BACKGROUND – Current and Future

The Leech Lake Telecommunications Company, LLC (LLT) is a wireless telecommunications carrier pending Eligible Telecommunications Carrier designation. Leech Lake Telecommunications Company, LLC (LLT) is owned and operated by the Leech Lake Band of Ojibwe. The LLT provides a robust Wideband – Code Division Access (W-CDMA) 3rd Generation Partnership Project (3GPP) mobile phone based on Global System for Mobile Communications (GSM) standard in two of its anchor institute service areas – Leech Lake Band of Ojibwe (LLBO) communities of Cass Lake and Mission. In conjunction with the mobile phone system wireless broadband is deployed to the home in the same service areas.

The LLT build out encompasses a three year expansion project. The expansion consists of sixteen (16) PCS cell sites. LLT will first deploy services via eight (8) existing towers and facilities owned by the Leech Lake Band of Ojibwe (LLBO). The planned construction of eight (8) towers will be constructed on tribal lands of the LLBO. The types of towers for the wireless system are self-supporting and guyed towers with heights that vary from 250 feet to 500 feet. All towers are designed with three (3) sector configuration and one carrier optimized for maximum coverage to accommodate mobile and fixed wireless for voice and broadband data traffic levels per the requirement of the FCC. The current and planned locations of the towers is designed to provide for in-building path budget, and will provide ubiquitous coverage for business and residents throughout the LLT’s tribal lands service area and is shown in the LLTs PCS wireless coverage map.

A fiber route will be constructed between the proposed LLT MTSO/Administration building to the Cass Lake Tower site and will be placed along existing ROWs. Where ROWs and easements do not exist, they will be obtained through appropriate authorizations. It is expected that the remaining tower sites will utilize microwave backhaul to transport the voice and data traffic from each PCS cell site (Node B) to the MTSO. Thus minimizing the need for ROW and easements for landline infrastructure placements and reducing the cost to deploy to citizens in rural tribal lands of low income and minimally populated anchor institutes located throughout the tribal lands/service area.
BACKGROUND – Historical Past

2012-2013 the Leech Lake Band of Ojibwe challenged Qwest aka Century Link (a Price Cap Carrier) for overstating wireline broadband services within the jurisdictional boundaries of the Leech Lake Band of Ojibwe. Qwest/CenturyLink has historically been non-responsive to tribal service requests. As the ILEC in the Cass Lake Exchange Qwest/CenturyLink services are key to assuring that citizens residing in LLBO lands have access to state of the art Broadband networks and services that support all areas of health, education, and economic development. The construction costs CenturyLink required from the Leech Lake Band of Ojibwe for services in its tribal lands were exorbitant, and the patchwork of service levels throughout tribal lands creates service issues for citizens and businesses that include unnecessary long distance charges between LLBO communities.

To address the services issues, the Leech Lake Band of Ojibwe met with CenturyLink in 1st Quarter 2013 and discussed the fact that CenturyLink does not access federal programs that provide cost support to remote high cost service areas such as the LLBO tribal lands. The LLT and the LLBO emphasize that its service area typically cannot sustain a free market cost model. It is in the best interest as a federally recognized tribe that within the jurisdictional boundaries rural, remote and high cost service areas are best served by a service provider that meets Connect America Fund requirements. The Leech Lake Band of Ojibwe is also served by two Rate of Return Carriers that have overbuilt, outside the FCC tribal engagement policies, in select areas within the jurisdictional boundaries of Leech Lake Band of Ojibwe tribal lands.

Additionally, the LLBO recognizes that mobile broadband exists along a major highway within the jurisdictional boundaries of tribal lands; however mobile broadband is not available in most remote tribal communities. To alleviate this issue the Leech Lake Band of Ojibwe is actively pursuing options to address gaps in mobile broadband services throughout tribal lands.

