

18 months, deployment has continued to grow at an impressive rate for both high-speed and advanced services. In the near future, we expect that the market will continue to expand and availability will increase. As the advanced services market matures, however, we anticipate that the rate of growth will eventually begin to slow, due to widespread availability among consumers.

91. In the following section, we consider patterns of deployment, so that if deployment to such customers ceases to be reasonable and timely in the future, we will recognize that development early. We pay particular attention to businesses, residential consumers, rural communities, elementary and secondary schools, and persons with disabilities in our determination. Following our review of the availability of advanced services, we also discuss subscription rates, and how they may impact the growth of advanced technology. In addition, we review and compare various international deployment trends, in order to further explore patterns of deployment that may be useful to our own nation's efforts to provide ubiquitous advanced telecommunications capability.

A. Patterns of Deployment

92. There are three primary components to our assessment. First, we examine availability, as indicated by the Commission's data collection on subscribership and industry assessments of availability. We focus both on how it has changed over the last year and how it is projected to change in the future. By examining our data collection, we seek a verifiable count of exactly how much high-speed service is being delivered and purchased in the marketplace. Our subscribership data necessarily reflects a combination of factors including availability of infrastructure, service offerings tailored to customers' needs, and affordable pricing. Consequently, we believe that this is a potentially useful indicator of the state of high-speed deployment. Second, we consider investment in the infrastructure necessary to support advanced services. Third, we review trends in the alternatives available to consumers of advanced services. This includes both assessing the number of providers offering service through a particular technology and the different technological options that consumers have for obtaining advanced services. Through our analysis, we hope to identify any groups that may not obtain access to advanced services in a timely manner.

a. Businesses

93. After reviewing trends in the availability of advanced services for businesses, we conclude that advanced telecommunications capability is being made available to business customers in a reasonable and timely manner. Subscription rates for large business and institutional customers have increased considerably since the *Second Report* and groups, especially local communities, continue to invest in infrastructure for advanced telecommunications. In addition, technology trends indicate that new generations of equipment and technology are being developed that may be beneficial to the business community.

94. Our data indicate that 18.8 percent of high-speed lines are serving business customers, which represents over 1.8 million lines in service.²²⁸ This is over 0.8 million more

²²⁸ We note, however, that the actual number of lines serving business customers may be substantially higher, since our survey does not take into account private lines or internal networks serving business customers.

lines than reported in the *Second Report*, an increase of over 80 percent.²²⁹ We note that the overall percentage of high-speed lines serving business customers has dropped from 35 percent to 18.8 percent of the reported high-speed lines. This is due to the significant growth of high-speed services for residences and small businesses and the fact that high-speed services were widely available for most businesses in 1999.²³⁰ Independent sources support our conclusion as well. For example, in one recent survey that asked business customers to prioritize barriers to adopting high-speed services, business customers selected “no barriers exist” (27 percent) more than any other alternative.²³¹

95. In accord with the growth in high-speed lines serving businesses, advanced telecommunications are becoming increasingly incorporated into the conduct of business and our economy. Businesses use advanced telecommunications to quickly send and receive large documents, such as blueprints and customer databases, keep in contact with customers, by marketing and receiving orders for products on-line, and track inventory and receipts in a real-time fashion. Thus, some communities fear that a lack of infrastructure to support advanced services could prevent communities from attracting businesses and pursuing economic development opportunities.²³²

96. In response, some communities have taken specific steps intended to stimulate economic development in their areas such as building high-speed networks, or aggregating demand.²³³ For example, Butler County, Ohio, recently announced the development of a fiber optic network connecting businesses, schools, and government offices that is designed to promote economic development in the region.²³⁴ Another example is the state of North Dakota, which constructed a statewide telecommunications network, connecting 194 cities in the state.²³⁵ This is a trend that we noted in our *Second Report*, that appears to be continuing on an increasingly frequent basis.²³⁶

97. We note, however, that we are not aware of any specific data on the impact that the availability of advanced services has on a particular location’s ability to attract or retain businesses. Indeed, most existing businesses appear to have some options for the provision of

²²⁹ *Second Report*, 15 FCC Rcd at 20943.

²³⁰ *Id.* at 20994-20995.

²³¹ Cahners Report at 35-38. Other alternatives included: monthly cost (25 percent); low service reliability (14 percent); availability (12 percent); and security concerns (5 percent).

²³² Jim Hopkins, *In Rural Areas, Fast Net Service Vital but Elusive; Speed Needed to Attract Businesses*, USA Today, Nov. 12, 2001, at E4 (“Economic development leaders... view broadband as important as sewer, gas and other utilities when attracting firms. That’s because lack of high-speed service makes it tougher for rural areas to create, recruit and keep firms that benefit from fast Internet access.”).

²³³ See *Second Report*, 15 FCC Rcd at 20980-20981.

²³⁴ *Quantum Bridge to Supply Networking Equipment to Ohio’s Government*, Fiber Optics Weekly Update, Nov. 23, 2001.

²³⁵ Alexia Bowie, *Success Stories from the States*, Rural Telecommunications, Jan. 1, 2001 (At a press conference announcing the network, North Dakota’s chief information officer was quoted, “All business will need broadband access to be competitive... The simple reality is, businesses will go where higher speed access is available, period.”).

²³⁶ See *Second Report*, 15 FCC Rcd at 20926 (“Additional examples of middle mile networks include statewide networks such as the fiber optic network in South Dakota...”); *Id.* at 20994.

advanced services, regardless of location. As a result, other factors may limit a business' ability to subscribe to advanced services. For instance, the high cost associated with obtaining advanced services in some locations may be a primary factor. For example, business customers in rural or remote areas may be able to obtain advanced telecommunications capability as a technical matter, but the cost of such services may be prohibitively high. Our data reflects that most areas outside of major cities do not have multiple advanced service providers.²³⁷ Therefore, these communities may not see the benefits of price competition.

98. We also note that technology is continuing to emerge that will be particularly useful for the business market. For example, service providers anticipate the new DSL standard, G.SHDSL, will be attractive to business customers because of the high rate of symmetric transfer. In addition, the successful deployment of the new generation of 3G Wireless and satellite services may also be attractive to business customers, given the high speeds that these services appear to be capable of providing. As a result, the successful development of these new platforms may result in increased competition in the advanced services market and new options for businesses.

b. Residential Customers and Small Businesses

99. Overall, we conclude that advanced telecommunications capability is being made available to residential and small business customers in a reasonable and timely manner. We are pleased that our data demonstrate strong growth in the availability of advanced services for residential and small business customers.²³⁸ In addition, service providers continue to invest in facilities capable of supporting advanced telecommunications for residential and small business customers. We are also encouraged by recent developments in technology that has significantly expanded the reach of high-speed services.

100. Our data indicate that there are almost 4.3 million residential and small business subscribers to advanced services in the nation, up from 1.0 million in the *Second Report*.²³⁹ Over the past year alone, this number has increased by 149 percent. Additionally, a variety of technological options appear to be available for most residential and small business consumers, with cable modem and ADSL services providers reporting the highest number of high-speed lines in service. As of June 2001, there were almost 5.0 million residential and small business high-speed cable modem lines in service, and almost 2.5 million residential and small business high-speed ADSL lines in service. In the *Second Report*, those numbers were 1.4 million and 0.4 million, respectively.²⁴⁰ As of June 2001, we also report 0.2 million satellite and fixed wireless high-speed lines in service, up from 0.05 million at the time of the *Second Report*.

101. As we discuss in further detail below, our data illustrates that advanced services are becoming more available for almost all segments of residential customers, including many of

²³⁷ We note that high-speed satellite services are widely available in the United States. *See supra*, note 57.

²³⁸ As we previously noted, the Commission's data collection program reflects this grouping and combines both residential and small business customers. The Commission has a pending inquiry relating to our data collection program and how we could improve the data we collect on high-speed and advanced services. *See Data Gathering Second NPRM*, 16 FCC Rcd 2072.

²³⁹ *Second Report*, 15 FCC Rcd at 20995.

²⁴⁰ *Id.* at 20943.

the groups that we previously identified as being vulnerable to not receiving timely access to advanced services.²⁴¹ We believe that it is important to continue to closely monitor these groups, in order to ensure that advanced services are being made available in a timely fashion. Specifically, we consider rural customers (who we discuss in further detail in the following section), low-income customers, and persons with disabilities.

102. Among residential consumers, advanced services appear to be more widely available to households in low-income zip codes since the *Second Report*. In the *Second Report*, 42 percent of zip codes with the lowest median household income reported a high-speed subscriber.²⁴² As of June 2001, 59 percent of the zip codes with the lowest household income reported a high-speed subscriber. Our data also indicate that there is a high-speed service provider in 96 percent of zip codes with the highest median household income, up from 91 percent. Although our data reveals that there has been growth in subscribership for low-income zip codes and that the gap between low- and high- income zip codes appears to be closing, there continues to be a strong correlation between household income and subscription to advanced services.²⁴³ The correlation between income and subscription to advanced services is consistent with other sources of data, indicating that penetration is associated with income.²⁴⁴ While customers in these zip codes may have infrastructure available, there is evidence that other barriers to subscription persist. For example, as of September 2001, about 16.6 percent of online households with income under \$15,000 had high-speed services,²⁴⁵ whereas 25.1 percent of online households with income over \$75,000 had high-speed services.²⁴⁶

103. As emphasized by the Commission in the *Second Report*, advanced services have the potential to provide significant opportunities for persons with disabilities.²⁴⁷ Widespread deployment of high-speed services to persons without disabilities may ultimately promote the corresponding deployment to persons with disabilities. Advanced telecommunications may enable individuals that have difficulty leaving their home to shop for clothing or groceries online, or telecommute for a job. In addition, advanced services may enable the hearing impaired to communicate freely with friends and relatives or allow persons with disabilities to research medical questions or receive medical care at telemedicine facilities. Although the Commission's data collection program does not specifically address the availability of advanced services for persons with disabilities, we note that persons with disability could face significant impediments to their ability to access to advanced services.²⁴⁸ Some of the relevant facts include: low rates of computer ownership among people with disabilities; prohibitive costs for computers and Internet

²⁴¹ *Id.* at 20991-21003.

