

STATE OF MISSOURI
MISSOURI PUBLIC SERVICE COMMISSION

Aptitude Internet, LLC)
Application for Designation as an Eligible)
Telecommunications Carrier for Purposes of) Docket No. _____
Receiving Federal Universal Service Support)

**APPLICATION OF APTITUDE INTERNET, LLC FOR DESIGNATION AS AN ELIGIBLE
TELECOMMUNICATIONS CARRIER**

Now comes Aptitude Internet, LLC (“Aptitude”) and pursuant to the Telecommunications Act of 1996, 47 U.S.C. §214(e)(2) (the “Act”) and the rules of the Federal Communications Commission (“FCC”) 47 C.F.R. §54.201, hereby requests that the Missouri Public Service Commission (“Commission”) designate Aptitude as an eligible telecommunications carrier (“ETC”) under the provisions of Section 54.201(d) to receive federal universal service support via Lifeline and through the Rural Digital Opportunity Fund (“RDOF”) for the provision of broadband internet access and broadband-voice bundled offerings. The service area contains seventeen census block groups covering 13,535 locations in Phelps, St. Francois, Sainte Genevieve, and Perry counties in Missouri.¹ The RDOF rules² require provisional winners to obtain ETC status by June 7, 2020 and Aptitude therefore respectfully requests expeditious action on this application to meet the obligation.

Aptitude is a Missouri limited liability company with a principal place of business and mailing address of 1027 Sainte Genevieve Ave, Farmington, MO 63640. For the reasons stated below, designating Aptitude as an ETC is consistent with statutory and regulatory

¹ See Exhibit A for list.

² See 47 CFR § 54.804(b)(5).

requirements and the public interest.

All correspondence, communications, pleadings, notices, orders and decisions relating to this Application should be addressed to counsel at:

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I. Introduction / Description of Company

Company Background

Aptitude is a fixed wireless and fiber broadband internet service and voice-over-internet provider with headquarters in Farmington, Missouri. On November 5, 2020, Aptitude filed an application to provide telecommunications and interconnected voice over internet protocol services. The Commission approved the application in Case No. DA-2021-0134 on November 12, 2020.

Fixed Wireless Broadband Information

Aptitude is proud of its heritage as an innovative fixed wireless internet service provider serving rural customers neglected by large incumbent local exchange carriers and cable companies. Aptitude will provide broadband internet access service through an antenna installed on the customer premise that will connect through a radio at a central tower. The tower will either connect directly to the internet via a fiber or will connect to another fiber-fed tower via fixed wireless.

Aptitude utilizes a wireless ring network with fixed base stations (access nodes) running at the 1+0 and/or 4+0 on the licensed 11 GHz or 5 GHz spectrum. This network will have 99.99% uptime and availability due to its ring structure. The technologies include fiber and/or fixed wireless (11 GHz or 5 GHz) for interconnection (backhaul) and fixed wireless—either 3.5 (CBRS), 2.4 GHz, 2.5 GHz (EBS), 5 GHz, TVWS, or 60 GHz—for last-mile service. Future proposed deployments have several features that are unique to rural broadband network deployment. Some of the key features of the expanded network will include:

Core Network: The core of the network will be deployed at colocation facilities in data centers that are capable of servicing the anticipated service areas. Internet access will be obtained through BGP connections with multiple Internet Exchange Providers and Internet Peering facilities. Access to voice services will be managed through the core network with dedicated transport into VOIP provider network facilities. The colocation facilities are currently tied into or have access to a wide variety of middle mile networks and will be capable of terminating multiple 10Gbps and 40Gbps connections from existing fiber transport networks. Switches and routers will be deployed in a cross-threaded, high availability design

that will maximize redundancy and allow for load balancing between network segments.

Protocols in use at the core of the network include BGP, VRRP, GRE, MPLS, IPoE and OSPF as appropriate. DSCP tags will be honored at all routers and switches throughout the network to enforce QOS and preserve the integrity of voice and other critical latency sensitive applications.

