Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Modernizing the E-rate	)	WC Docket No. 13-184
Program for Schools and Libraries	)	

COMMENTS OF FRONTIER COMMUNICATIONS CORPORATION

I. INTRODUCTION AND SUMMARY

Frontier Communications Corporation ("Frontier") hereby submits the following comments in response to the Federal Communications Commission's ("Commission" or "FCC") Public Notice on the E-rate program in this docket.[1] The Notice recognizes that the record in this proceeding directs the Commission, in the near term, to "focus on providing the support necessary to ensure schools and libraries can afford high-speed connectivity to and within schools and libraries."[2] Accordingly, the Notice seeks comment on three specific issues that could advance its mission: (1) how to best focus E-rate funds on high-capacity broadband, especially high-speed Wi-Fi and internal connections; (2) whether and how the Commission should begin to phase down or phase out support for traditional voice services in order to focus more funding on broadband; and (3) whether there are demonstration projects or experiments that the Commission should authorize to help it test new ways to maximize cost-effective

[1] *In re:* Modernizing the E-rate Program for Schools and Libraries, Public Notice, WC Dkt. No. 13-184, DA 14-308 (rel. Mar. 6, 2014) ("Notice").

[2] *Id.* at ¶3 (including further specification of how the Commission can achieve this goal).

purchasing in the E-rate program.[3] Frontier's comments will focus on targeting funds for high-capacity broadband.

Frontier supports the Commission's goals to expand broadband coverage for schools and libraries. The Notice has effectively narrowed in on many of the key issues that will affect the future of E-rate, though the most important question is clearly how to focus funding to high-capacity broadband and internal connections. As an incumbent local exchange carrier ("ILEC") that serves primarily rural areas across its 27 state territory, Frontier is well-positioned to meet the Commission's connectivity goals. The schools that lack connectivity today are generally in the remote rural areas that are inherently more costly to serve; however Frontier's existing presence in these areas makes it the best solution for providing connections to the remaining unserved schools, both in terms of time and cost. As described below, 95 percent of the schools and libraries within Frontier's footprint are located in wire centers capable of providing the Ethernet-over-fiber services that the Commission seeks for scalable high-capacity broadband. Frontier's service area also includes many of the schools and libraries that educational networks do not reach.

II. Frontier And Other ILECs Serving Rural Areas Are Uniquely Positioned To Provide High-Capacity Broadband To and Within Schools Lacking Such Connections Today

Frontier, due to its ILEC status and historical position as the carrier of last resort in many rural and remote areas of the country, is uniquely positioned to meet the Commission's goals of providing high-capacity broadband connections to the schools and libraries that still lack them. Unlike most educational networks and competitive providers, Frontier already has existing facilities in the remote areas where schools and libraries are most likely to lack high-capacity

[3] *Id.* at ¶ 4.

connections. More importantly, Frontier's research has revealed that the vast majority of those areas are already provisioned for high-capacity services; the only remaining piece would be the last-mile fiber connection to the school.

In formulating its response to the Notice, Frontier conducted an inventory of the schools in its territory and its capabilities to provide high-capacity services to additional schools. Frontier has a total of 17,260 schools and libraries located in our local service area. These 17,260 schools and libraries are located in 2,242 of Frontier's 2,662 total wire centers. A full 95% of these schools and libraries are located in Frontier wire centers that provide Ethernet-over-fiber. To ensure access to 1 Gbps service, these schools and libraries must have a last mile fiber connection. Many of these schools and libraries already have this connection from Frontier, while some receive service from another broadband provider due to marketplace competition. For those schools and libraries in this category that do not have connectivity from Frontier or a competitor, access would simply require the last mile fiber connection, which may have related costs such as rights of way and access to conduit for building entrance facilities. Accordingly, over 16,000 of the schools and libraries in Frontier's territory, the vast majority of which are in rural areas due to the make-up of Frontier's footprint, can receive Ethernet service that is scalable up to 1 Gbps, in line with the Commission's goals.

Of the remaining schools and libraries in Frontier's service area that are not in wire centers equipped to provide Ethernet-over-fiber, all but one percent (less than 200) are in wire centers that are fiber-fed. In these cases, the wire center will support very high capacity scalable broadband to schools and libraries with the addition of Ethernet equipment and the provision of a last-mile fiber connection. Accordingly, providing high-capacity service to schools and libraries in these areas can be done at a substantially lower cost than if no fiber existed in the area.