²⁴² *Id.*

²⁴³ *Id.* at 21001-21002.

²⁴⁴ Based on calculations from National Telecommunications and Information Administration staff (relying on unpublished census data). We note that some of the services did not possess speeds in excess of 200 kbps.

²⁴⁵ *Id.*

²⁴⁶ *Id.* A study released in April 2001 estimates that 25 - 35% of online users subscribe to high-speed services in some areas. *Morgan/McKinsey Broadband Report* at 4.

²⁴⁷ See *Second Report*, 15 FCC Rcd at 21000.

²⁴⁸ See, e.g., AFB Comments at 1 ("people who are blind or visually impaired are being left out of the advanced telecommunications revolution."); APT, AAPD, and ACB Comments; APT and WID Comments at 6.

access services;²⁴⁹ the lack of adaptive hardware, software, and Internet content; and lack of training. Almost 60 percent of persons with disabilities have never used a computer, compared to 25 percent of persons without disabilities,²⁵⁰ and people with disabilities are significantly less likely to have Internet access as those without disabilities.²⁵¹ Reported low-income and employment rates among persons with disabilities may further limit their ability to acquire computers or Internet access.²⁵² Thus, we will continue to monitor deployment to persons with disabilities closely, so that we can quickly assess whether additional government or non-government action is necessary.

104. Adaptive technologies may offer persons with disabilities innovative ways to access the Internet, and increase the availability of advanced services. Indeed, in addition to ensuring that investment in network infrastructure capable of providing advanced services is done consistent with section 255 of the Act and other statutes directed towards ensuring access to people with disabilities,²⁵³ it may be necessary to encourage the development of accessible user platforms and applications in order to make advanced services available to persons with disabilities.²⁵⁴ For example, some companies have begun to adapt their web-sites by magnifying content and installing sensitive hyperlinks, in order to be more accessible to individuals with disabilities.²⁵⁵ In addition, AT&T recently announced the release of a commercial product that has a text-to-speech engine that turns written words into natural-sounding speech.²⁵⁶ We note, however, that the development of adaptive technologies appears to be on a limited basis and that it is frequently associated with additional purposes, which make the application more cost-effective for the developer. For instance, AT&T states that its text-to-speech application could be used by businesses that operate call centers, or by service providers that create voice portals.²⁵⁷

105. Investment trends indicate that service providers continue to focus investments on the residential market, and that service providers are deploying new facilities capable of supporting advanced services for residential and small business consumers. Since the *Second Report*, our data demonstrate that new facilities have expanded the reach of advanced

²⁴⁹ See NAD Comments at 1.

²⁵⁰ US Department of Commerce, Economics and Statistics Administration, National Telecommunications and Information Administration, *Falling Through the Net: Toward Digital Inclusion* (Oct. 2000) at 61. See also TDI Comments at 2 (“...individuals with disabilities are far less likely than the general population to have access to computers and the Internet.”)

²⁵¹ See H. Stephen Kaye, *Computer and Internet Use Among People with Disabilities*, United States Department of Education, National Institute on Disability and Rehabilitation Research (Mar. 2000) at 5, Tbl. A.

²⁵² See TDI Comments at 2.

²⁵³ See 47 U.S.C. § 255.

²⁵⁴ See AFB Comments at 2.

²⁵⁵ Anna Marie Kukec, *A Gurnee Firm Offers Next-Generation Accelerators to Enhance Some PC Games*, Chi. Daily Herald, Oct. 8, 2001 (“Chicago-based Infinetec Inc. has revamped its site to provide easier access for people with disabilities. Content can be magnified and accommodate all browser types for those with vision impairments. Ultra-sensitive hyperlinks, called hovers, allow those with limited mobility who use alternative mouse equipment to activate the link just by coming within range.”)

²⁵⁶ AT&T Comments at 12; *AT&T Labs Launches Natural Voices*, PR Newswire, Jul. 31, 2001.

²⁵⁷ *Id.*

telecommunications and the percentage of zip codes with high-speed lines in service has jumped from 60 percent to 78 percent.²⁵⁸ Our data also indicate that there is increased choice among service providers. In particular, we note that more than two service providers were reported in about 41 percent of zip codes, whereas only 18 percent of zip codes had more than two service providers in December 1999.²⁵⁹ Additionally, there are approximately 160 providers of high-speed lines in the nation, compared to 105 in the *Second Report*.²⁶⁰

106. We acknowledge, however, that capital expenditures in infrastructure have slowed in recent months, especially within the competitive LEC market. Analysts report that this slow-down is a result of excess capacity of infrastructure in the market, and anticipate that rising demand will increase the utilization of existing assets. As a result, the provision of advanced services may become more cost-effective for service providers as revenues increase and overall subscription rates rise. Therefore, the reduction in the growth rate of investment does not necessarily imply a reduction in the growth of subscription to high-speed services. As we discuss in further detail below, however, service providers have indicated that low subscription rates may have an impact upon whether they can afford to expand services to new consumers. We note that service providers recently raised prices in an effort to increase net revenues, which may have also affected penetration for residential customers. For example, SBC and Verizon raised their basic residential rates for DSL from \$40 per month to \$50 earlier this year.²⁶¹ In addition, some cable modem service providers announced a price-hike in May 2001. AT&T Broadband raised monthly rates by \$6 and Cox Communications raised monthly rates by \$5.²⁶²

107. Advances in technology continue to make advanced services more accessible to residential customers. In particular, the development of two-way satellite services has extended the availability of high-speed services to almost all residential customers in the United States. Other new technological developments, such as 3G Wireless, Helios, and DSL extenders, may extend the footprint of available advanced services to new residential consumers.²⁶³ In addition, the successful deployment of new generations of technology, such as DOCSIS 2.0, may provide residential consumers with a new range of applications that some technologies are capable of supporting.²⁶⁴

c. Rural Communities, Insular Areas, and Tribal Lands

108. Since the *Second Report*, the Commission has continued to monitor the deployment trends in rural areas, so that we will be able to promptly recognize if deployment

²⁵⁸ *Second Report*, 15 FCC Rcd at 20946. See also revised data reported in Appendix C, Tbl. 9.

²⁵⁹ See revised data reported in Appendix C, Tbl. 9.

²⁶⁰ *Second Report*, 15 FCC Rcd at 21017.

²⁶¹ See *Morgan/McKinsey Broadband Report* at 21.

²⁶² *Cable Notes*, Warren's Cable Regulation Monitor, May 7, 2001 ("AT&T...said it would increase rate for data service plus modem rental 15 percent to \$45.95 per month."); Carolyn Shapiro, *Area Cable Company Increases Internet Rates*, Knight-Ridder Trib. Bus. News, May 24, 2001 ("Cox@Home plans to raise its rates for high-speed Internet access by \$5 a month, narrowing the price gap between the dominant cable provider and competing telecommunications companies.")

²⁶³ See *supra* paras. 78-88.

²⁶⁴ *Id.*

ceases to be reasonable and timely to such consumers. We are encouraged that our data indicate that advanced and high-speed services are becoming more widely available in rural areas. In addition, although investment trends for services providers in low-density regions appear to be in a period of transition, it appears that new facilities for advanced services continue to be deployed. In particular, developments in technology, such as satellite services and DSL extenders, have expanded the reach of high-speed services to previously unserved areas.

109. In the *Second Report*, our data demonstrated that there was at least one subscriber to high-speed services in 65 percent in our sample of small town zip codes, and 20 percent²⁶⁵ of the most sparsely-populated outlying areas.²⁶⁶ Availability appears to have increased considerably, and high-speed services are now being reported in 86 percent of our sample of small town zip codes, and 37 percent of sparsely-populated outlying areas.²⁶⁷ Despite the upward trend in subscription rates for rural communities, we note that a positive correlation persists between population density and the presence of high-speed subscribers. In addition, there continues to be a significant disparity in access to advanced services between those living in rural population centers and those living in sparsely-populated outlying areas. As a result, we believe that it is important to closely monitor the availability of advanced services for rural Americans, especially those living outside of the rural population centers, in order to ensure that they receive timely access to advanced services.

110. Our data indicate that advanced services are being made more widely available on tribal lands.²⁶⁸ At the end of 1999, at least one subscriber to high-speed services was reported in 49 percent of the zip codes that contain tribal territories.²⁶⁹ As of June 2001, the number had risen to 71.3 percent. Despite this promising growth, unique and challenging issues relating to the provision of advanced services on tribal lands remain. As the Commission noted previously, many territories lack phone service and basic telecommunications infrastructure.²⁷⁰ Consequently, tribal communities have begun to consider wireless and satellite advanced services in order to improve the availability of advanced services in tribal territories. For

²⁶⁵ In the *Second Report*, the Commission estimated that approximately 57 percent of zip codes that include small towns and 19 percent of the most sparsely-populated decile of zip codes reported a high-speed line in service. *Second Report*, 15 FCC Rcd at 20996. Based on revised data filed since the *Second Report*, we now calculate that 65 percent of the zip codes that included small towns and 20 percent of the most sparsely-populated decile of zip codes reported high-speed lines in service at the end of 1999.

²⁶⁶ We consider "sparsely-populated outlying areas" to be the least densely-populated decile of zip codes in our data collection. See Appendix C, Tbl. 11.

²⁶⁷ We note that the availability of advanced services in rural areas may, in fact, be higher than the Commission's data reflect, because small providers (with fewer than 250 full or one-way broadband lines) are not subject to the Commission's Form 477 reporting requirements. See, e.g., OPASTCO Comments at 3 ("...there is not doubt that the true level of deployment in these areas is higher than portrayed [by the Commission's Form 477 data]."); Texas PUC Comments at 2 ("...the threshold of 250 broadband customers before reporting is required may have prevented collection of sufficient information on broadband service in rural and sparsely populated areas, given that many such areas are served by relatively small incumbent local telephone and cable television companies.")

²⁶⁸ See *supra* note 90.

²⁶⁹ In the *Second Report*, the Commission estimated that approximately 44 percent of zip codes that include tribal territories reported a high-speed line in service. *Second Report*, 15 FCC Rcd at 20997. Based on revised zip code lists filed since the *Second Report*, we now calculate that 49 percent of the zip codes that contained tribal lands reported high-speed lines in service at the end of 1999.

