

## Attachment E

Qwest Corporation d/b/a CenturyLink QC

Valley Waterloo NBBP Grant Application

CenturyLink QC is part of Lumen Technologies, Inc. (Lumen). Lumen is a global communications, hosting, cloud, and IT services company enabling millions of customers to transform their businesses and lives through innovative technology solutions. Lumen is the 2<sup>nd</sup> largest U.S. communications provider to global enterprise customers. The company offers network and data systems management, Big Data analytics and IT consulting, and serves customers in more than 60 countries, providing broadband, voice, video, data, and managed services over its 400,000 global route miles of fiber.

For information and services for large business and enterprise customers, see the following links:

<https://www.lumen.com/en-us/home.html>

<https://www.lumen.com/en-us/networking/business-fiber.html>

Over the last several years, Lumen has completed numerous residential and business Fiber-To-The-Premise (FTTP) projects company-wide providing minimum 100 Mbps/100 Mbps speeds and has enabled thousands of locations in Nebraska and millions of locations across the country using FTTP.<sup>1</sup> Clearly the company has the expertise and capability to successfully build, operate and maintain FTTP networks.

While Lumen is a global company, it is also a Nebraska company. Lumen provides service throughout the State of Nebraska through subsidiaries that are Eligible Telecommunications Carriers (ETCs); both Qwest Corporation d/b/a CenturyLink QC and United Telephone of the West d/b/a CenturyLink are Nebraska ETCs and have been providers of telecommunications and high-speed internet access in Nebraska for decades, with a telephone network that can connect to more than 500,000 Nebraska residents and businesses.

Lumen maintains a workforce of more than 100 engineers, service technicians and contractor resources dedicated to providing telephone service and internet access in Nebraska. This workforce is not restricted to geographical areas allowing us to staff according to demand in a particular area. Our technicians are all on a continual learning cycle through many different delivery methods to ensure their skills and knowledge are current. Additionally, we staff Planning, Transport and Data Sitch engineers in Nebraska with more than 40 years combined experience. Residents and businesses can order service at Lumen's website or by calling our call centers using 8YY numbers.

### **Type of FTTP Technology:**

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<sup>1</sup> 1<sup>st</sup> Quarter 2024 results shows 3.8 million fiber enabled customer locations:

[https://ir.lumen.com/files/doc\\_financials/2024/q1/Lumen-1Q24-Earnings-Presentation.pdf](https://ir.lumen.com/files/doc_financials/2024/q1/Lumen-1Q24-Earnings-Presentation.pdf)

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The project will be engineered and constructed using XGS-PON equipment, which provide symmetrical multi-gigabit service opportunities. CenturyLink QC will then use its national network to transport all traffic to its internet hubs located across the country.

When a project is completed, initial fiber internet service offerings will begin at symmetrical 500Mbps, well more than the NBBP minimum requirement. CenturyLink QC expects to offer multi-gigabit speeds in the grant project area as well.

By nature, FTTP technology is a future proof/scalable technology, and the XGS-PON equipment will allow future speed increases.

- The Valley Waterloo project will deploy approximately 4 miles of fiber to an estimated 74 passings ultimately providing fiber-based internet services and voice services to each location within the project area.
- The project will be deployed using XGS-PON technology over an FTTP network. Lumen will use a combination of aerial and buried fiber to reach each location from the existing central office location. Lumen's existing service personnel will install the customer connections and maintain the network across Nebraska.
- Lumen has built FTTP networks to approximately 3.8 million locations and counting across the country, and to thousands of locations in Nebraska. Lumen, through its ETCs, has been providing services to Nebraska residents and businesses for more than a century and have been offering broadband service for decades.

Lumen will use its national network to transport all traffic to its internet hubs located across the country. Voice and data traffic will each be completed as the traffic requires and connected to the customer. The Lumen network is one of the largest in the world, and the grant program will not be charged for these transport and termination costs.

CenturyLink QC monitors utilization and capacity across network links to determine appropriate network augmentation. This can include grooming to relieve burdened links, augmenting with new links, adding line cards, and adding nodes to serve new subscribers or to meet growing traffic trends.

The construction materials being used in this grant will be top-quality materials from leading manufacturers. The fiber will be from Corning and is expected to last at least 30 years. The electronics, from Adtran and Calix, will have regular software updates and maintenance to extend the life to 10-15 years or more, at which time it will be replaced.

Below are links to the primary equipment CenturyLink QC will use in its projects:

<https://www.corning.com/optical-communications/worldwide/en/home/products/fiber.html>

<https://www.adtran.com/amfile/file/download/file/280/product/5/>

<https://www.adtran.com/media/amasty/amfile/attach/duL2AcanjSSicBps2h5EQVDXqf3QesuZ.pdf>

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[https://www.calix.com/platforms/axos/axos-systems/10g\\_ont\\_onu.html](https://www.calix.com/platforms/axos/axos-systems/10g_ont_onu.html)

### **Cybersecurity:**

CenturyLink QC has implemented operational cybersecurity and supply chain risk management plans which reflect the latest version of the NIST Framework for Improving Critical Infrastructure Cybersecurity and Executive Order 14028.