The Commission should take advantage of the fact that Frontier and other ILECs serving rural areas have already deployed fiber deep into rural America; in Frontier's case high-capacity broadband connections are available to 99% of schools and libraries without any additional costly middle-mile fiber investment. The Commission should not waste scarce E-rate funding to overbuild existing middle-mile fiber when companies like Frontier have already invested the intensive capital necessary to provide it. Instead, the Commission should focus its efforts on determining how the existing fiber facilities that Frontier and other ILECs have in place today can bring the desired services to all schools and libraries, including those in rural areas.

In addition to the natural synergies for high-capacity deployments that result from Frontier and other ILECs' existing fiber, the Commission should also take advantage of the ILECs' significant experience in serving the business markets within their service territories. Frontier's position as a full-service communications company allows it to offer turn-key solutions, including both voice and broadband services, to schools and libraries that may lack dedicated IT employees. Frontier can install, manage and repair the connections and equipment upon which schools and libraries rely in a way that few competitors or new entrants can. In fact, Frontier now offers the internal wiring and Wi-Fi connection service that the Commission has established as a priority.[4] Further, due to scale and scope of its operations, Frontier has the ability to offer cybersecurity services through its flagship product, Frontier Secure, which can provide security services for devices, servers and more.[5] Between Frontier's existing fiber connections and its ability to provide schools with all of the support and services necessary to bring those connections to life, the Commission should be laser-focused on how it can work with Frontier

[4] More information on Frontier's educational services is *available at* http://frontier.com/enterprise/industry-solutions/education/solutions (last visited April 7, 2014).

[5] More information on Frontier Secure is *available at* http://ww2.frontierhelp.com/ (last visited April 7, 2014).

and other ILECs who have the existing infrastructure necessary to provide the high-capacity services to schools and libraries that the Commission seeks to enable.

III. Education Networks Do Not Have the Infrastructure Necessary to Provide an Efficient Option for Enabling High-Capacity Connections in Rural America

The underlying problem for providing high-capacity connections to rural American schools and libraries is that rural networks are inherently more expensive to build and maintain than their urban counterparts. Despite the examples that proponents of educational Internet backbone networks have provided of how they can provide a low-cost broadband solution, rural networks will always cost more. The Commission clearly recognized the inherent difficulty in serving high-cost rural areas when it created the Universal Service Fund (USF). From its inception, the USF has devoted over half of its funding to subsidizing networks in high-cost areas that are otherwise uneconomic to serve because of the costs involved. The twin dynamics of customer density and network distance that conspire to produce higher costs for traditional telecommunications networks in rural areas are still at work in networks that deliver advanced services. This is the reason that many existing state educational networks do not extend into the most rural, most costly to serve areas.[6] As stated above, rather than engage in the costly enterprise of financing the creation or expansion of educational networks into these rural areas, the Commission should focus on leveraging value from the existing networks already deployed by ILECs, like Frontier, serving rural areas.

IV. Funding Upfront Fiber Deployment Costs is an Efficient Investment but Costs Will Continue to Be Higher in Rural Areas than Urban Areas

[6] For example, in Ohio OAR.net, the middle-mile network operated by the Ohio Board of Regents Ohio Technology Consortium, provides services to large parts of the state, but does not have a presence in the many of the rural areas served by Frontier. In those cases, Frontier provides the last-mile connectivity and the transport services to carry traffic from local schools to OAR.net's nearest hub.

The Commission has a unique opportunity to utilize $2 billion over the next two years to spur high-capacity broadband to schools and libraries;[7] it can maximize this opportunity by funding last-mile fiber deployment costs. As explained above, 95% of the schools and libraries in Frontier's territory are served by wire centers equipped with Ethernet-over-fiber that is capable of offering scalable services up to 1 Gbps, and 99% of the schools and libraries are in fiber-fed wire centers. Accordingly, Frontier has the middle-mile fiber infrastructure largely in place to serve most of the unserved schools and libraries in its territory with high-capacity broadband, with only last-mile fiber deployment as the missing link to meeting the Commission's broadband goals.

The Commission seeks comment on how it can "best ensure that the recurring costs associated with providing broadband over new connections are affordable for the applicants on a going-forward basis."[8] Investing in last-mile fiber connections will undoubtedly reduce the per-month recurring service charges because the service provider will not have to use that mechanism to recover their significant cap-ex costs of dedicated last-mile fiber. Yet the Commission must be aware that funding last-mile fiber will not create parity between the monthly recurring costs of urban and rural school districts. As the Consortium for School Networking explained in its reply comments in this docket, rural schools generally pay six-times higher for service than their urban counterparts.[9] This pricing disparity exists because "[r]ural districts must transport over greater distances, often through multiple carriers and rugged and

[7] Notice at ¶ 7.