²⁷⁰ *Id.*

example, the Broadband Wireless International Corporation recently announced that the company successfully installed and tested a high-speed, broadband wireless network service offering across the Hopland Band of Pomo Indians reservation in three days.²⁷¹ In addition, StarBand Communications and Northern Arizona University are working to provide satellite-based Internet access to 120 locations within the Navajo, Hopi, and Havasupai reservations.²⁷²

111. We are particularly concerned that no service providers reported high-speed lines in service in the Pacific Insular Islands. In response to our Inquiry, the Commonwealth of the Northern Mariana Islands reports that advanced telecommunications capability is not being deployed to either business or residential consumers in the Commonwealth.²⁷³ Although our own data does not conclusively reveal the availability of advanced services in the Pacific Insular Islands, we are aware that economic forces make the deployment of advanced services difficult. As a result, the deployment of advanced telecommunications capability in the Pacific Insular Islands may be limited until demand increases among consumers that have available advanced services.

112. We also note that resources continue to be made available to help support the deployment of advanced telecommunications for medically underserved rural communities. Additionally, the Rural Health Care Program, administered by the Universal Service Administrative Company (USAC), has committed over \$21 million to help provide assistance for remote communities, so that rural areas may have the necessary advanced telecommunications capability to connect to health care facilities.²⁷⁴ According to estimates from the Rural Health Care Division (RHCD) of USAC, the program has provided funding for about 585 health care providers to receive advanced telecommunications services during the first three years of the program.²⁷⁵ In addition, about 450 health care providers requested and received support for lower speed services (56 kbps to 128 kbps), such as ISDN. Interest in the program appears to be escalating, the RHCD also reports a 50 percent increase in the number of applicants for the fourth program year (2001).

113. Investment trends in the rural market are continuing to unfold, as service providers attempt to establish viable business plans. Indeed, many rural service providers appear to be in the process of evaluating deployment alternatives in order to consider what segments of the rural market may be cost-effective for the services that they offer. Some carriers suggest that investment in rural areas appears to be slowing. For example, a recent survey identified several major barriers to expanding advanced services in rural areas, including: the length of the loop; the high cost of deployment; low demand by consumers; and the lack of cost-effective equipment

²⁷¹ *Broadband Wireless Network Installation Completed in Northern California; Tribal Network Rollout Completed in Three Days*, PR Newswire, Aug. 13, 2001.

²⁷² Ruth Suarez Zane, *Unwired Tribal Lands Poised For Wireless Innovation*, *Wireless Insider*, Jun. 18, 2001.

²⁷³ See Northern Mariana Islands Comments.

²⁷⁴ The estimates are based on completed applications as of December 3, 2001. As of December 3, 2000, RHCD had received 95 percent of the expected program year 3 applications (2000) and 4 percent of the expected program year 4 (2001) applications.

²⁷⁵ The RHCD considered networks that were capable of supporting bandwidth of 256 kbps or greater, well above the bandwidth that the Commission considers to be advanced services.

scaled for smaller companies.²⁷⁶ Based on current subscription rates, it concluded that the deployment in additional regions is not likely, and that about 25 percent to 30 percent of rural telephone subscribers are not likely to have access to high-speed services in the near future.²⁷⁷

114. One analyst predicts that the rural local exchange carrier industry will undergo a dynamic change over the next few years, through consolidation and the introduction of new financial plans that focus on generating higher revenues and returns for investors.²⁷⁸ A study, considering the cost of transporting Internet traffic from an Internet Service Provider to an Internet Backbone Provider, concluded that the provision of high-speed DSL Internet service may not be economically viable in many rural areas for rural telephone carriers.²⁷⁹ In particular, the study indicates that estimated revenue shortfalls may actually increase with higher market penetration, rising from \$9.7 million per year at 0.5 percent penetration to \$33.6 million per year at 5 percent penetration.²⁸⁰ The decision of Regional Bell Operating Companies (RBOCs) to sell numerous rural local exchanges may be consistent with this trend. Other carriers, however, appear prepared to serve rural or less-dense communities and, analysts believe, these carriers are more likely to make the necessary capital investments to upgrade networks so that they can support advanced services.²⁸¹ We note that one local exchange carrier, VALOR, determined that it was only cost-effective to provide DSL services at exchanges with 5000 lines, or at least 75 customers requesting DSL.²⁸²

115. Despite certain economic and distance-related challenges for wireline service providers in the rural market, it appears that advances in technology, such as the successful deployment of a two-way platform for satellite high-speed services in all 50 states, will continue to drive up availability in rural areas.²⁸³ Other technology developments, such as DSL extenders,

²⁷⁶ National Telephone Cooperative Association, *NTCA 2001 Internet/Broadband Availability Survey Report* (Dec. 2001) (*NTCA Survey*). The survey inquired 542 of the National Telephone Cooperative Association (NTCA) members on broadband and Internet services. 248 members (48 percent) responded.

²⁷⁷ *Id.* at 4. The NTCA estimates that its members serve almost 2.9 million lines. As a result, between 720,000 and 865,000 lines are not likely to have high-speed services in the near future.

²⁷⁸ *McKinsey/Goldman Infrastructure Report* at 37-40.

²⁷⁹ National Exchange Carrier Association, *Middle Mile Broadband Study* (2001) (*NECA Middle Mile Study*).

²⁸⁰ *Id.* at 36-37.

²⁸¹ *Reshaping Rural Telephone Markets*, Legg Mason Research (2001) (*Legg Mason Report*) at 33. In fact, we have considered numerous "study area" waiver requests from rural carriers purchasing local exchanges from RBOCs that contend that they will make investment in advanced telecommunications. See, e.g., *Citizens Telecommunications Company of Wyoming and Qwest Corporation Joint Petition for Waiver of the Definition of "Study Area" Contained in the Part 36 Appendix-Glossary of the Commission's Rules*, CC Docket No. 96-45, Joint Petition for Waiver, 16 FCC Rcd 3563 (2001) ("In its petition, Citizens states its intent to invest approximately \$4.5 million in the five exchanges it is purchasing during the first three years of ownership, using some of the capital investment to upgrade the network to provide enhanced services. According to Citizens, it also will provide broadband/digital subscriber line services when there is sufficient demand to make it possible to provide these services at an affordable rate."); *Citizens Telecommunications Company of Colorado, Inc. and Qwest Corporation Joint Petition for Waiver of the Definition of "Study Area" Contained in the Part 36 Appendix-Glossary of the Commission's Rules*, CC Docket No. 96-45, Joint Petition for Waiver, 15 FCC Rcd 31 (2000).

²⁸² *Legg Mason Report* at 64-65.

²⁸³ See *supra* para. 85; *StarBand Brings High-Tech, High-Speed "Surfing" to Hawaii*, Press Release, Oct. 23, 2001 (visited Feb. 5, 2002) <www.starband.com/whoweare/pr/102301.htm>.

may allow local exchange carriers to improve the range at which they are able to offer advanced services.²⁸⁴ As a result, carriers may be able to serve additional customers, making the provision of advanced services more cost-effective. We also note that service providers are continuing to develop innovative means to serve the rural advanced services market, such as public utilities that provide services over power lines in their rights of way. For example, in Washington, the Grant County Public Utility District (a local power company) has installed over 7,000 miles of fiber optics in order to provide high-speed services to rural utility customers.²⁸⁵ There is evidence that emerging technologies and providers will develop into viable alternatives for segments of the rural community that remain unserved.²⁸⁶

d. Elementary and Secondary Schools

116. While we do not have specific statistics from our data collection relating to the speed of connections being used in schools, we are encouraged by the fact that almost all schools have access to the Internet. As of late 2000, about 98 percent of public schools had connections to the Internet. About 77 percent of public schools with Internet access connected to the Internet with dedicated lines,²⁸⁷ and 24 percent of schools used other continuous connections.²⁸⁸ Only 11 percent of schools used dial-up connections to access the Internet, down from 15 percent in 1999.²⁸⁹ Because dedicated lines tend to support higher-speed services, we believe that high-speed and advanced telecommunications services are becoming more widely available in our nation's schools.

117. The Commission's Schools and Libraries Program helps to finance the deployment of infrastructure that supports advanced services in our nation's schools. As of July 2001, SLD has committed approximately \$6 billion in funds for telecommunications and information services for the first three funding years.²⁹⁰ In particular, the Schools and Libraries Program contributed significantly to providing schools with assistance for information services. During the first three funding years, about \$3.4 billion was committed for internal connections--the majority of which supports high-speed access. In fact, program funding for internal

²⁸⁴ See *supra* para. 83.

²⁸⁵ See AT&T Comments at 8.

²⁸⁶ See, e.g., SIA Comments at 2 ("SAI believes that satellite systems present the only practical near-term alternative to provide broadband services in rural and other underserved areas."); Grange Comments at 6 ("...new terrestrial based fixed wireless technologies (such as microwave, wireless fidelity and MMDS systems) offer promising opportunities to reach some rural communities, especially when they are combined with existing cable, DSL or fiber optic networks.")

²⁸⁷ Percentages add to more than 100 percent because schools may use more than one type of connection. Office of Educational & Research Improvement, U.S. Department of Education, Pub. No. 2001-071, *Internet Access in U.S. Public Schools and Classrooms: 1994 - 2000* (May 2001) at 6 (*NCES Study*). NCES defined dedicated lines to be 56K, T1/DS1, fractionalized T1, T3/DS3, and fractionalized T3 lines. We note that 56 kbps lines do not meet our definition of advanced or high-speed service.

²⁸⁸ *Id.* "Other connection types" are considered to be ISDN, wireless connections, and cable modems (ISDN). Again, we note that some of these connections may not satisfy the Commission's definition of advanced or high-speed capability.

²⁸⁹ *Id.*

²⁹⁰ See Federal Universal Support Mechanisms Fund Size Projections for the Fourth Quarter, available at <<http://www.universalservice.org/overview/filings/default.asp>> (filed by USAC Aug. 2, 2001).

connections helped bring Internet access to 77 percent of public school instructional rooms, compared to only 14 percent in 1996.²⁹¹ By comparison, as of September 2001, 50.5 percent of households in the United States had Internet access.²⁹² In addition, as of the beginning of 2000, SLD estimates that funds were used to install high-speed services in about 170,000 school and library buildings.²⁹³ SLD further estimates that as of September 2002, that number will increase more than 17 percent, to 200,000.