Fiber Middle Mile: 10Gbps and 40Gbps fiber middle-mile connections will be used to distribute capacity deep into the projected service areas. Services from multiple existing fiber transport networks will tie back into the core data center networks and will also carry traffic between multiple data centers. These fiber connections will be configured with MPLS-TE, OSPF and BGP routing protocols as appropriate to handle route distribution and traffic engineering needs. Redundancy will be achieved by utilizing multiple fiber providers on geographically separate fibers into service areas where traffic can be shifted from one provider to the other in the event of an outage.

Microwave Middle Mile: A combination of licensed and unlicensed backhuls will be used to distribute connectivity from fiber middle mile locations to the last mile distribution locations. Consortium members utilize microwave backhuls to extend network connectivity from fiber middle-mile locations to more remote access points.

■ Licensed microwave spectrum types and their use case include:

- 6 Ghz, capacity up to 1.2Gbps for use on long distance connections up to 30 miles
- 11 Ghz, capacity up to 1.2Gbps for use on medium distance connections up to 15 miles
- 18 Ghz, capacity up to 1.2Gbps for use on shorter distance connections up to 8 miles

■ Unlicensed microwave spectrum types and their use case include:

- 24 Ghz, capacity up to 1Gbps for use on short connections up to 3 miles
- 60 Ghz, capacity up to 10Gbps for use on medium connections up to 10 miles
- 5 Ghz, capacity of up to 600 Mbps for use on lower capacity connections up to 10 miles

■ Each tower site will be within four network segments of a fiber backhaul point to ensure adequate capacity and network performance. Per hop latency for each microwave backhaul is approximately 5ms, so middle mile latency to the Internet backbone points from the most remote segments of the network should be under 21ms.

Last-Mile: The last mile network segments will be delivered via fixed wireless, hybrid fiber/coax cable network or active ethernet over fiber.

■ Fixed Wireless: Last mile service from each tower will be delivered by Cambium TDD equipment in CBRS spectrum and in unlicensed 5Ghz and lightly licensed 6Ghz for the baseline and above baseline tiers. CBRS spectrum will be used for Non-line of Sight (NLOS) locations and unlicensed 5ghz or 6Ghz will be used for Line of Sight (LOS) locations. A typical tower will have four base stations in the appropriate spectrum choice, mounted at an adequate height on a tower site to provide the needed coverage into the service area. Some towers may have both types of base stations (CBRS and 5Ghz) in place to maximize available capacity.

Fiber Optic Broadband

The Company offers high speed connectivity with industry standard security and adjustable speeds to both residences and business in its coverage area. The company also has begun deploying fiber optic networks in select areas and intends to continue to build these low latency, state-of-the-art networks through RDOF funding.

Aptitude will offer the following broadband plans:

Broadband	Speed	Price	Lifeline Pricing
Value	25 Mbps Download / 25 Mbps Upload	\$50.00	TBD
Fast	100 Mbps Download / 100 Mbps Upload	\$75.00	TBD
Max	1000 Mbps Download / 1000 Mbps Upload	\$100.00	TBD

Voice Services Information

Aptitude will offer voice services using VOXTiX as a white-label voice solution provider. The VOXTiX platform supports thousands of users. It's designed to handle 2.5x capacity, and is currently managing billions of minutes of voice traffic per year. Our vendor-agnostic, commodity-based architecture is fully replicable and fault-tolerant, providing a second layer of redundancy. We utilize both load balancing and failover technology to keep our systems continuously up and running — a third layer of redundancy. For example, primary and secondary servers contain multiple servers that back each other up. VOXTiX has established PSTN interconnections with top-tier carriers such as Bandwidth, Inteliquent, CenturyLink/Level 3 Communications. VOXTiX's architecture allows for fail-over switching between any of our 11 geo-redundant data centers presences. VOXTiX has 8 different service-level agreements (SLAs) that are proactively monitored. VOXTiX holds a Mean Opinion Score (MOS) of VoIP quality greater than 4 with an average of 4.5.