[8] *Id.* at ¶ 27.

[9] Reply Comments of Consortium for School Networking, WC Dkt. No. 13-184, 3 (filed Nov. 6, 2013).

remote terrain."[10] While the per-Mb cost of broadband service will continue to decrease, the middle-mile transport costs will always remain higher for rural schools than urban schools. Nonetheless, the Commission should recognize that without its investment in the last-mile fiber connections, many of those schools and libraries may never receive the fiber connections necessary to enable high-capacity broadband because they could not afford to bundle in the higher cost of service with the capital costs of dedicated fiber deployment.

Frontier's experience with serving schools in West Virginia, a highly rural state with rugged terrain, is illustrative of the overall difficulties with serving rural schools despite last-mile fiber connections. Through the Broadband Technology Opportunities Program (BTOP), part of the American Recovery and Reinvestment Act, the State of West Virginia chose Frontier to connect 192 schools with last-mile fiber and routers to enable high-capacity broadband; much like the Commission is considering doing with its $2B in available E-rate funding.[11] The BTOP program did not cover cost-causing elements such as the equipment necessary to provision service in the Central Office, backhaul and middle-mile costs, and service and labor costs beyond the initial fiber construction. Frontier installed the fiber connection as a sub-grantee but schools are free to select any service provider for their broadband services; Frontier is required to act as a wholesaler in such a case and make the last-mile fiber routes available at reasonable rates terms and conditions.

Competition has flourished for providing schools with high-capacity service in West Virginia, with 318 of the 749 schools in the state served by a competitive provider, though the

[10] *Id.* at 16.

[11] For more information on the West Virginia BTOP grant *see* BROADBANDUSA CONNECTING AMERICA'S COMMUNITIES, *available at* http://www2.ntia.doc.gov/files/grantees/WV_ExecOfcWestVA_FINAL.pdf.

price for service varies throughout the state.[12] As previously shared with the Commission,[13] Frontier has negotiated with the State of West Virginia to provide for a state master contract with fixed broadband service pricing for ***all*** state facilities, including schools. In this contract Frontier is essentially the provider of last resort for any state facility seeking broadband services. State facilities are under no obligation to purchase Frontier services where competition exists and may even seek to contract for lower prices from Frontier independently. Further, State facilities can purchase broadband services without duration terms under this contract. The last-mile BTOP fiber cost savings to Frontier were included in the most recent master contract bid but the pricing discount is spread to all state entities beyond schools; Frontier cannot solely discount the BTOP facilities while charging additional rates where it is the fiber owner. Thus there are many components of the state master contract pricing.

The West Virginia master contract prices have declined and are continuing to decline. In addition, many schools in West Virginia are paying rates significantly below the master contract rate. For example, Frontier recently won a contract with Berkeley County, WV in which it will provide 1 Gbps broadband services for $1300/month, significantly lower than the state master contract price. At the same time, Frontier has bid, and won in a competitive environment, contracts at the state master contract price to provide broadband service to other school districts in West Virginia. The difference in the rates Frontier can offer school districts is directly tied to their rural composition. Where Berkeley County is relatively flat and contains a major interstate, the other areas of West Virginia are rural and mountainous which drives up the cost of service.

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[12] WEST VIRGINIA STATE SUPERINTENDENT, WEST VIRGINIA K-12 EDUCATION REPORT FOR REPORTING REQUIREMENTS IN WEST VIRGINIA CODE §31-15C-11E (2013), data *available at*: http://wvde.state.wv.us/technology/btop.php#.

[13] *See* Letter from Michael D. Saperstein, Jr., Frontier Communications, to Marlene H. Dortch, FCC, WC Dkt No. 13-184 (filed Nov. 20, 2013).

These areas will always be more expensive to serve regardless of the fact that last-mile fiber is in place from the BTOP program. Yet, having the cost of last-mile fiber deployment pre-paid relieves these school districts of paying construction costs in addition to monthly-recurring charges. Accordingly, the Commission should use the $2 billion in funding for last-mile fiber deployments to give other rural schools the same opportunity.

V. CONCLUSION

For the foregoing reasons Frontier respectfully requests the Commission to efficiently invest in rural schools and libraries by taking advantage of existing ILEC middle-mile infrastructure and funding the last-mile high-capacity broadband connections necessary to enable broadband.

Respectfully submitted,

Frontier Communications Corporation

By:
/s/
Michael D. Saperstein, Jr.
Vice President, Federal Regulatory Affairs
Frontier Communications Corporation
2300 N St. NW, Suite 710
Washington, DC 20037
Telephone: (202) 223-6807

April 7, 2014