B. Subscription Rates

118. While we focus on the availability of advanced services in this Report, we acknowledge that subscription rates may influence business and investment decisions regarding advanced telecommunications. Therefore, it is useful for this analysis to identify factors that affect consumers' decisions to purchase advanced services. For example, a survey from rural local exchange carriers recently concluded that the current take rates among customers may limit their expansion plans for advanced services.²⁹⁴ More specifically, in this section we consider a variety of factors which may be relevant to the overall subscription rate for advanced services, including: computer ownership, cost, the lack of applications which require advanced telecommunications capability, and marketing techniques. Each of these factors may have varying degrees of consequence for subscription rates.

119. Our data indicates that 7.0 percent of American households subscribe to high-speed services.²⁹⁵ This is a substantial increase from the 1.6 percent residential penetration rate cited in the *Second Report*.²⁹⁶ By comparison, analysts estimate that high-speed Internet access is available in about 75 percent to 80 percent of US households via DSL and cable modem service.²⁹⁷ These estimates are consistent with the Commission's data collection, which indicates that as of June 2001, high-speed service subscribers were reported in 78 percent of the zip codes in the United States.²⁹⁸

120. We believe that computer ownership is a significant factor to subscription for consumers with available advanced services. Although advanced services may be used by technologies other than computers, most use of these services today centers on the use of computers to access the Internet. The Department of Commerce reports that about 56.5 percent of households in America have computers.²⁹⁹ Because consumers without computers currently

²⁹¹ *NCES Study* at 4.

²⁹² *A Nation Online* at 5.

²⁹³ This information is based on estimates from staff of the Schools and Libraries Division of the Universal Service Administrative Company.

²⁹⁴ *See NTCA Survey*.

²⁹⁵ The Department of Commerce indicates that 10.8 percent of the population subscribes to high-speed services. *See A Nation Online* at 39-40.

²⁹⁶ *Second Report*, 15 FCC Rcd at 20942.

²⁹⁷ *See Broadband Will be Available to 75 percent of US Homes by Year-Says New Yankee Group Report*, Yankee Group News Releases, Nov. 1, 2001; *Morgan/McKinsey Broadband Report* at 43 ("...approximately 80% of the U.S. is reached today by upgraded Cable or xDSL.").

²⁹⁸ *See supra* para. 27.

²⁹⁹ *A Nation Online* at 5.

have little or no reason to subscribe to advanced services, we can easily conclude that computer ownership has a direct relationship with penetration rates for advanced services. We also note that computer ownership trends appear to vary significantly based on certain factors, such as income and race.³⁰⁰ Accordingly, high-speed penetration rates also appear to vary with income and race.³⁰¹ Of consumers with computers who are already on-line, the percentage of subscribers is significantly greater than the overall subscription rate. A recent study indicates that 25-35 percent of online users subscribe to high-speed services in some areas.³⁰²

121. The cost of such services may also be a factor in consumers decisions to purchase advanced service lines. According to a survey from the Strategis Group, more than 30 percent of online customers were willing to purchase advanced services at \$25 per month, whereas only 12 percent were willing to pay \$40 per month.³⁰³ Consequently, cost appears to be closely associated with the number of consumers willing to subscribe to advanced services. Another survey reports a similar conclusion, stating that 36 percent of dial-up users were interested in advanced services, but not at current prices.³⁰⁴

122. In addition, some consumers and industry participants believe that it is important to focus on the development of a “killer” application, which would require higher bandwidths and generate wide-spread interest in advanced services for new subscribers.³⁰⁵ They suggest that a “killer” application will make advanced telecommunications capability not just desirable, but essential for most consumers. For example, video-on-demand, Internet gaming,³⁰⁶ and voice over Internet Protocol have received a significant amount of attention. Content-related applications, however, such as video-on-demand, appear to have some legal barriers to full deployment due to copyright infringement concerns and current related restrictions on content

³⁰⁰ For example, 23.4 percent of households with income less than \$15,000 per year own computers and 89.0 percent of households with income over \$75,000 per year own computers. In addition, households of different ethnic and racial backgrounds report varying rates of computer ownership controlling for income. For instance, households with income under \$15,000, 52.5 percent of Asian American and Pacific Islander households report owning a computer, along with 26.9 percent of White households, 18.1 percent of Hispanic households, and 13.3 percent of Black households. Data are based on calculations from National Telecommunications and Information Administration staff (relying on unpublished census data).

³⁰¹ See *supra* para. 102; As of September 2001, 22.9 percent of Asian American and Pacific Islander households with Internet access report high-speed Internet access, along with 19.3 percent of White households, 17.0 percent of Hispanic households, and 16.0 percent of Black households. Race data controlling for income is not available. Again, data are based on calculations from National Telecommunications and Information Administration staff (relying on unpublished census data).

³⁰² *Morgan/McKinsey Broadband Report* at 4.

³⁰³ Information Technology Association of America, *Building a Positive, Competitive Broadband Agenda* (Oct. 2001) (*ITTA Study*) (citing survey from the Strategis Group).

³⁰⁴ *Broadband Too Pricey for Dial-up Users, Survey Says*, *Communications Daily*, Nov. 30, 2001 (citing survey from Hart Research and The Winston Group).

³⁰⁵ See, e.g., John Sullivan, *What Can We Learn From Watching TV?*, *Broadband Networking News*, Dec. 4, 2001 (“It’s been argued that a major reason for broadband’s malaise is the absence of a compelling killer app.”); Steve Gold, *3G’s Success Hinges on Girls*, *Newsbytes*, Dec. 14, 2001 (“...third-generation (3G) wireless services won’t take off until the networks start coming up with killer applications for users.”)

³⁰⁶ Grahame Lynch, *Discovered: A Profitable Killer App for Broadband*, *America’s Network*, Nov. 15, 2001 (noting that on-line gaming has helped drive the broadband market in Korea).

availability by content owners.³⁰⁷ As the market continues to develop and these issues are resolved, we anticipate that innovative applications may drive consumer demand and subscription rates.

123. Another factor for subscription may be the fact that consumers are unaware of available alternatives in advanced services and have not yet become familiar with the benefits of high-speed access to the Internet.³⁰⁸ Accordingly, service providers have begun experimenting with marketing techniques in order to increase subscribership. For example, satellite providers and cable modem providers have recently begun offering subscriptions to high-speed services at retail outlets and report that consumers have responded favorably.³⁰⁹

124. Overall, we note that the penetration of advanced services is generally comparable, or higher, than the historical rates of penetration for other technologies, such as the telephone or television. For example, the telephone took 36 years and the television took 17 years to reach 30 percent of Americans.³¹⁰

C. International Deployment

125. We believe that it is instructive to monitor the deployment of advanced services in the international community to determine if there are lessons to be learned from their experience. For instance, experiences in other countries suggest that the United States is most likely to rapidly deploy high-speed or advanced services when we encourage competition among services providers in the advanced telecommunications market. Nevertheless, we acknowledge that some of the results may be of limited value due to unique circumstances in a particular nation. Factors such as geography, population concentration, industry structure, and government subsidies may all influence the effectiveness of deployment techniques employed by various countries. As a result, while we believe that it is a useful exercise to consider the deployment techniques of other nations, we believe that any international comparisons should be made with caution. In the following, we provide a short overview of reports relating to international deployment, and briefly take note of a variety of factors that may have influenced penetration rates for high-speed services in several nations.

³⁰⁷ See Dan Mitchell, *Can Technology Save Copy Protection?*, Cable World, Apr. 9, 2001 ("The movie studios often blame a lack of copyright protection for their reluctance to make content available for video-on-demand and other advanced television services."); Christopher Boyd, *Video on Demand Ready to Hit Home*, Orlando Sentinel at A1 ("Analysts say copyright and fee issues need to be resolved before video-on-demand libraries contain great numbers of new releases."); Dick Kelsey, *Movies Will Cause Broadband Explosion - Valenti*, Newsbytes News Network, Aug. 21, 2001 ("The extraordinary potential of on-demand entertainment on the Internet was illustrated by music download site Napster, which was ordered to block copyrighted songs made available through its peer-to-peer technology.")

³⁰⁸ Covad Comments at 3 ("Consumers are slowly realizing the benefits of broadband, but haven't yet been convinced in large number to adopt the technology. That is an issue for sales and marketing arms of broadband providers, not for regulators.")

³⁰⁹ AT&T states that its high-speed data service can be purchased at 115 Best Buy stores, 75 Gateway stores, and 120 Circuit City stores and that year-to-date sales through these retail outlets have already exceeded sales for all of 2000. See AT&T Comments at 10 (AT&T Comments were dated September 24, 2001). In addition, StarBand announced that it plans to have an in-store demo in up to 5,000 MSN/RadioShack stores by the end of 2001. See StarBand Comments at 15.

³¹⁰ See *ITAA Study* at 14.

126. A recent report to the Office of Economic Cooperation and Development (OECD) discusses broadband developments and penetration rates in 30 OECD countries, including the United States.³¹¹ This report provides a comprehensive review of the deployment of high-speed services, and may reflect a variety of regulatory structures in each of the countries it considers. According to this report, in June 2001 the United States had a broadband penetration rate of 3.24 per 100 inhabitants. Three countries had higher broadband penetration rates than the United States: Korea at 13.91, Canada at 6.22, and Sweden at 4.52. Additional OECD countries with June 2001 broadband penetration rates above 2.0 included the Netherlands at 2.74, Austria at 2.36, Denmark at 2.33 and Belgium at 2.27. Several other countries that one might have expected to have high broadband penetration, but that were lower than 2.0, included Germany 1.03, Japan at 0.94, France at 0.59, Australia at 0.59 and United Kingdom at 0.09.³¹²

127. An important question to consider is why Korea, Canada, and Sweden report a broadband penetration level significantly higher than the United States. According to the OECD report, the rapid roll-out of high-speed Internet access in Korea is a result of competition between companies using different technologies and different infrastructures. By the end of 2000, Korea Telecom was able to offer DSL service to 92 percent of the Korean population, which was due in part to the fact that a high percentage of Koreans live in apartment buildings. Cable modem service was introduced into Korea in July 1998, before DSL service was available. IP telephony may have also been an important source of broadband growth. IP telephony was introduced by Serome Technology in January 2000, and by December 2000 apparently 4.3 million users had signed up for the service. Serome Technology offers a "DialPad" service that allows users to signal that they are online.³¹³ In conjunction with advanced telecommunications capability, it removes one of the barriers to computer-to-computer use of IP telephony. In addition, broadband growth may also be driven by the fact that a wide range of content is available to Korean consumers.³¹⁴ The Korean Government has set a target to wire 84 percent of Korea's households with services at 20 Mbps by 2005.³¹⁵

128. Canada ranked second in broadband penetration in June 2001.³¹⁶ Competition between different companies using different networks has been important in Canada as well.