The VOXTiX Platform features include, but are not limited to:

- CALEA Compliant
- Call Detail Records (CDR's)

- DID Included Per Seat
- e911 Included Per Seat
- Fault-Tolerant
- Active-Active Architecture
- Geo-Redundant
- Mobile Phone App Integration
- QOS and MOS Monitoring Per Call
- Call Control
- OAuth Permissions
- Multi-Tenant With Unlimited Domains
- Advanced Security & Fraud Detection
- Auto Block Failed Registrations
- Auto Block SIP Port Scanning
- Auto Block Promiscuous SIP Devices
- Fraud Filtering for Bad Digits or Invalid Destinations
- SIP Call Traces
- Zero-Touch Device Provisioning

Aptitude will manage provisioning the service for the customer, all billing aspects, and troubleshooting any calling issues that may arise. Residential customers will be served with Analog Telephone Adapters (ATAs) and IP phones using SIP and UDP/RDP protocols. Calling features available include all of the traditional calling features; call forwarding, caller ID, voice mail, find-me-follow-me, etc. along with more advanced services.

Voice and Broadband Plans

Aptitude' residential digital voice service plan is \$25.00 with Aptitude broadband and \$30 without. Lifeline customers will receive the \$9.25 benefit, lowering the price to \$15.75 per month or \$20.75 respectively. The customer can use its own VoIP-enabled phone, pay an additional fee to use the service's mobile app, or purchase a phone from Aptitude. Lifeline customers will receive all of the same features as a non-Lifeline customer. Features include call waiting, caller ID, call forwarding, call transfer, voicemail, and free long distance in the U.S. and

Canada.

Lifeline Implementation

Aptitude will implement Lifeline based on the current rules and regulations established by the Federal Communications Commission (“FCC”) and administered by the Universal Service Administrative Company (“USAC”) as those rules may change in the future. Aptitude will follow the most recent Report and Orders and Lifeline Reform Order to begin services. The customer will have an option of a residential VoIP only package, internet package of 8/1 Mbps or higher, or a bundled voice and Internet package. Aptitude will price its Lifeline service at \$9.25 less than its equivalent non-Lifeline service. Therefore, Aptitude’ Lifeline service will represent a dollar-for-dollar reduction from its comparable non-Lifeline rate and will represent a pass-through of the full amount of support to the qualifying low-income consumer. Aptitude will allow customers to apply the Lifeline subsidy, on a full pass-through basis to packages of voice and broadband services.

Aptitude will build a dedicated Lifeline landing page with detailed information, how to apply, and how to contact USAC. Links to the application and worksheet, both English and Spanish, for each state will be available for download. Aptitude customer service agents will be trained to help customers fill out and return the form.

Along with the application, Aptitude will have a cover sheet with information on how to contact Aptitude for help, how to send the application to Aptitude (both electronically and by mail), and what additional information Aptitude needs from the customer. Additional information will include a copy of their current driver’s license, copy of their paycheck stubs/SNAP card/Medicaid card/SSI statement/Tribal program, etc., what service(s) they are

interested in, and how they heard about Aptitude.

Upon receipt of the filled-out application, Aptitude' Customer Service Department will process the application through the National Lifeline Accountability Database and let the customer know if they qualify for Lifeline. Additionally, the customer service representative will determine if the customer is in the network service area. Based on their qualification status, services they are interested in, and if service from Aptitude is available in their area, the appropriate packages will be offered to the customer for sign up and installation will be scheduled.

Aptitude will submit monthly reimbursement reports to USAC, and will work with USAC on re-certifying any current customers. All documentation related to the customer and Lifeline will be maintained while the customer is with Aptitude and for three years after they change providers.

