Project Description

MasTec Network Solutions is an authorized representative for Lumen Technologies ("Lumen") as it relates to proposed improvements to Lumen's fiber optic network on their property located at 4110 Lower Peoh Point Road in Cle Elum, WA 98922 (Kittitas County Parcel # 14223; Map # 20-16-31030-0021).

The demand for Lumen's fiber optic network can be influenced by various factors, including market trends, technological advancements, and business needs. Lumen provides a wide range of services, including fiber-optic broadband and communication solutions, to both businesses and consumers. In response to demand, Lumen is making improvements to its network infrastructure. Some of the key factors driving demand for Lumen's fiber optic network include:

1. **Increased Internet Traffic**: The growing reliance on high-speed internet for applications such as remote work, cloud computing, and streaming services is driving demand for faster, more reliable networks. Fiber optics, known for their speed and capacity, are critical in meeting this demand.
2. **5G Rollout**: As 5G technology continues to expand, there is a need for fiber infrastructure to support the backhaul requirements of 5G networks. Fiber optics are essential for connecting cell towers to core networks due to their high bandwidth and low latency.
3. **Cloud and Data Center Growth**: The increasing reliance on cloud-based services, big data, and artificial intelligence (AI) applications requires high-performance networking. Lumen's fiber network is crucial for businesses seeking reliable and fast connections to cloud providers and data centers.
4. **Business and Enterprise Needs**: Enterprises, particularly those in sectors like healthcare, finance, and e-commerce, require robust and secure communication networks. Fiber optics offer the bandwidth and security features needed to support complex business applications, including voice over IP (VoIP), video conferencing, and real-time data analytics.
5. **Government and Infrastructure Investment**: Public and private sector investments in broadband infrastructure, including initiatives to improve rural connectivity, can increase the demand for fiber networks. Lumen's fiber infrastructure is positioned to play a role in fulfilling these initiatives.
6. **Technological Advancements**: With ongoing advancements in fiber optic technologies—such as Dense Wavelength Division Multiplexing (DWDM) and faster deployment techniques—the efficiency, scalability, and performance of Lumen's fiber network can further fuel demand.

There are also Regional and Market Considerations, for example:

- **Urban vs. Rural Demand**: In urban areas, the demand for fiber optics is often driven by businesses and high-density consumer needs. In rural areas, demand may be driven by government-backed initiatives to expand broadband access.
- **Enterprise vs. Consumer**: Large enterprises may demand dedicated, high-performance fiber solutions, while consumers generally seek affordable, high-speed internet connections.

Overall, the demand for Lumen's fiber optic network is expected to continue growing, driven by the expansion of digital infrastructure, increasing data usage, and the need for high-speed, reliable connectivity across sectors.

The proposed scope of work at 4110 Lower Peoh Point Road in Cle Elum, WA is related to a Fiber Optic Regeneration Facility Inline Amplification Project that is intended to help maintain high-quality, high-speed data transmission. In a fiber optic network, "inline amplification" refers to the process of boosting the strength of an optical signal by placing amplifiers directly within the fiber optic cable at regular intervals along the transmission path, essentially acting like "signal boosters" to compensate for signal degradation over long distances, thus enabling reliable data transmission over extended fiber lengths. Inline amplifiers are deployed along the fiber optic line to boost the signal without needing to convert it to an electrical signal first. This helps prevent the signal from degrading, especially in dense wavelength division multiplexing (DWDM) systems. Signals travel through the fiber optic cable and reach the regeneration facility. If the signal quality is significantly degraded, regenerators decode, amplify, and retransmit the signal optically ("Regeneration"). Amplifiers are positioned at intervals along the transmission line to boost the signal to prevent loss and ensure clarity over long distances ("Inline Amplification").

Lumen currently operates an existing fiber optic network at 4110 Lower Peoh Point Road in Cle Elum, WA. Lumen is proposing to install a new 23' x 36' communications equipment shelter on a new 36' x 46'-9" concrete pad. The 3.0-acre property is zoned AG-5 and is currently used for communications purposes. The proposed equipment shelter will be located on the south side of an existing communications building which will help shield the new equipment shelter from the public right-of-way. The proposed equipment shelter will be accessed via an existing compacted gravel driveway. Lumen will add a 44'-8 3/4" x 113'-9 3/16" chain link fence around the propose equipment shelter for security purposes. In addition, a new sidewalk (with boot scrapes) will be added at the front of the equipment shelter together with a 3' x 5' concrete door entry pad (with boot scrapes) at the back of the equipment shelter. The proposed equipment shelter will house communications equipment that is necessary for the upgrade and expansion to Lumen's fiber optic communications network.