³¹¹ Office of Economic Cooperation and Development, Directorate for Science, Technology and Industry, Committee for Information, Computer and Communications Policy, Working Party on Telecommunications and Information Service Policies, *The Development of Broadband Access in OECD Countries* (Oct. 29, 2001) (*OECD Report*). The OECD Report defines broadband as downstream access at 256 kbps and higher speeds, and upstream access at significantly lower speeds, apparently as slow as 64 kbps, in order to include ADSL within the broadband definition.

³¹² *Id.* at 14.

³¹³ *Id.* at 33.

³¹⁴ *Speedcast Partners with World's Largest Broadband Provider*, Asia Pulse, Nov. 1, 2001 ("...Korea Telecom subscribers will now be able to access SpeedCast Multimedia live streaming video and audio content directly from their PC... This multimedia content ranges in subject matter from business and finance, to news and entertainment, lifestyle, as well as a variety of ethnic programs in many languages."); Kim Gilmour, *Survival of the Quickest: Broadband Will Change Your Life, They Say*, Internet Magazine, Dec. 1, 2001 ("Abundant broadband availability and, just as importantly, appealing content and rock-bottom access prices...have given South Koreans an insatiable appetite for broadband recreation.")

³¹⁵ *Korean Trailblazers*, CommunicationsWeek International, Sep. 10, 2001.

³¹⁶ *OECD Report* at 24-25.

Some cable networks began introducing commercial cable modem services as early as November 1996. Telephone carriers responded to the availability of cable modem service by offering DSL service.

129. As of June 2001, Sweden had a broadband penetration rate of 4.52. The Swedish government has a goal of ensuring that broadband reaches 98 percent of towns and villages by 2004 or 2005.³¹⁷ We also note that a majority of the Swedish population rents apartments in multi-tenant buildings, and cable operators generally have agreements with the building owners that give them exclusive access to tenants for 25 years or longer.³¹⁸

130. As mentioned above, several other OECD countries had broadband penetration levels above 2.0 in June 2001, even though they were below the estimated United States level of 3.24. The Netherlands has one of the highest penetration rates for cable modems among OECD countries. At the end of 2000, cable modem penetration in the Netherlands was only second to Canada and Korea. The OECD Report indicates that the divestiture of the cable network incumbent may have assisted investment in upgrading cable networks in the Netherlands.³¹⁹ In Austria, consumers are beginning to purchase cable modems, and Telekom Austria is in the process of upgrading its network to provide DSL.³²⁰ In Denmark, rollout of high-speed Internet has been relatively slow. This may be explained in part by the fact that the incumbent telecom carrier owns the largest cable system and in 1999 had a 61 percent share of total Denmark cable subscribers.³²¹

131. In most of the brief examples listed above, a particularly important factor that encouraged the relatively rapid build out of broadband access was the level of competition between cable TV systems and local telephone companies. Where such competition was diminished because the local telephone provider was also a significant owner of cable networks, the level of competition and the growth of high-speed access on both cable and using DSL on the telephone network, appears to be significantly slower. As a result, we believe that this may support our conclusion in the *Second Report* that competition among service providers increases the quality of services made available to consumers.³²²

132. As we noted above, the successful deployment of advanced telecommunications capability in other nations may be instructive to our efforts to provide access to advanced telecommunications services to all Americans. We emphasize, however, that this exercise may be useful only to the extent that we recognize that there are numerous differences among nations, and that certain comparisons may be of limited value.

³¹⁷ *Id.* at 39-40.

³¹⁸ BDRC Ltd., *The Development of Broadband Access Platforms in Europe: Technologies, Services, Markets, Full Report* (Aug. 2001) (*BDRC Report*) at 114-118.

³¹⁹ *OECD Report* at 35.

³²⁰ *BDRC Report* at 23.

³²¹ *Id.* at 25.

³²² *See Second Report*, 15 FCC Rcd at 21004.

VI. ACTIONS TO ACCELERATE DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS CAPABILITY

A. Overview

133. In the *Second Report*, we identified the three main factors linked to the deployment of advanced telecommunications capability as sufficient demand in a particular locality, the presence of competition among advanced services providers, and the strength of local community efforts to increase the level of deployment.³²³ Given the Commission's role in the telecommunications marketplace, we focused our recommendations on steps that will increase competition in the market for advanced services. We stated that "competition, not regulation, holds the key to stimulating further deployment."³²⁴ This continues to be our view. We believe that a minimal regulatory framework will promote competition and thus encourage investment in advanced telecommunications capability. This framework should be as comprehensive as possible, while recognizing that there may be important legal, policy, technological, or other differences among classes of providers that require disparate regulatory treatment for such providers. Our recent and recommended actions are designed to promote competition and investment through limiting regulatory cost and regulatory uncertainty by establishing a regulatory framework for the evolving broadband market.

134. In the following sections, we discuss the steps that we have taken to encourage investment and further the deployment of advanced telecommunications capability. We also discuss actions the Commission is considering, along with pending proceedings, that may improve the availability of advanced telecommunications capability. Finally, we take note of several suggestions that are designed to promote access to advanced telecommunications capability and may be relevant to entities other than the Commission.

B. Recent Commission Actions

135. Section 706 states, among other things, that "the Commission...shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans...by utilizing...price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment."³²⁵ In order to meet this requirement, the Commission has implemented a wide range of actions aimed at encouraging the growth and development of the advanced services market. More recently, we have turned our focus to establishing the appropriate comprehensive regulatory framework that will promote investment in infrastructure and increase access to advanced telecommunications capability for all Americans. In keeping with our belief that robust competition, minimal regulation, and regulatory certainty create the best environment for increased availability for advanced telecommunications capability, we have taken actions to advance these goals. Highlights of our significant actions are detailed below.

³²³ *Id.* at 21003 – 21004.

³²⁴ *Id.* at 21004.

³²⁵ § 706(a) of the 1996 Act, reproduced in the notes under 47 U.S.C. §157.

1. Promoting Investment Through Competition

136. *Revised Collocation Rules.* In August 2001, we adopted revised collocation rules.³²⁶ Collocation is a crucial means by which some competitors provide advanced services to customers. The revised rules are designed to advance the statutory goals of promoting investment, competition, and technological innovation in all telecommunications markets, including advanced services, while protecting incumbent LEC property interests against unnecessary takings.³²⁷ These rules make clear that a competitive LEC may collocate equipment if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining interconnection or access to unbundled network elements as contemplated in sections 251(c)(2) and 251(c)(3) of the Act.³²⁸ With regard to multifunctional equipment, we found that the primary function of such equipment must satisfy this test in order to be eligible for collocation. In addition, we required that an incumbent LEC must provide cross-connections between collocated carriers upon reasonable request.³²⁹ We also established principles to ensure that an incumbent LEC assigns and configures physical collocation space in accord with its statutory duty to provide for physical collocation on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.³³⁰

137. *Encouraged Competitive Delivery of DSL Services Through Line Sharing.* “Line sharing” permits competitive LECs to provide DSL-based services over lines that are already served by an incumbent LEC for local voice service.³³¹ In January 2001, we rejected requests to reconsider the requirement that incumbent LECs provide unbundled access to the high frequency portion of the local loop through “line sharing.”³³² We also clarified the Commission’s policy requiring incumbent LECs to facilitate “line splitting,” where two competitive LECs share a single local loop to provide an end-user both local voice and broadband services.

138. *Encouraged Further Competition in the International Submarine Cable Market.* In November 2001, the Commission adopted a Report and Order that will promote competition in the Internet-driven submarine cable market and further streamline our licensing process.

³²⁶ The rules were revised in response to a D.C. Circuit decision remanding for further consideration certain aspects of the Commission’s prior collocation rules. *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, Fourth Report and Order, 16 FCC Rcd 15435 (2001) (*Collocation Remand Order*), petitions for review filed sub nom. *Verizon California, Inc., et al. v. FCC and USA*, No. 01-1371 (D.C. Cir. filed Aug. 23, 2001); see also *GTE Service Corp. v. FCC*, 205 F.3d 406 (D.C. Cir. 2000).

³²⁷ See *Collocation Remand Order* at 15443.

³²⁸ *Id.* at 15443-15464.

³²⁹ *Id.* at 15464-15479.

³³⁰ *Id.* at 15478-15486.

³³¹ *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 98-147 and 96-98, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, 14 FCC Rcd 20912, 20913, para. 4 (1999).

³³² *Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket Nos. 98-147, 96-98, 98-147, and 96-98, Third Report and Order on Reconsideration in CC Docket No. 98-147, Fourth Report and Order on Reconsideration in CC Docket No. 96-98, Third Further Notice of Proposed Rulemaking in CC Docket No. 98-147, Sixth Further Notice of Proposed Rulemaking in CC Docket No. 96-98, 16 FCC Rcd 2101 (2001).

These changes reflect our response to recent growth in the number and capacity of new submarine cables and our recognition of the need to move with the swift pace of the market. In addition, we seek to tailor the Commission's licensing processes to encourage rapid, facilities-based entry by multiple firms that can bring increased capacity to the market.³³³

2. Universal Service

139. *Encouraged Investment in Infrastructure in High-Cost Areas.* The Commission recently modified its rules for providing intrastate high-cost loop support to rural carriers, based on proposals made by the Rural Task Force and recommended by the Federal-State Joint Board on Universal Service.³³⁴ This five-year plan will encourage investment in rural America by providing rural carriers with certainty and stability. Among other things, the Rural Task Force plan increases the total amount of high-cost loop support available to rural carriers and, in certain circumstances, provides support for additional investment that they make in their infrastructure. The Commission also explained that use of universal support to invest in infrastructure capable of providing access to advanced services does not violate section 254(e), which mandates that support be used "only for the provision, maintenance, and upgrading of facilities and services for which the support is intended."³³⁵ Thus, although the high-cost loop support mechanism does not support the provision of advanced services, the modified support mechanism will not impede the deployment of modern plant capable of providing access to advanced services.