Geographic Territory – Leech Lake Band of Ojibwe boundaries

The Leech Lake Indian Reservation contains 864,158 acres, including parts of Beltrami, Cass, Hubbard, and Itasca Counties (see location map – EXHIBIT A). The Leech Lake Reservation is located in rural north-central Minnesota, approximately 235 miles north of Minneapolis/St. Paul and 100 miles south of the Canadian border. It is a rural area covering approximately 1,000 square miles of forest and water systems in the Central Pine-Hardwoods Forest eco-region.
There are 300,000 acres of lakes, 120,000 acres of wetlands and 260 miles of rivers and streams within the reservation boundaries.

**List of 48 Anchor Institutes -**

Fifteen Leech Lake Band of Ojibwe anchor institutes (communities) lie within the LLBO reservation boundaries.

1. Cass Lake  
2. Ball Club  
3. Bena  
4. Inger  
5. Onigum  
6. Mission  
7. Cass River (aka Knudson Dam and/or Pennington)  
8. Smokey Point-Kego Lake  
9. Sugar Point  
10. Oak Point  
11. Winnie Dam  
12. Ryan’s Village  
13. S Lake  
14. Buck Lake-Sugar Bush  
15. Prescott.

Most communities are very small (less than 100 residents) and isolated in the Chippewa National Forest.

1. Leech Lake Band of Ojibwe Administrative Offices  
2. Cass Lake Service Unit-Indian Health Service hospital/outpatient clinic  
3. Headquarters of the Minnesota Chippewa Tribe  
4. Headquarters of the Chippewa National Forest  
5. Bug-O-Nay-Ge-Shig  
6. Cass Lake Community Library  
7. Cass Lake Fire Department  
8. Cass County Sheriff’s Office  
9. Cass County Auditor/Treasurer  
10. Cass County Sheriff’s Department / Cass County Jail  
11. Cass Lake-Bena High  
12. Cass Lake-Bena Middle  
13. Bug-O-Nay-Ge-Shig Library  
14. Cass Lake-Bena Elementary  
15. Cl-B Elem Library
16. Department Of Natural Resources Division Of Forestry - Cass Lake Ranger Station
17. Federal Dam Fire Department
18. Leech Lake Department Of Resource Management
19. Immanuel Lutheran
20. Leech Lake Tribal Police Department
21. Leech Lake Tribal College
22. Margaret Welch Memorial Library
23. Pike Bay Police Department
24. School District Office – Cass Lake Bena Schools
25. Squaw Lake Fire Department
26. Walker-Hackensack-Akeley Elementary Media Center
27. Walker-Hackensack-Akeley High School Media Center
29. Walker Volunteer Fire Department
30. Walker Police Department
31. Walker-Hackensack-Akeley Elem
32. Walker-Hackensack-Akeley High
33. Walker Public Library

Census Tracts that are in tribal lands and serviceable by LLT are:

"MN","27007","Beltrami","27007940002",46,21,218012.91  1103 households  1805 pop
"MN","27021","Cass","27021940002",113,6,151370.03  1643 households  3101 pop

Proposed Technology –

LLT provides a Wideband - Code Division Multiple Access (W-CDMA) 3rd Generation Partnership Project (3GPP) mobile phone system based on Global System for Mobile Communications (GSM) standard. The Alcatel-Lucent (ALU) solution is based on a 3GPP Release 8.1 and supports the traditional Universal Terrestrial Radio Access Network (UTRAN) architecture with the Node B and Remote Network Controller (RNC). The Node B is local to the LLT Wireless Network and the remaining core network elements are hosted. The traffic from the Node Bs’ is aggregated and backhauled to a Remote Network Controller (RNC). LLT works cooperatively with a rural telecom to transport facilities via the Central Transport Group and provides the backhaul traffic to the switching facility. The switching facility is in the city of St. Cloud, MN.
The RNC is a part of the switching company’s hosted services and ultimately with a complete project, sixteen (16) distributed Node Bs (9926 d2& eNode B + RRH60-19) will be deployed local to the LLT Wireless Radio Access Network (RAN).

The ALU RNC and the Node B will support High Speed Packet Access (HSPA). HSPA is the most widely deployed mobile broadband technology today which has been built upon the GSM standard. HSPA technology supports both High Speed Downlink Packet Access (HSDPA) and High Speed Uplink Packet Access (HSUPA) on the LLT network. HSPA plus (HSPA+) extends the investment in the network before the next step to 3GPP Long Term Evolution (LTE).