II. Federal Telecommunications Act of 1996, Eligible Telecommunications Carrier

Pursuant to Section 214(e)(2) of the Act, a state commission may, upon its own motion, or upon request, designate a common carrier to be an "eligible telecommunications carrier" for purposes of receiving universal service support under the Act. Section 214(e)(2) also requires that the carrier designated meet the requirements of Section 214(e)(1). Section 214(e)(1) states:

A common carrier designated as an eligible telecommunications carrier... shall be eligible to receive universal service support in accordance with section 254 and shall, throughout the service area for which the designation is received -

(A) offer the services that are supported by the Federal universal service support mechanism under section 254(c), either using its own facilities or a combination of its own facilities and resale of another carrier's

services (including the service offered by another eligible telecommunications carrier); and

(B) advertise the availability of such services and the charges therefore using a media of general distribution.

Section 54.201(b) of the FCC's Rules states that the Commission shall, on its own motion or upon request, designate a common carrier an ETC so long as the carrier meets the requirements of Section 54.201(d), which restates the requirements found in Section 214(e)(1) of the Act. Section 214(e)(2) of the Act and Section 54.201(c) of the FCC's Rules state that the Commission may, in the case of an area serviced by a rural telephone company, and shall, in the case of all other areas, designate more than one common carrier as an ETC for a service area the Commission designates, provided each additional requesting carrier satisfies Section 214(e)(1) of the Act and Section 54.201(d) of the FCC's Rules. Before designating an additional ETC for an area serviced by a rural telephone company, the Commission shall find that such designation is in the public interest.

III. Designated Service Area

Section 214(e)(2) of the Act states that an ETC shall be designated for a "service area" by the state commission. Aptitude requests statewide authority as an eligible telecommunications carrier.

IV. Requirements for ETC Designation

A. Aptitude will offer the services that are supported by federal universal service support mechanisms throughout the service area for which ETC designation is received.

Aptitude is a common carrier for purposes of obtaining ETC designation under 47 U.S.C. § 214(e)(l). Aptitude commits to provide (i) voice grade access to the public switched telephone network (“PSTN”) or its functional equivalent; (ii) minutes of use for local service provided at no additional charge to end users; (iii) access to emergency services; and (iv) toll limitation services to qualifying low-income consumers as provided in accordance with 47 C.F.R. §§54.400 *et seq.*

i. Voice grade access to the public switched telephone network

In its *USF/ICC Transformation Order*, the FCC modified the definition of a supported service to a technologically-neutral approach, allowing companies to provision voice service over any platform, including the PSTN and IP networks.³ Thus, the FCC amended Section 54.101 to specify that the functionalities of eligible voice telephony services include voice grade access to the public switched network or its functional equivalent.⁴ The FCC further explained that increasingly “consumers are obtaining voice services not through traditional means but instead through interconnected VoIP providers offering service over broadband networks.”⁵ Interconnected VoIP services

³ *In the Matter of Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, 26 FCC Rcd 17663, 17692-93 (2011) (“*USF/ICC Transformation Order*”).

⁴ *Id.*; See also 47 C.F.R. §54.101(a).

⁵ *USF/ICC Transformation Order* at ¶63.

“allow customers to make real-time voice calls to, and receive calls from, the PSTN, and increasingly appear to be viewed by consumers as substitutes for traditional voice telephone services.”⁶ Thus, the FCC concluded that its authority to promote universal services in this context “does not depend on whether interconnected VoIP services are telecommunications services or information services under the Communications Act.”⁷ Aptitude will therefore provide voice-grade access to the PSTN by providing interconnected VoIP service throughout the designated service area.

ii. Minutes of Use

“Local usage” means an amount of minutes of use of exchange services, prescribed by the FCC, provided free of charge to end users.”⁸ The FCC has not specified a minimum amount of local usage that an ETC must offer. Aptitude will meet the local usage requirement by including local usage in its rate plans. The Company will comply with any minimum local usage requirements adopted by the FCC or this Commission.

iii. Access to emergency services

ETCs are required to provide access to the emergency services provided by local government or other public safety organizations, such as 911 and enhanced 911 (“E911”), to the extent the local government in an ETC's service area has implemented 911 or enhanced 911 systems. Aptitude will provide access to emergency services by providing 911 and E911 for all of its customers to the extent that the local governments in its designated service areas have implemented 911 and E911.