140. *Reformed Access Charges for Rate-of-Return Telephone Companies.* In October 2001, the Commission modified its rules to help provide certainty and stability for rate-of-return carriers, thereby encouraging investment in infrastructure -- including infrastructure that may be used to provide advanced services -- in rural America. Rate-of-return carriers are typically small, rural telephone companies.³³⁶ In particular, the Commission modified its interstate access charge rules and universal service support system for rate-of-return incumbent local exchange carriers.³³⁷ Specifically, the Commission created a universal service support mechanism to replace implicit support in the interstate access charges collected by rate-of-return carriers, with explicit support that is portable to all eligible telecommunications carriers. The new, uncapped support mechanism will provide stability by ensuring that rate structure modifications do not affect overall recovery of interstate access costs.³³⁸ In addition, the Commission permitted small

³³³ *Review of Commission Consideration of Applications Under the Cable Landing License Act*, IB Docket No. 00-106, Report and Order, FCC 01-332 (rel. Dec. 14, 2001).

³³⁴ *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Fourteenth Report and Order and Twenty-Second Order on Reconsideration, *Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, CC Docket No. 00-265, Report and Order, 16 FCC Rcd 11244 (2001) (*Rural Task Force Order*).

³³⁵ *Rural Task Force Order*, 16 FCC Rcd at 11320-11323.

³³⁶ *Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, *Federal-State Joint Board on Universal Service*, *Access Charge Reform for Incumbent Local Exchange Carriers Subject to Rate-of-Return Regulation*, *Prescribing the Authorized Rate-of-Return for Interstate Services of Local Exchange Carriers*, CC Docket Nos. 00-256, 96-45, 98-77, and 98-166, Second Report and Order and Further Notice of Proposed Rulemaking in CC Docket No. 00-256, Fifteenth Report and Order in CC Docket No. 96-45, and Report and Order in CC Docket Nos. 98-77 and 98-166, FCC 01-304, para. 4 (rel. Nov. 8, 2001), *reconsideration pending*.

³³⁷ *Id.*

³³⁸ *Id.* at para. 12.

and mid-sized local telephone companies that serve rural and high-cost areas to continue to set rates based on a rate-of-return of 11.25 percent.³³⁹ Furthermore, the Commission agreed that universal service policies should not inadvertently create barriers to the provision of access to advanced services.³⁴⁰

3. Efficient Use of Spectrum

141. *Authorized Voluntary Clearing of Upper 700 MHz Bands.* In a series of decisions regarding the 747-762 and 777-792 MHz bands (Upper 700 MHz),³⁴¹ the Commission made portions of this band available for next generation mobile and high-speed broadband services, among other possible uses. In particular, the Commission authorized voluntary band-clearing agreements between incumbent broadcasters and new commercial wireless interests. The Upper 700 MHz auction (Auction No. 31) is scheduled to begin June 19, 2002.³⁴²

142. *Adopted Service Rules for Lower 700 MHz.* As part of the digital television transition, the Commission adopted service rules for the 698-746 MHz band (Lower 700 MHz) to enable the introduction of wireless services.³⁴³ Like the Upper 700 MHz band, wireless licenses to use the spectrum will be awarded via competitive bidding. Potential uses of the spectrum include next generation mobile and high-speed broadband services.

143. *Took Actions to Identify Appropriate 3G Spectrum.* In an effort to implement the International Telecommunications Union's (ITU) International Mobile Telecommunications 2000 initiative (IMT-2000), the FCC, in conjunction with the National Telecommunications and Information Administration (NTIA) and the White House, has taken a series of actions to identify appropriate spectrum for potential reallocation to third generation (3G) wireless services.³⁴⁴

144. *Authorized Ka-band Satellites.* In August 2001, the Commission authorized the deployment of 11 new Ka-band systems that have the potential to provide a variety of services, including broadband, interactive, direct-to-home and digital services to all parts of the country.

³³⁹ *Id.* at paras. 206-210.

³⁴⁰ *Id.* at para. 12.

³⁴¹ See *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, WT Docket No. 99-168, Third Report and Order, 16 FCC Rcd 2703 (2001); Order on Reconsideration of Third Report and Order, FCC 01-258 (rel. Sep. 17, 2001).

³⁴² *Auction of Licenses for 747-762 and 777-792 MHz Bands (Auction No. 31) Scheduled For June 19, 2002*, Public Notice, DA 01-2394 (rel. Oct. 15, 2001).

³⁴³ *Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59)*, GN Docket No. 01-74, Report and Order, FCC 01-364 (rel. Jan. 18, 2002).

³⁴⁴ *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258, Notice of Proposed Rulemaking and Order, 16 FCC Rcd 596 (2001); Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 66 Fed. Reg. 47618-01 (2001); First Report & Order and Memorandum Opinion and Order, FCC 01-256 (rel. Sep. 24, 2001). By ITU standards, 3G services for pedestrian and indoor traffic are high-speed services, capable of supporting circuit and packet data at 384 kbps for pedestrian traffic and 2 Mbps of higher for indoor traffic. For high mobility (vehicular) traffic, the 3G standard includes services capable of speeds of 144 kbps or higher. Accordingly, some services satisfying the ITU's standard are not high-speed.

Specifically, the Commission authorized 11 “second round” Ka-band applicants to provide fixed-satellite service from geostationary satellite systems located in a total of 34 orbit locations.³⁴⁵

145. *Expanded Over-the-Air Reception Devices Rule.* The Commission took steps to minimize interference with the installation, maintenance, or use of antennas used for high-speed services. As directed by Congress, the Commission in 1996 adopted the Over-the-Air Reception Devices Rule (OTARD) prohibiting governmental and non-governmental restrictions that impair installation, maintenance or use of certain antennas.³⁴⁶ The rule applies to antennas, including TV antennas, and fixed wireless and satellite antennas that are less than one meter in diameter, or any size in Alaska. The rule was expanded, effective in May 2001, to apply to fixed wireless antennas used to transmit or receive data, voice and other non-video services. Thus, in addition to its application to video antennas, the rule now applies also to providers that offer high-speed access.³⁴⁷ The rule applies if the antenna user has a direct or indirect property interest and exclusive use or control of the location where the antenna is installed.

146. *Commenced Rolling One-Day Filing Window for MDS and ITFS Licensees.* In 1998, the Commission adopted technical rule changes to provide MDS and ITFS licensees flexibility to fully employ digital technology in delivering two-way communication services, including high-speed and high-capacity data transmission and Internet service.³⁴⁸ An initial filing window for two-way service was held from August 14-18, 2000. Following this initial filing window, on April 16, 2001, the Bureau commenced a rolling one-day filing window process, which permits current licensees to apply for upstream and downstream authorizations. This process provides protection to previously proposed applications.³⁴⁹ To date, approximately 1,600 of those applications have been granted.

147. *Added Mobile Allocation to the 2500-2690 MHz Band.* On September 24, 2001, the Commission adopted a *First Report and Order and Memorandum Opinion and Order (First R&O)* in the New Advanced Wireless Services proceeding.³⁵⁰ The *First R&O* adds a mobile

³⁴⁵ *Second Round Assignment of Geostationary Satellite Orbit Locations to Fixed Satellite Service Space Stations in the Ka-Band.* Order. DA 01-1693 (rel. Aug. 3, 2001).

³⁴⁶ 47 C.F.R. § 1.4000.

³⁴⁷ *Promotion of Competitive Networks in Local Telecommunications Markets, Wireless Communications Association International, Inc. Petition for Rulemaking to Amend Section 1.4000 of the Commission's Rules to Preempt Restrictions on Subscriber Premises Reception or Transmission Antennas Designed to Provide Fixed Wireless Services.* WT Docket No. 99-217, First Report and Order, 15 FCC Rcd 22983 (2000).

³⁴⁸ *Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions.* MM Docket No. 97-217, 13 FCC Rcd 19112 (1998), recon., 14 FCC Rcd 12764 (1999), further recon., 15 FCC Rcd 14566 (2000).

³⁴⁹ *Mass Medial Bureau Provides Further Information regarding Grants of ITFS and MDS Two-Way Applications, Certain ITFS Major Modification Applications, and the Rolling One-Day Filing Window Procedure.* Public Notice, DA 01-751 (rel. Mar. 26, 2001).

³⁵⁰ *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems and Amendment of the US Table of Frequency Allocations to Designate the 2500-2520/2670-2690 MHz Frequency Bands for the Mobile-Satellite Service.* ET Docket No. 00-258 and RM-9911, First Report & Order and Memorandum Opinion and Order. FCC 01-256 (rel. Sep. 24, 2001).

allocation to the 2500-2690 MHz band³⁵¹ to provide additional near-term and long-term flexibility for use of this spectrum, thereby making this band potentially available for advanced mobile and fixed terrestrial wireless services, including 3G and future generations of wireless systems. The Commission decided not to relocate the existing licensees or otherwise modify their licenses.

C. Commission Actions Under Consideration

148. We recently initiated several major initiatives relating to promotion of advanced services, which will limit regulatory costs and regulatory uncertainty by creating a broad framework for the developing advanced services market. These proceedings will enable the Commission to explore how regulatory policy should evolve in a manner that is complementary to the advanced services marketplace. In addition, these initiatives are designed to remove barriers to deployment of advanced telecommunications capability by promoting competition in the telecommunications market.

