existing provider and where the costs of having another provider deploy facilities to that location would be prohibitive. In many such cases, the costs associated with a microwave shot are lower than the costs quoted by other providers. As noted above, going forward as Verizon deploys 4G LTE, it will evaluate if using microwave continues to make sense in these circumstances.

Other types of wireline and wireless broadband providers also are self-providing what the Public Notice describes as the middle- and second-mile components of their networks. As discussed extensively above, cable operators typically self-provision all or virtually all of the second-mile facilities in their networks, and also self-provision some of their middle-mile facilities. Clearwire is deploying a new nationwide WiMax-based wireless network and plans to self-provision backhaul using microwave facilities to satisfy the overwhelming majority of its demand.

Next, the Public Notice (Q. 4c) asks to identify the categories of the capital expenditures and operating expenses of constructing second-mile and middle-mile facilities. For fiber-based middle-mile and second-mile facilities, capital expenditures include those costs associated with outside plant and circuit equipment investment. Outside plant investment includes the necessary labor and material to install support structures (poles, conduit, and trenching), and to place fiber cables on or within these structures.[101] Circuit-equipment investment includes SONET, Ethernet, and other transmission equipment, as well as labor costs (for engineering, furnishing, and installing circuit equipment). With respect to operating expenses, the major categories are

[101] In many cases existing conduit and poles may be used whereby capital expenditures may be replaced by pole-attachment or conduit leasing arrangements.

maintenance, testing, network administration, and engineering expenses required to efficiently manage and operate the network facilities described above.

The Public Notice (Q. 4d) asks about the extent to which long-haul network providers offer middle- or second-mile connections to areas that are "passed" by their long-haul fiber. That depends on what "passed" means in this context. In general, long-haul network providers make decisions about whether to extend their networks based on whether the revenues they can obtain exceed the costs of such deployment. The more concentrated a given area and the closer it is to the long-haul provider's network, the more likely the provider is to deploy to that area; conversely, the less concentrated a given area and the further it is to the long-haul network, the less likely it is to attract facilities deployment.

These basic economics likewise affect the ability to attract capital, which the Public Notice asks about in Question 4e. To be sure, in the recent economic downturn capital markets in general are more constrained than they have been in past years. But the areas that are failing to attract capital today also failed to do so before the downturn. Moreover, despite recent economic conditions, an enormous amount of broadband investment is still occurring where it makes economic sense – including Verizon's $23 billion investment in FiOS, and more than $40 billion in annual investment in wireless networks.

Question 4f asks about the extent to which competing or neighboring broadband service providers work together to upgrade and share middle- and second-mile facilities. As shown above, there are many instances of rural providers forming consortia to help attract investment.

Question 4g asks whether government intervention is needed to facilitate middle- and second-mile facilities deployment, and, if so, how best to accomplish that. Verizon's response is set forth in Part II above.

E. Question 5: Nature of Competition and Availability of Alternatives

As detailed in Part III above, more than 90 percent of U.S. households and businesses have access to broadband services, and the vast majority of customers have access to at least two wireline broadband networks, three or more mobile wireless broadband networks, and at least two satellite broadband providers – a level of intermodal competition present in few if any other places in the world. Rapid progress also has been made in deploying next-generation wireline and wireless technologies, including FiOS, DOCSIS 3.0, and LTE. As further described above, wireline broadband providers frequently self-provision middle- and second-mile facilities to support their broadband services, while wireless broadband providers have used a combination of self-provision and facilities and transmission services obtained from a range of competitive suppliers, including cable companies, fixed wireless carriers, CLECs, and ILECs.

The Public Notice (Q. 5a) asks how firms compete in providing middle-mile connections, such as "on a circuit-by-circuit basis, by offering connectivity to specific points specified by the customer, or do firms 'compete for the customer by offering customers the ability to order a set of particular circuits at certain averaged or specified prices or terms." Verizon competes in all of these respects. Some customers purchase high-capacity services for individual or a small number of locations or routes, while other customers enter into broad contracts that cover their high-capacity needs across a wide

geographic footprint. Other broadband providers, including wireless carriers, typically purchase high-capacity backhaul facilities using this latter approach.

The Public Notice (Q. 5b) next asks about price competition for special access, and whether the nature of competition varies between areas and how this affects the ability to obtain middle- and second-mile facilities. As explained above, however, much of the middle-mile and second-mile facilities at issue here do not involve special access. Rather, these facilities are self-provisioned or purchased from a variety of providers, including cable companies, fixed wireless providers, competitive LECs, utility companies, regional fiber providers, and national long-haul network operators. While competition may not be uniform at all locations, the ability of competitors to serve customers throughout the areas where demand for high-capacity services is concentrated – along with the fact that ILEC special access rates are set over broad geographic areas[102] – ensures that competition disciplines prices throughout those areas, and not merely with respect to the individual locations to which competitors have already deployed wireline or intermodal facilities. In any event, as Verizon has previously explained, competition has driven down the prices customers pay for incumbent carriers' special access services. Between 2002 and 2008, the rates customers pay for Verizon's DS1 and DS3 services have declined and in 2008 were 24 percent lower than in 2002 in real terms. Competitors have also noted the low prices for these special access services. For example, Sprint's Chief Technology Officer said that T-1 lines, the most common type of high-capacity

[102] *See Verizon Communications, Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd 18443, ¶ 48 & n.131 (2005). ILEC special access rates are set across broad regions that are roughly as large in size as an MSA. *See* 47 C.F.R. § 69.3(e)(7).

