



## Frontier Business Plan Attachment G

### Proposed Project Description

Frontier proposes to deploy “future-proof” Fiber-to-the-Premises (“FTTP”)/Fiber-to-the-Home (FTTH) facilities that will provide symmetrical gigabit broadband services (i.e., initially, up to 2 Gbps/2Gbps including necessary transmission overhead) using XGS-PON technology. The symmetrical download and upload capabilities of fiber are critical to supporting multiple users and a multitude of critical services in the marketplace today, including telehealth, remote schooling, and remote work applications. Frontier’s proposed project covers 524 High Cost grant-eligible locations in Buffalo County which include the cities of Buffalo, Amherst, Gibbon, Kearney, Odessa, and Riverdale. The project proposes approximately 56 miles of new fiber cable are associated with these locations. If awarded a grant for this project, Frontier plans to pursue building to an additional 12,925 unsubsidized locations as an added benefit. While these additional locations will be aggregated together with the grant-eligible locations as a holistic project, the non-grant-eligible costs are omitted from proposed grant costs. These additional locations would drastically increase the benefits of the grant project by improving currently available broadband service with our gigabit service offers, exponentially increasing the economic impact of the project, and facilitating digital inclusion efforts for the entire community to a largely underserved market.

A fiber-to-the-premise network provides the project locations with the fastest symmetrical retail services available today to residential and small business locations, and the ready ability to cost-effectively augment capacity to meet future needs. Because fiber networks have the advantage of scalability, fiber communities are further prepared with the expandable capacity needed to quickly adopt emerging applications like augmented and virtual reality in the future. These and other applications will be the future drivers of economic growth, productivity, and efficiency and will be a critical factor in helping communities to effectively address environmental conditions impacting them, including emergency preparedness and response.

FTTP deployment, upon launch, will offer symmetrical gigabit service (with lower tier speeds also available, based on customer request) to every address identified in the project area. As a fiber-based network, the project is also readily scalable to offer even higher speed service as use and demand grow without the need for major construction to replace or augment the transmission distribution media as is the case with other technologies. Capacity augmentation and increased performance can be achieved through the addition and/or upgrade of system electronics, a task that does not require significant construction or cost. Thus, the planning and timing of future upgrades is driven by the comparatively short timelines for engineering, procurement and installation of new electronics in the network and at the customer premises, rather than by major external construction factors. It is for this reason that fiber networks are frequently described as “future-proof” - they are economically scalable for even faster speeds.

In general, the costliest component of the project is the work needed to plan for and initially deploy the fiber infrastructure, specifically the engineering of the fiber deployment, the fiber itself, and its placement. The fiber deployed as part of the Project is expected to have a life exceeding 20 years. Moreover, as a passive transmission medium, fiber is not subject to the same wear and tear as other technologies. Therefore, it is a more sustainable option and primed for any upgrades and enhanced electronics when future needs require it. Based on its current expansion capability of up to 10G (without

the addition of system electronics), the project proposes to deploy infrastructure robust enough to not only meet current need but also capacity needs well into the future. Thus, based on its 10+ year experience deploying, operating, and maintaining fiber networks, Frontier expects that for the foreseeable future, the future fiber-related infrastructure costs will be predominantly driven by normal damage repair (e.g., due to downed poles and other third-party damage) and facility relocations (e.g., road projects), which are modest throughout the life of a fiber network.

Fiber optics have an expected useful life of 20 years and supporting structures including poles and conduit have an expected useful life of 50 years. Electronics including lasers for the deployment of FTTP have an expected useful life of greater than 10 years.

A Core Aggregation Router (CAR) & Broadband Network Gateway (BNG) will handle all the upstream FTTP data links to all Reconfigurable Optical Add/Drop Multiplexer (ROADM), Ethernet Aggregators, and Optical Line Terminations (OLT) in each Central Office. Middle mile fiber is required to connect between the CAR, BNG, ROADMs, Ethernet Aggregators and OLTs. These elements give Frontier the ability to manage future capacity and provides the ability to upgrade to next generation PON technologies as the need for bandwidth continues to increase in the future. Next generation CAR, BNG, ROADM, Ethernet Aggregation, and OLT's are necessary to deploy 2Gbps/2Gbps and above FTTP services. Previous versions of backbone equipment are not scalable for future of Next Generation PON. Multiple ROADM nodes may be required between multiple central offices due to distance limitations, such as decibel ("db") loss. To maintain network integrity and maintenance response times, Frontier limits use of leased backhaul facilities but will use them when financially advisable long term.

### **Risk Factors**

As part of maintaining and modifying its existing telephone and broadband network in the Kearney market, Frontier has ongoing relationships with local and state governments to address concerns related to zoning and rights-of-way. Other areas of risk to note include availability of construction labor, materials, and permitting. Frontier believes it has and will mitigate these risks as described below:

### **Construction Resources**

In order to assure availability of construction resources for upcoming FTTP projects, Frontier vetted multiple turn-key construction vendors in 3Q 2021 that will provide the detail engineering, including securing any permits required for the build, procurement of material, and construction of all Outside Plant ("OSP") builds associated with all of Frontier's planned projects (both grant-funded and non). These vendors have the capacity to handle Frontier's "business as usual" projects as well as our potential grant builds.

### **Supply Chain**

For procurement of OSP material, the turn-key vendor can leverage its own supply chains (assuming standard requirements are met) or they can leverage Frontier pricing with our key suppliers. Frontier has sourcing contracts with a variety of OSP material vendors that we partner with to meet our forecasted needs and we continue to vet new vendors, as needed.

### Permitting

Fiber will be placed in existing conduit or on existing poles, where applicable. Where conduit or poles do not exist, fiber plant will be placed in an existing easement and/or right-of-way following the existing Frontier copper infrastructure. In some cases, fiber plant will not have access to existing Frontier infrastructure. In these instances, Frontier will work with county, state, federal, railroad, and any other party required for the applicable permit(s) to complete placement of fiber plant and equipment within the designated build timelines.

### Financial Analysis

While the cash flow for this project does not reflect net positive capitalization in 5 years, Frontier considers two mitigating factors that allow us to pursue this build with the cost profile submitted. First, our internal build analysis considers a longer-term analysis period, including a terminal value multiple; over this extended period and including this multiple, we expect the rising net cash flows substantiate the build on its own merits. Second, if awarded, Frontier plans to pursue this grant project as a part of a broader unsubsidized build, which may include an additional 12,925 locations in areas contiguous to the submitted grant locations. We expect that the combined returns of our unsubsidized and grant award areas will constitute an even more financially robust project than the grant-eligible areas alone.

	Year 0	Year 1	Year 2	Year 3	Year 4
Build Cost	(\$5,260,965)	\$0	\$0	\$0	\$0
Connection Cost	\$0	(\$272,274)	(\$153,894)	(\$99,562)	(\$70,912)
Subsidy	\$2,544,802	\$0	\$0	\$0	\$0
Revenue Less Operating Exp	-	\$ 167,786	\$ 272,968	\$ 338,905	\$ 380,239
<b>Net Cash Flows</b>	<b>\$ (2,716,163)</b>	<b>\$ (104,487)</b>	<b>\$ 119,074</b>	<b>\$ 239,343</b>	<b>\$ 309,327</b>
<i>Cumulative Cash Flow</i>	<i>(\$2,716,163)</i>	<i>(\$2,820,650)</i>	<i>(\$2,701,576)</i>	<i>(\$2,462,233)</i>	<i>(\$2,152,906)</i>
Assumption that build cost will be concentrated in year 0.					