149. As we discuss in more detail below, the Commission has initiated four proceedings that focus on a comprehensive regulatory treatment of broadband services. First, the Commission launched the *Cable Modem Notice of Inquiry* that considers the definitional question of the regulatory classification under the Act of cable modem service, which is used as a broadband platform.³⁵² Second, we plan to initiate a *Broadband NPRM*, where we examine the legal and policy issues associated with broadband offerings by wireline carriers and universal service issues associated more broadly with all broadband offerings. Third, in the *Incumbent LEC Broadband Telecommunications Services NPRM*, we examine the appropriate regulatory requirements for the incumbent LECs' provision of domestic broadband telecommunications services, including what regulatory safeguards and carrier obligations, if any, should apply when a carrier that is dominant in the provision of traditional local exchange and exchange access services provides broadband service.³⁵³ Fourth, in the *Triennial Review NPRM*, we address, among other things, the incumbent LECs' wholesale obligations under section 251 to make their facilities available as unbundled network elements to competitive LECs for the provision of broadband services.³⁵⁴

³⁵¹ There are currently thirty-three 6 MHz channels, or 198 MHz of spectrum, allocated to MDS and ITFS. In the top fifty markets in the country, MDS utilizes two 6 MHz channels in the 2150 to 2162 MHz band. In the rest of the country, the 6 MHz MDS 2 channel is replaced by a 4 MHz MDS 2-A channel (2150 to 2160 MHz). In addition, both MDS and ITFS share spectrum in the 2500 to 2686 MHz band. In this band, ITFS licensees are allotted twenty 6 MHz channels (120 MHz of spectrum), and MDS licensees are allotted eleven 6 MHz channels (66 MHz of spectrum).

³⁵² *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, GN Docket No. 00-185, Notice of Inquiry, 15 FCC Rcd 19287 (2000) (*Cable Modem NOI*).

³⁵³ Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services, CC Docket No. 01-337, Notice of Proposed Rulemaking, FCC No. 01-360 (rel. Dec. 20, 2001) (*Incumbent LEC Broadband Telecommunications Services NPRM*).

³⁵⁴ *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Notice of Proposed Rulemaking, CC Docket No. 98-147, FCC 01-361 (rel. Dec. 20, 2001) (*Triennial Review*).

150. At the same time, the Commission is currently considering other actions that are intended to promote the build-out of advanced telecommunications capability. In particular, we take note of actions that the Commission is currently considering that are designed to promote competition. As noted in our *Second Report*, the existence of competition among providers benefits consumers by increasing the range and quality of service offerings, while reducing the price of services.³⁵⁵ We also take note of several Commission actions relating to universal service. In addition, we consider the efficient and fair use of limited public resources, such as spectrum and the public rights of way. Furthermore, we emphasize that we will continue to use the enforcement authority available to us to ensure that any advanced services or components of advanced services are provided in a manner that is consistent with the Act and relevant Commission rules and orders. We will continue to coordinate our efforts with the Joint Conference on Advanced Services and other groups interested in promoting deployment.

1. Establishing a Regulatory Framework

151. *Cable Modem Notice of Inquiry*. On September 18, 2000, we initiated a proceeding through a Notice of Inquiry to consider the policy and legal issues surrounding high-speed Internet services offered over cable and other facilities.³⁵⁶ The *Cable Modem NOI* seeks comment on the proper regulatory classification for cable modem service and/or the cable modem platform, including whether the service should be classified as a cable service, a telecommunications service, an information service, or some other category of service.³⁵⁷ Consistent with the Commission's directive in the *Second Report*, the *Cable Modem NOI* seeks comment on whether there should be a national policy for multiple ISPs' access to cable operators' infrastructure for delivery of advanced services.³⁵⁸ The *Cable Modem NOI* asks whether current market forces are working to achieve multiple-ISP access, or whether government intervention is desirable and/or necessary to achieve that goal.³⁵⁹

152. *Broadband NPRM*. We plan to initiate an inquiry relating to the statutory classification of wireline broadband Internet access services. We will explore what regulations, if any, are appropriate if wireline broadband Internet access services are found to be information services or other services subject to Title I of the Act. Specifically, we plan to examine implications for universal service, access and interconnection, and other core communications policy objectives. Finally, we will examine whether providers of broadband Internet access services provided over wireline and other platforms should be required to contribute to universal service.

153. *Incumbent LEC Broadband Telecommunications Services NPRM*. In light of the market changes that are occurring in telecommunications, we are considering whether the various regulatory frameworks to measure and respond to the development of competition in markets previously served by a monopoly provider, established by the Commission in prior

³⁵⁵ See *Second Report*, 15 FCC Rcd at 21004.

³⁵⁶ *Cable Modem NOI*.

³⁵⁷ *Id.* at 19293-19298.

³⁵⁸ *Id.* at 19298-19306; *Second Report*, 15 FCC Rcd at 21010.

³⁵⁹ *Cable Modem NOI*, 15 FCC Rcd at 19306-19308.

proceedings, continue to have relevance today.³⁶⁰ We initiated a review of the current regulatory requirements for incumbent LECs' broadband telecommunications services. We seek comment on what changes, if any, the Commission should make to its traditional regulatory requirements on incumbent LEC broadband service.

154. *Triennial Review of Unbundled Network Elements.* We initiated our first Triennial Review of the Commission's policies on unbundled network elements.³⁶¹ Our re-evaluation of the unbundling rules is designed to bring benefits to consumers through innovation and meaningful competition, and consider how to balance incumbent LECs' unbundling obligations with incentives for carriers to invest in facilities. Among other inquiries, we are examining whether and how to incorporate our mandate under section 706 of the Act as an explicit factor in our unbundling analysis.

2. Promoting Investment Through Competition

155. *Collocation in Remote Facilities.* We are considering modifications to our collocation rules to ensure competitive access to incumbent LEC remote premises.³⁶² As fiber is pushed further into the local loop and customers are increasingly served through remote terminals, we recognize the need to ensure that investment is not stifled by the ability of incumbents to control access to remote devices where DSL technology may be installed.

156. *Carrier Compliance.* Recognizing that the unbundled network element continues to be an important model for competitors to provide service, we note that the underlying carrier's service quality can greatly influence a competitor's ability to meet customer's needs and the carrier's ability to provide quality service. As a result, we have initiated an inquiry about whether to establish national performance measurements and standards that would assist in evaluating a carrier's compliance with its local competition obligations.³⁶³ The dozen or so measures we will consider may have the effect of streamlining the number of existing performance measurements, making clearer a carrier's performance in critical areas, and facilitating federal and state enforcement of that carrier's responsibilities.

157. *Cable Inside Wire Second Further Notice of Proposed Rulemaking.* We continue to adopt pro-competitive policies governing the use of cable wiring inside multiple dwelling units. To facilitate competition from alternative providers, we have established rules that govern the disposition of the incumbent cable operator's wiring once it no longer has a right to serve multiple dwelling units.³⁶⁴ We are currently considering whether additional measures are

³⁶⁰ *Incumbent LEC Broadband Telecommunications Services NPRM.*

³⁶¹ See *Implementation of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, 3766 n.269 (announcing the review may begin after approximately only two years of experience with these rules); *Triennial Review.*

³⁶² *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, Order on Reconsideration and Further Notice of Proposed Rulemaking, 15 FCC Rcd. 17044 (2000).

³⁶³ *Performance Measurements and Standards for Unbundled Network Elements and Interconnection, et al.*, CC Docket No. 01-318, Notice of Proposed Rulemaking, FCC 01-331 (rel. Nov. 19, 2001).

³⁶⁴ See 47 C.F.R. §§ 76.804-76.805; see also 47 C.F.R. §§ 76.801-76.802 (disposition of wiring within a residence).

necessary to enhance the ability of service providers to use existing cable wiring to offer traditional and advanced services to residents of multiple dwelling units.³⁶⁵

3. Universal Service

158. *Definition of Core Services.* In December 2000, the Commission asked the Joint Board on Universal Service (Joint Board) to consider whether changes should be made to the definition of core services that are eligible for universal service support and to make recommendations to the Commission.³⁶⁶ On August 21, 2001, the Joint Board invited comment on, among other things, whether any advanced or high-speed services should be included within the list of core services.³⁶⁷

159. *Schools and Libraries Program.* We are currently seeking comment on whether the Commission should modify its rules in order to improve program operation and ensure that support is distributed in a fair and equitable manner.³⁶⁸ By taking steps to streamline the program, we hope to improve schools and libraries' access to modern telecommunications and information services for educational purposes.³⁶⁹

160. *Rural Health Care.* Telemedicine and access to communications infrastructure for rural health care providers is a critical component of the Nation's emergency preparedness. We will consider reviewing our rules for the Rural Health Care program to ensure that the discounts available to rural health care providers promote a national network for health care and emergency medical communications. We will take a lead role in fostering awareness of the program and the role it can play in the advancement of telemedicine.

4. Efficient Use of Spectrum

161. *Secondary Markets.* The Commission is considering the removal of unnecessary regulatory barriers to the development of a more robust secondary market in radio spectrum usage rights.³⁷⁰ The proposed action would enable the more efficient use of spectrum through leasing and other commercial arrangements. One objective of such additional flexibility is to increase the availability of spectrum for innovative service offerings, including advanced and high-speed services.

162. *Auctions.* Spectrum allocations that may be suitable for high-speed wireless services and that may be available in the future for auction include: 24 GHz, 3650-3700 MHz, 698-746 MHz (Lower 700 MHz), 1710-1755 MHz and 2110-2150 MHz.

³⁶⁵ See *Telecommunications Services Inside Wiring*, CS Docket No. 95-184 and MM Docket No. 92-260, Report and Order and Second Further Notice of Proposed Rulemaking, 13 FCC Rcd 3659 (1997).

³⁶⁶ *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Order, 15 FCC Rcd 25257 (2000).

³⁶⁷ *Federal-State Joint Board on Universal Service Seeks Comment on Review of the Definition of Universal Service*, CC Docket No. 96-45, Public Notice, FCC 01J-1 (rel. Aug. 21, 2001).

³⁶⁸ *Schools and Libraries Universal Service Support Mechanism*, CC Docket No. 02-6, Notice of Proposed Rulemaking and Order, FCC 02-8 (rel. Jan. 25, 2002).

³⁶⁹ *Id.* at para. 2.

³⁷⁰ *Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, WT Docket No. 00-230, Notice of Proposed Rulemaking, FCC 00-402 (rel. Nov. 27, 2000).