The ALU 9926 Digital 2U eNode B is ALU’s converged product of W-CDMA, LTE-FDD and LTE-TDD Base Band Unit (BBU). The 2U eNode B provides a high capacity, feature rich and reliable BBU solution for usage across multiple wireless access technologies an offers a cost effective digital rack solution for a W-CDMA/HSPA solution that provides a smooth evolution path to LTE via a software upgrade.

HSPA is commonly referred to as 3.5G and is an upgrade to W-CDMA Networks that allows for much higher data speeds for broadband connectivity. HSDPA improves the downlink data transmission and provides up to 14Mbps with significant reduction in latency while HSUPA improves the uplink transmission from the mobile devise to the network up to 5.8 Mbps. The HSDPA and HSUPA transmission rates as stated above exceed the current FCC requirements.

An integral part of the LLT Broadband Wireless System includes license based microwave radios to transport the backhaul traffic from each Node B to the LLT’s Mobile Telephone Switch Office (MTSO) utilizing IP based radios. The Node B at each site will provide a 100BaseT Ethernet interface into the IP backhaul transport network.

A fiber route will be constructed between the proposed LLT MTSO/Administration building to the Cass Lake Tower site and will be placed along existing ROWs. Where ROWs and easements do not exist, they will be obtained through appropriate authorizations. The remaining tower sites will utilize microwave backhaul to transport the voice and data traffic from each PCS cell site (Node B) to the MSTO thereby minimizing the need for ROW and easements for landline infrastructure placements.

**State and/or Local or Tribal Government Participation in and/or Support for Project –**

By Resolution No. 2013-128 the Leech Lake Band of Ojibwe resolved to bring ubiquitous mobile and broadband telecommunications services to all citizens in tribal lands by incorporating the Leech Lake Telecommunications Company, LLC in accordance with Title 8 Business Corporations Code and Registrar.
**Existing Providers**

<table>
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<tr>
<th>Provider</th>
<th>SAC#</th>
<th>Wire Center</th>
<th>CLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CenturyLink (formerly Qwest)</td>
<td>365142</td>
<td>Cass Lake</td>
<td>CSSLMNCL</td>
</tr>
<tr>
<td>Arvig Tel Co</td>
<td>361350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson Tel Co</td>
<td>361410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paul Bunyan Rural</td>
<td>361451</td>
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<td></td>
</tr>
</tbody>
</table>

Qwest/CenturyLink has historically been non-responsive to tribal service requests. The construction costs CenturyLink required from the Leech Lake Band of Ojibwe for services were exorbitant, and the patchwork of service levels throughout tribal lands creates service issues for citizens and businesses that include unnecessary long distance charges between tribal communities.

Arvig Tel Co and Johnson Tel Co are service providers only in southern LLBO tribal lands and does not meet the needs of citizens and businesses in tribal lands with mobile and broadband telecommunications.

Paul Bunyan Rural is a service provider in selected areas within tribal lands. Its lack of cooperation with LLBO PUC leaves many citizens in tribal lands with unmet needs with mobile and broadband telecommunications.

**Project Timeline**

2014 - Phase I – Expand to increase operations with existing eight (8 towers) located in tribal lands and owned by the LLBO
2015 – Phase II – Seek federal funds to expand infrastructure to build four new towers in tribal lands and owned by the LLBO
2016 – Phase III – Seek federal funds and gap funding to construct the remaining

**Scalability**

The current telecommunications and broadband system was researched and developed in the 1990s and has been effectively operating to serve only the LLBO government. The
expansion of the service with the addition of mobile and wireless broadband to the citizens and businesses of the LLBO tribal lands is scalable and will meet the goal of the LLT to serve 2500 plus customers.

**Total Utility Investment –**

$550,000.00

**One Time Capital Infrastructure Investment Needed –**

$10,000,000.00

**Total Project Cost –**

$10,500,000.00

Respectfully submitted the 7th of March, 2014 by Sally Fineday, Business Manager, Leech Lake Telecommunications Company.