⁶ *Id.*

⁷ *Id.*

⁸ 47 C.F.R. § 54.101(a)(2).

iv. Toll limitation for Qualifying Low-Income Consumers

Aptitude does not distinguish between toll and non-toll for its voice offering. To the extent Aptitude offers a service that distinguishes between toll and non-toll calls, it will offer toll limitation to qualifying low-income consumers at no additional charge.

B. Broadband Internet Access Service

Pursuant to 47 C.F.R. 54.101(a)(2), Aptitude will provide broadband services with the capability to transmit data to and receive data by wire or radio from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up service.

C. Aptitude will comply with the requirements of 47 USC 214(e)(1).

Aptitude commits to, throughout its service area: (A) offer supported services “either using its own facilities or a combination of its own facilities and resale of another carrier's services (including the services offered by another eligible telecommunications carrier)” and (B) advertise the availability of such services and the charges therefor using media of general distribution

i. Aptitude will use its own facilities to provide the supported services

Aptitude provides high-speed broadband and digital telephone services to residential, commercial, and enterprise customers utilizing a combination of unlicensed and licensed wireless frequencies. Aptitude has deployed a next generation fixed wireless network targeting rural markets outside of metropolitan areas that are either unserved or underserved. Aptitude will provide supported services using its network infrastructure,

consisting of last mile connections and network equipment and components. It will also utilize its own facilities to provide backhaul for interconnection via a combination of fiber and wireless microwave technologies.

- ii. Aptitude will advertise the availability of its service throughout its service area.

Aptitude will advertise the availability of the Supported Services throughout its designated service areas using media of general distribution in a manner that is designed to reach those likely to qualify for such services. Aptitude agrees to comply with all form and content requirements, if any, promulgated by the FCC and this Commission in the future and required of all designated ETCs, including by disclosing the Applicant's name, that the service is a Lifeline service, that it is a government assistance program, that the service is non-transferable, and that it is available only to eligible consumers and limited to one discount per economic household.

D. Aptitude will comply with the FCC's additional eligibility criteria contained in 47 CFR §54.202.

- i. Aptitude certifies that it will comply with the service requirements applicable to the support that it receives;

Aptitude certifies that it will comply with the service requirements applicable to the support that it receives. Aptitude commits to provide supported services throughout the designated service area by committing to provide service to customers who make a reasonable request for service. Aptitude will commence offering service to all qualified consumers after it is certified as an ETC and soon after it receives ultimate approval from the FCC pursuant to applicable build-out requirements.

ii. Applicant will provision service that is able to remain functional in emergency situations within industry standards for VoIP services;

Aptitude will provision service with sufficient back-up power to remain functional without an external power source in emergency situations. Aptitude is able to re-route traffic around damaged facilities and will be able to manage traffic spikes resulting from emergency situations. Applicant uses battery back-up power in the field and battery backup power at its NOC for wireless internet service.

Aptitude's VoIP service requires an Internet Protocol (IP) connection to the Company's network or public Internet and 120VAC power to function. In the event of a failure of the IP connection or the local AC power, the service, including the E911 feature, will not function. Upon activation of a customer, Aptitude will provide the customer with a notification containing clear instructions on the use of emergency services.

Aptitude's VoIP service is not specifically used as a nomadic device. Customers can, through mobile applications, move the device to different locations. The end users registered service address is the only location at which the subscriber is authorized to use the service. The service will work if the device is moved to another location within the US and connected to a public internet connection; however, this is only authorized when the subscriber updates their service address prior to using the service at the new location by calling the Company's customer service toll free telephone number 800 610-2302.