163. *3G Spectrum Options.* On January 5, 2000, the Commission issued a *Notice of Proposed Rulemaking* that examined spectrum options for 3G and other advanced wireless services.³⁷¹ In a subsequent Order, the Commission recognized that it plans to explore the service rules that would apply to permit mobile operations, including 3G and future generations of wireless systems, in the 2500-2690 MHz band.³⁷²

164. *Service Rules for MVDDS.* The Commission plans to adopt service rules to enable the introduction of a new terrestrial wireless service -- Multichannel Video Distribution and Data Service (MVDDS) -- in the 12.2-12.7 MHz band currently used for domestic satellite service.³⁷³ Service rules may include the flexibility to introduce high-speed data services to the residential market.

165. *DBS Ancillary Services.* In December 2000, the Commission sought comment on whether it should eliminate, relax or maintain remaining restrictions on ancillary uses of DBS spectrum.³⁷⁴

5. Efficient Use of the Rights-of-Way

166. *Rights-of-Way.* The Commission currently has some proceedings pending that consider various aspects of the roles and practices of federal, state, and local governments with respect to rights-of-way management.³⁷⁵ We share commenters' concern about the difficulty

³⁷¹ See *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258, Notice of Proposed Rulemaking and Order, 16 FCC Rcd 596 (2001).

³⁷² See *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258, First Report and Order and Memorandum Opinion and Order, FCC 01-256 (rel. Sep. 24, 2001).

³⁷³ See also *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range*, ET Docket No. 98-206, Notice of Proposed Rulemaking, 14 FCC Rcd 1131 (1998); First Report and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd 4096 (2001).

³⁷⁴ See *Commission Requests Further Comment in Part 100 Rulemaking Proceeding on Non-Conforming Uses of Direct Broadcast Satellite Service Spectrum*, IB Docket No. 98-21, Public Notice, FCC 00-426 (rel. Dec. 8, 2000). The FCC currently permits Direct Broadcast Satellite (DBS) providers to utilize up to 50 percent of their capacity for ancillary services. See *Revision of Rules and Policies for the Direct Broadcast Satellite Service*, Report and Order, 11 FCC Rcd 9712, para. 17 (1995). See also *Petition of U.S. Satellite Broadcasting Company, Inc. for Declaratory Ruling Regarding Permissible Uses of the Direct Broadcast Satellite Service*, IB Docket No. 95-168 and PP Docket No. 93-253, Petition for Declaratory Ruling, 1 FCC Rcd 977, 977 (1986). Such ancillary services could include high-speed digital services.

³⁷⁵ See *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, WT Docket No. 99-217 and CC Docket No. 96-98, Notice of Proposed Rulemaking and Notice of Inquiry in WT Docket No. 99-217 and Third Further Notice of Proposed Rulemaking in CC Docket No. 96-98, FCC 99-141 (rel. Jul. 7, 1999) at paras. 70-80; *Comments Sought on City Signal Communications, Inc. Petition for Declaratory Ruling Concerning Use of Public Rights of Way for Access to Poles in Cleveland Heights, Ohio Pursuant to Section 253*, Public Notice, 2000 FCC LEXIS 6802 (Dec. 22, 2000); *Comments Sought on City Signal Communications, Inc. Petition for Declaratory Ruling Concerning Use of Public Rights of Way for Access to Poles in Wickliff, Ohio Pursuant to Section 253*, Public Notice, 2000 FCC LEXIS 6803 (Dec. 22, 2000); *Comments Sought on City Signal Communications, Inc. Petition for Declaratory Ruling Concerning Use of Public Rights of Way for Access to Poles in Pepper Pike, Ohio Pursuant to Section 253*, Public Notice, 2000 FCC LEXIS 6804 (Dec. 22, 2000). City Signal withdrew its petition

(continued....)

some companies have faced in securing access to the rights-of-way necessary to deploy advanced telecommunications infrastructure in a timely manner.³⁷⁶ Based on our commitment to ensuring the right-of-way issues are resolved in a fair and expeditious manner, we have asked the Common Carrier Bureau to further examine this matter to consider the legal and policy issues it presents including the question of federal jurisdiction. This effort may best be served through a forum for all interests to meet and work together in creating a guiding set of “best practices” for the appropriate management of the public’s rights-of-way.

167. In particular, some service providers provided the Commission with specific examples of rights-of-way disputes and argued that costs and other requirements imposed on carriers for use of the public rights-of-way are burdensome to the point where they are a barrier to deployment. For example, Global Crossing claims that during recent negotiations for a right-of-way permit, a city requested that Global Crossing provide the city with a percent of revenue fee and waive its right to challenge the legality of the permit’s provisions.³⁷⁷ In addition, Global Photon notes that it was requested to “voluntarily” contribute \$350,000 to a property’s improvement fund in order to obtain a permit.³⁷⁸ Furthermore, others describe prolonged and uncertain application procedures. For instance, ABS gives examples of permit requests not being considered until fifteen to nineteen months after the municipality was originally contacted.³⁷⁹ Additionally, some commenters note that the need to seek permits from multiple jurisdictions can cause significant delay in deploying new facilities.³⁸⁰ Local government parties counter that there is no evidence to suggest their current practices should be restricted.³⁸¹

168. We are concerned about the impact that some of these practices may have on the deployment of advanced services. As a result, we intend to examine these claims and explore solutions through a dialogue with industry and our state and local colleagues, in order to remove barriers that may hinder investment in infrastructure for advanced or high-speed services.³⁸² We

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with regard to the City of Wickliff after the city granted City Signal access to the public rights-of-way. *See* City Signal Communications, Inc. v. City of Wickliff, DA 01-1499, 2001 FCC LEXIS 3401 (Jun. 26, 2001).

³⁷⁶ *See, e.g.*, MFN Comments at 1 (“...obtaining access to public rights of way poses a significant barrier to the deployment of broadband infrastructure.”); Qwest Comments at 12 (“Excessive municipal regulation threatens to delay or prevent distribution of advanced telecommunications services, particularly landline services, which typically require new facilities to be placed within the rights-of-way.”); Velocita Comments at 1 (“... Velocita hereby adds its voice to the chorus urging prompt and decisive action by the Commission to address the pervasive and crippling barriers to competitive market entry posed by unreasonable and unlawful rights-of-way management practices and policies.”); Verizon Comments at 14 (“...a substantial record has been compiled...showing how existing restrictions are interfering with provision of all types of telecommunications services, including broadband, in violation of section 253 of the Act.”)

³⁷⁷ Global Crossing Comments at 6.

³⁷⁸ Global Photon Comments at 14.

³⁷⁹ ABS Comments at 19-21.

³⁸⁰ *See, e.g.*, Velocita Comments at 8; Global Crossing Comments at 6-7.

³⁸¹ We note that several commenters expressed concern that local right-of-way authority should not be preempted. *See, e.g.*, NATOA and NLC Comments at 2 (“There is no evidence to suggest that local governments’ current right-of-way management or compensation policies have impeded the entry of competitive providers into the market.”); TCCFUI Comments at 8 (“there is no evidence that restrictions on local government right-of-way franchise authority facilitate deployment of advanced services to all Americans.”).

³⁸² *See* 47 U.S.C. § 253.

are hopeful that building a consensus regarding best practices will help create reliable and reasonable expectations regarding management of the public's right-of-way.

D. Additional Actions

169. During the course of this proceeding, we received a wide range of suggestions on how to promote the deployment of advanced services to all Americans. Some of these ideas may be relevant to groups outside of the Commission, including various legislative, regional, local, private and regulatory entities. The appropriate authorities may wish to take these suggestions into consideration.

170. *Coordination Between Federal, State, and Local Entities.* Federal, State, and local entities would likely benefit from working together to remove barriers and create incentives for the development of infrastructure to support advanced services. In addition, State and local entities may find it useful to coordinate enforcement efforts with the Commission, in order to ensure compliance and limit regulatory uncertainty.³⁸³

171. *Tax Credits.* Investment credits may provide incentives for service providers to deploy additional infrastructure capable of supporting advanced services.³⁸⁴ We note that legislation is currently pending before Congress that would create a tax credit for organizations that build-out advanced services in rural areas.³⁸⁵

172. *Loan Guarantees.* Loan guarantees may be used to provide low- or no- interest financing for infrastructure that supports advanced services. Loan guarantees could also be designed to spur development for certain underserved communities. For example, the Rural Utilities Service (RUS) of the Department of Agriculture currently administers a pilot program that provides loan guarantees for rural areas.

173. *Grants.* Grant programs may be an additional source of financing for advanced services. For example, the National Telecommunications and Information Administration's Technology Opportunities Program (TOP) gives grants to public and non-profit private sector entities for model projects demonstrating innovative uses of network technology.

174. *Support Public/Private Partnerships.* Communities may benefit from working with private entities in order to establish community-based technology centers in order to provide computer resources and training for residents. Partnerships may be tailored to address particular local needs, or could target the availability of services for certain members of the community, such as the disabled.³⁸⁶

175. *Demand Aggregation and Anchor Tenancy.* Communities may wish to join together with local government, schools, and private businesses in order to warrant private

³⁸³ See, e.g., CompTel Comments at 2.

³⁸⁴ See, e.g., Qwest Comments at 7.

³⁸⁵ See, e.g., S. 88, 107th Congress, 1st Session (2001) (Provides tax credits for five years to companies investing in advanced telecommunications equipment to serve low-income and rural areas.)

³⁸⁶ See TDI Comments at 6.

investment in advanced services. Additionally, fostering an understanding of advanced services among community leaders may help promote community-driven demand aggregation.³⁸⁷

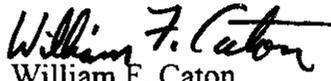
176. *Compile Additional Data.* States, municipalities, and other entities may find it useful to collect additional information regarding providers and the availability of services in their region. This information may provide insight relating to deployment and allow groups to assess specific concerns relating to the availability of advanced services.

177. *Deployment Timelines.* States or local communities may find it useful to set goals with respect to the deployment of advanced services in their region.³⁸⁸

VII. ORDERING CLAUSE

178. Accordingly, IT IS ORDERED that, pursuant to section 706 of the Telecommunications Act of 1996, this Report is ADOPTED.

FEDERAL COMMUNICATIONS COMMISSION


William F. Caton
Acting Secretary

³⁸⁷ See APT, AAPD, and ACB Comments at 4.

³⁸⁸ See, e.g., APT and WID Comments at 10.