		(#)
YT	MAYO	474		(#)		(#)
BC	MOULD CREEK	25		(#)		(#)
BC	MUNCHO LAKE	25		(#)		(#)
NT	NORMAN WELLS	847		(#)		(#)
YT	PELLY CROSSING	330		(#)		(#)
BC	PINK MOUNTAIN	100		(#)		(#)
BC	PROPHET RIVER	100		(#)		(#)
YT	ROSS RIVER	374		(#)		(#)
YT	STEWART CROSSING	35		(#)		(#)
YT	SWIFT RIVER	10		(#)		(#)
YT	TAGISH	253		(#)		(#)

Upgrading Northwestel's Terrestrial Transport Network - Details by Community

Territory	Community	Population	Current Transport Capacity		Transport Capacity by Jan 2018	
BC	TELEGRAPH CREEK	250		(#)		(#)
YT	TESLIN	516		(#)		(#)
BC	TOAD RIVER	20		(#)		(#)
NT	TSIHGEHTCHIC	125		(#)		(#)
NT	TUKTOYAKTUK	929		(#)		(#)
NT	TULITA	556		(#)		(#)
BC	UPPER HALFWAY	100		(#)		(#)
YT	UPPER LIARD	178		(#)		(#)
YT	WATSON LAKE	1,650		(#)		(#)
NT	WHA TI	509		(#)		(#)
YT	WHITEHORSE	27,703		(#)		(#)
BC	WONOWON	102		(#)		(#)
NT	WRIGLEY	113		(#)		(#)
NT	YELLOWKNIFE	20,188		(#)		(#)

**Upgrading Northwestel's Satellite Voice Services - Details by Community**

<b>Territory</b>	<b>Community</b>	<b>Population</b>	<b>Year in Plan</b>		<b>NWTel Capital</b>	
NU	ARCTIC BAY	766		(#)		(#)
NU	ARVIAT	2,431		(#)		(#)
BC	BOB QUINN LAKE	50		(#)		(#)
NU	CAMBRIDGE BAY	1,652		(#)		(#)
NU	CAPE DORSET	1,452		(#)		(#)
NU	CHESTERFIELD INLET	397		(#)		(#)
NU	CLYDE RIVER	949		(#)		(#)
NT	COLVILLE LAKE	156		(#)		(#)
NU	CORAL HARBOUR	905		(#)		(#)
NT	DELINE	553		(#)		(#)
BC	FORT WARE	260		(#)		(#)
NT	GAMETI	315		(#)		(#)
NU	GRISE FJORD	158		(#)		(#)
NU	HALL BEACH	739		(#)		(#)
NU	IGLOOLIK	1,736		(#)		(#)
NU	IQALUIT	7,168		(#)		(#)
NU	KIMMIRUT	467		(#)		(#)
NU	KUGAARUK	750		(#)		(#)
NU	KUGLUKTUK	1,458		(#)		(#)
NT	LUTSELK'E	307		(#)		(#)
NT	NAHANNI BUTTE	116		(#)		(#)
YT	OLD CROW	235		(#)		(#)
NU	PANGNIRTUNG	1,514		(#)		(#)
NT	PAULATUK	351		(#)		(#)
NU	POND INLET	1,507		(#)		(#)
NU	QIKIQTARJUAQ	547		(#)		(#)
NU	RANKIN INLET	2,817		(#)		(#)
NU	REPULSE BAY	909		(#)		(#)
NU	RESOLUTE BAY	260		(#)		(#)
NT	SACHS HARBOUR	133		(#)		(#)
NU	SANIKILUAQ	831		(#)		(#)
NU	TALOYOAK	909		(#)		(#)
NT	TROUT LAKE	110		(#)		(#)
NT	ULUKHAKTOK	489		(#)		(#)
NT	WEKWETI	147		(#)		(#)
NU	WHALE COVE	413		(#)		(#)
	<b>Total 2013-2017</b>					(#)
NU	BAKER LAKE	2025		(#)		(#)
NU	GJOA HAVEN	1152		(#)		(#)
	<b>Grand Total</b>					(#)

Wholesale Connect Availability - Details by Community

<b>Territory</b>	<b>Community</b>	<b>Population</b>	<b>Current Wholesale Connect Community Type (Terrestrial)</b>	<b>Wholesale Connect Community Type at the End of Modernization Plan</b>
NT	AKLAVIK	657	C	C
YT	BEAVER CREEK	105	Not Available	C
NT	BEHCHOKO	2,066	B	B
BC	BLUEBERRY	203	Not Available	B
YT	BURWASH LANDING	110	Not Available	C
YT	CARCROSS	454	B	B
YT	CARMACKS	504	B	B
YT	CHAMPAGNE	25	Not Available	B
YT	DAWSON CITY	1,998	C	B
BC	DEASE LAKE	74	C	C
YT	DESTRUCTION BAY	47	Not Available	C
NT	DETTAH	262	Not Available	C
NT	ENTERPRISE	103	B	B
YT	FARO	405	C	C
NT	FORT GOOD HOPE	589	C	C
NT	FORT LIARD	597	B	B
NT	FORT MCPHERSON	788	C	C
BC	FORT NELSON	4,790	A	A
NT	FORT PROVIDENCE	773	B	B
NT	FORT RESOLUTION	485	B	B
NT	FORT SIMPSON	1,267	C	C
NT	FORT SMITH	2,492	B	B
BC	GOOD HOPE LAKE	75	Not Available	C
YT	HAINES JUNCTION	856	B	B
NT	HAY RIVER	4,025	A	A
AB	HIGH LEVEL	4,128	NBP	NBP
NT	INUVIK	3,524	C	C
BC	ISKUT	364	Not Available	C
NT	JEAN MARIE RIVER	71	Not Available	C
NT	KAKISA	58	B	B
YT	KENO	20	Not Available	Not Available
BC	LOWER POST	123	Not Available	B
YT	MARSH LAKE	511	Not Available	B
YT	MAYO	474	C	C
BC	MOULD CREEK	25	Not Available	B
BC	MUNCHO LAKE	25	Not Available	B
NT	NORMAN WELLS	847	C	C
YT	PELLY CROSSING	330	Not Available	B
BC	PINK MOUNTAIN	100	Not Available	C
BC	PROPHET RIVER	100	Not Available	B
YT	ROSS RIVER	374	C	C
YT	STEWART CROSSING	35	Not Available	B
YT	SWIFT RIVER	10	Not Available	B

Wholesale Connect Availability - Details by Community

<b>Territory</b>	<b>Community</b>	<b>Population</b>	<b>Current Wholesale Connect Community Type (Terrestrial)</b>	<b>Wholesale Connect Community Type at the End of Modernization Plan</b>
YT	TAGISH	253	Not Available	C
BC	TELEGRAPH CREEK	250	C	C
YT	TESLIN	516	B	B
BC	TOAD RIVER	20	Not Available	B
NT	TSIIGEHTCHIC	125	Not Available	C
NT	TUKTOYAKTUK	929	C	C
NT	TULITA	556	Not Available	C
BC	UPPER HALFWAY	100	Not Available	C
YT	UPPER LIARD	178	Not Available	B
YT	WATSON LAKE	1,650	B	B
NT	WHA TI	509	Not Available	C
YT	WHITEHORSE	27,703	A	A
BC	WONOWON	102	Not Available	B
NT	WRIGLEY	113	Not Available	C
NT	YELLOWKNIFE	20,188	A	A

Legend

A	Type A Community
B	Type B Community
C	Type C Community
NBP	Network Breakout Point