Aptitude service includes enhanced 911 services (E911). When service is initially provisioned, and any time the subscriber's service address is updated, the service location is automatically transmitted to a third party E911 provider who geocodes the address,

associates it with a local Public Safety Answering Point (PSAP), provides an electronic positive affirmation that the address was properly geocoded, and stores the record on our behalf.

When a subscriber dials 911, the call is routed to the third party 911 provider and then from there to the local PSAP. The location information is transmitted in the call signaling to the local PSAP, and is visible to the operator in E911 enabled PSAPs. In jurisdictions where an E911 service fee is imposed on Interconnected VoIP Services by law, the fee is passed through to the end user and remitted to the local authority in accordance with applicable policy.

iii. Aptitude will satisfy consumer protection and service quality standards.

Upon designation as an ETC, Aptitude will satisfy all consumer protection and service quality standards as provided in 47 C.F.R § 54.202(a)(3), as well as all applicable state specific consumer protection and service quality standards.

E. Designation of Aptitude as an ETC is within the public interest.

Designation of Aptitude as an ETC will serve the public interest by facilitating the FCC's goal of developing voice and broadband networks in rural, high-cost areas. Under the 1996 Act, "upon request and consistent with the public interest, convenience and necessity" the Commission shall "designate more than one common carrier as an eligible telecommunications carrier for a service area designated" by the Commission.⁹ Before such a designation, the Commission shall find that the designation is in the public interest.¹⁰ In its *2005 ETC Order*, the FCC determined that the benefits of increased consumer choice, and the

⁹ 47 C.F.R. 54.201(c).

¹⁰ *Id.*

unique advantages of the applicant's service offering are components of a public interest analysis.¹¹

Expedited designation of Aptitude will serve the public interest by ensuring that the company is eligible to receive federal USF support, including through the FCC's high-cost programs. Aptitude will use this funding to directly advance the FCC's goal of deploying voice and broadband-capable networks in rural, high-cost areas while ensuring that rural consumers and anchor institutions benefit from innovations in communications technology. In particular, Aptitude will use federal USF support to expand access to high-speed, high-quality broadband and voice provided through interconnected VoIP and fixed wireless for residents of rural Missouri. These advanced communications services will provide important connectivity to consumers, businesses, and community anchor institutions, including rural schools, libraries and medical facilities and are a unique alternative to services provided by traditional wireline carriers within the Company's designated service area.

Designation of Aptitude as an ETC is also in the public interest because it will promote increased competitive choice, thereby increasing innovation and incenting other carriers to improve their existing networks in order to remain competitive. This will result in greater access to high-speed broadband and voice services, as well as improved service quality for residents of underserved communities in RDOF-eligible areas of Missouri.

¹¹ *In the Matter of Federal-State Joint Board on Universal Service*, Report and Order, CC Docket No. 96-45, FCC 05-46, 20 FCC Rcd 6371, 6389 (rel. Mar. 15, 2005) ("2005 ETC Order").

Aptitude' services will provide consumers with additional choices in communications service providers, as well as a variety of service offerings at competitive rates.

V. Relief Requested

For the reasons set forth above, Aptitude respectfully requests: (i) an expeditious Order designating the Company as an ETC in Missouri for the purpose of being eligible to receive federal funding pursuant to the FCC's Lifeline program; and (ii) such other relief as this Commission deems to be just and equitable.

Respectfully submitted,



Kristopher E. Twomey
Counsel to Aptitude

January 5, 2021

Exhibit A

List of RDOF Census Block Groups and Locations

Census Block Group	County	Locations
291618901004	Phelps	454
291618905001	Phelps	503
291618905003	Phelps	264
291618906001	Phelps	420
291618906002	Phelps	660
291618906003	Phelps	365
291618907002	Phelps	235
291618907003	Phelps	187
291618910001	Phelps	602
291618910002	Phelps	447
291618910003	Phelps	382
291879501022	St. Francois	400
291879503001	St. Francois	43
291869601002	Ste. Genevieve	269
291869601004	Ste. Genevieve	78
291869603002	Ste. Genevieve	292
291574704001	Perry	2