connection to cell sites, are "[r]elatively abundant and inexpensive" in the United States.[103] Likewise, Don McCullough, Ericsson's head of marketing for IP Broadband, said that "[i]n the U.S. the ability to lease T1s has retarded microwave: it's always been less expensive to lease T1s."[104]

The Public Notice (Q. 5d) asks whether contractual terms and conditions in typical contracts for middle- and second-mile facilities, including term requirements and discounts, hinder or impede the development of competition. To the contrary, these provisions overwhelmingly benefit consumers, as Verizon has previously explained. Indeed, many of the term and volume discounts and other contractual provisions that Verizon offers were developed at the behest of Verizon's customers. For example, one of the features that customers have sought is the ability to aggregate their demand across broad geographic areas, and they also have sought uniform pricing structures across those areas. Verizon has accordingly introduced plans that allow customers to aggregate their demand across broad regions or, more recently, the entire country. These plans offer the same pricing structures regardless of location within a tariff region, which means that customers get the benefits of competition wherever they purchase service.

Customers have also sought plans that offer greater flexibility when their needs and demand change. Verizon has accordingly introduced a broad range of plans to provide customers this flexibility. For example, Verizon has introduced plans that allow

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[103] Stephen Lawson, *Sprint Picks Wireless Backhaul for WiMAX,* Industry Standard (July 9, 2008), http://www.thestandard.com/news/2008/07/09/sprint-picks-wireless-backhaul-wimax (citing Sprint CTO Barry West).

[104] *See* Anne Morris, *Microwave To Retain Key Role in Wireless Backhaul, As Fibre Waits in Wings*, Total Telecom (Sept. 2, 2009), http://www.totaltele.com/view.aspx?ID=448534.

customers freely to move individual circuits in and out of service, without incurring a fee for terminating a particular circuit, as long as they maintain a minimum volume commitment. Verizon also has introduced circuit-specific plans that provide the same level of discounts without requiring any volume commitment. Both of these types of plans allow customers to terminate circuits prior to the expiration of their original term commitment without paying onerous termination fees. In the event of early termination, the customer is merely required to pay the difference between the discount it received based on the original term commitment and the discount to which it would have been entitled based on the actual term for which the circuit was in service.

The Public Notice (Q. 5e) next asks about the extent to which demand for high-capacity services is concentrated. In the case of Verizon, nearly 80 percent of revenues are generated in its top 25 MSAs, and within these MSAs special access demand is concentrated in the downtown core of cities or in certain suburban areas in which there are large numbers of customers in communications-intensive industries.[105] Further, nearly 80 percent of the demand for Verizon's high-capacity special access services (as measured by revenues) is concentrated in approximately 15 percent of the wire centers where Verizon bills high-capacity special access (or 745 wire centers).[106] According to a recent report by USTelecom on high-capacity facilities, "approximately half of ILEC special access revenue is concentrated in the top 25 largest MSAs." The US Telecom report also shows that, within these top MSAs, demand for ILECs' special access

[105] *See* Declaration of Patrick A. Garzillo ¶ 3 & Exh. 1, *attached to* Comments of Verizon, *Special Access Rates for Price Cap Local Exchange Carriers*, WC Docket No. 05-25 & RM-10593 (FCC filed Aug. 8, 2007).

[106] *See id.* ¶ 3.

services is concentrated further still, in the wire center serving areas with the highest concentration of business customers.

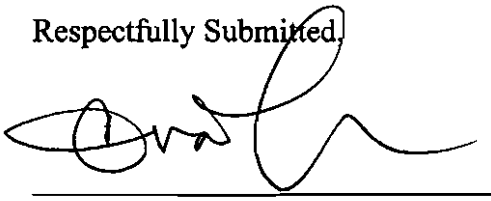
Finally, the Public Notice (Qs. 5e, 5f) seeks to identify the routes served by more than one provider of middle-mile or second-mile facilities. But this exercise has little bearing on the issues at hand. As discussed above, in the areas of the country where most Americans reside, there are multiple broadband providers and associated middle- and second-mile facilities. These various providers all compete, but often use very different network architectures that require high-capacity service along different routes. For example, cable headends and telephone company central offices are in different locations, and therefore require second- and middle-mile facilities along different routes. Similarly, while many wireless carriers share some cell site locations, that is not the case in many other locations. In all cases, however, most consumers have multiple broadband alternatives (including for middle- and second-mile facilities to support those services), regardless of how many competitors exist along any given route.

The main issue here, however, is that there are still low-density rural locations where the deployment of broadband services and middle- and second-mile facilities remains uneconomic. These areas have been unable to attract a single facilities-based provider of such facilities, because no broadband provider can justify the cost of such facilities given the anticipated revenues at stake. Identifying the number of facilities-based providers along routes where the economics have been able to attract broadband deployment does not further the process of trying to spur deployment in areas where the economics remain unfavorable.

V. CONCLUSION

To deliver broadband to Americans that still lack access to it, the Commission should develop a solution designed to address those particular areas characterized by low density and long distances, including a targeted support program to subsidize directly part of the cost of deploying and operating middle- and second-mile facilities with universal service funds in those areas where the economics of such facilities pose a barrier to broadband deployment, based on objective and verifiable criteria.

Respectfully Submitted,



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November 4, 2009

ATTACHMENT 1

REDACTED – FOR PUBLIC INSPECTION

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ATTACHMENT 2

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