INFRASTRUCTURE

CHAPTER 6

JUST AS WIRELESS NETWORKS USE PUBLICLY OWNED SPECTRUM, wireless and wired networks rely on cables and conduits attached to public roads, bridges, poles and tunnels. Securing rights to this infrastructure is often a difficult and time-consuming process that discourages private investment. Because of permitting and zoning rules, government often has a significant role in network construction. Government also regulates how broadband providers can use existing private infrastructure like utility poles and conduits. Many state and local governments have taken steps to encourage and facilitate fiber conduit deployment as part of public works projects like road construction. Similarly, in November 2009, the Federal Communications Commission (FCC) established timelines for states and localities to process permit requests to build and locate wireless equipment on towers.[1]

While these are positive steps, more can and should be done. Federal, state and local governments should do two things to reduce the costs incurred by private industry when using public infrastructure. First, government should take steps to improve utilization of existing infrastructure to ensure that network providers have easier access to poles, conduits, ducts and rights-of-way. Second, the federal government should foster further infrastructure deployment by facilitating the placement of communications infrastructure on federally managed property and enacting "dig once" legislation. These two actions can improve the business case for deploying and upgrading broadband network infrastructure and facilitate competitive entry.

RECOMMENDATIONS

Improving utilization of infrastructure

- The FCC should establish rental rates for pole attachments that are as low and close to uniform as possible, consistent with Section 224 of the Communications Act of 1934, as amended, to promote broadband deployment.
- The FCC should implement rules that will lower the cost of the pole attachment "make-ready" process.
- The FCC should establish a comprehensive timeline for each step of the Section 224 access process and reform the process for resolving disputes regarding infrastructure access.
- The FCC should improve the collection and availability of information regarding the location and availability of poles, ducts, conduits and rights-of-way.
- Congress should consider amending Section 224 of the Act to establish a harmonized access policy for all poles, ducts, conduits and rights-of-way.
- The FCC should establish a joint task force with state, Tribal and local policymakers to craft guidelines for rates, terms and conditions for access to public rights-of-way.

Maximizing impact of federal resources

- The U.S. Department of Transportation (DOT) should make federal financing of highway, road and bridge projects contingent on states and localities allowing joint deployment of conduits by qualified parties.
- Congress should consider enacting "dig once" legislation applying to all future federally funded projects along rights-of-way (including sewers, power transmission facilities, rail, pipelines, bridges, tunnels and roads).
- Congress should consider expressly authorizing federal agencies to set the fees for access to federal rights-of-way on a management and cost recovery basis.
- The Executive Branch should develop one or more master contracts to expedite the placement of wireless towers on federal government property and buildings.

6.1 IMPROVING UTILIZATION OF INFRASTRUCTURE

The cost of deploying a broadband network depends significantly on the costs that service providers incur to access conduits, ducts, poles and rights-of-way on public and private lands.[2] Collectively, the expense of obtaining permits and leasing pole attachments and rights-of-way can amount to 20% of the cost of fiber optic deployment.[3]

These costs can be reduced directly by cutting fees. The costs can also be lowered indirectly by expediting processes and decreasing the risks and complexities that companies face as they deploy broadband network infrastructure.

The FCC has already begun to take important steps in this direction with policies that will speed the deployment of wireless equipment on towers. With regard to other infrastructure such as utility poles, the FCC has authority to improve the deployment process and should use that authority. Lowering the costs of infrastructure access involves every level of government; active consultation among all levels of government will be needed to put in place pro-deployment policies such as joint trenching, conduit construction and placement of broadband facilities on public property.

RECOMMENDATION 6.1: The FCC should establish rental rates for pole attachments that are as low and close to uniform as possible, consistent with Section 224 of the Communications Act of 1934, to promote broadband deployment.

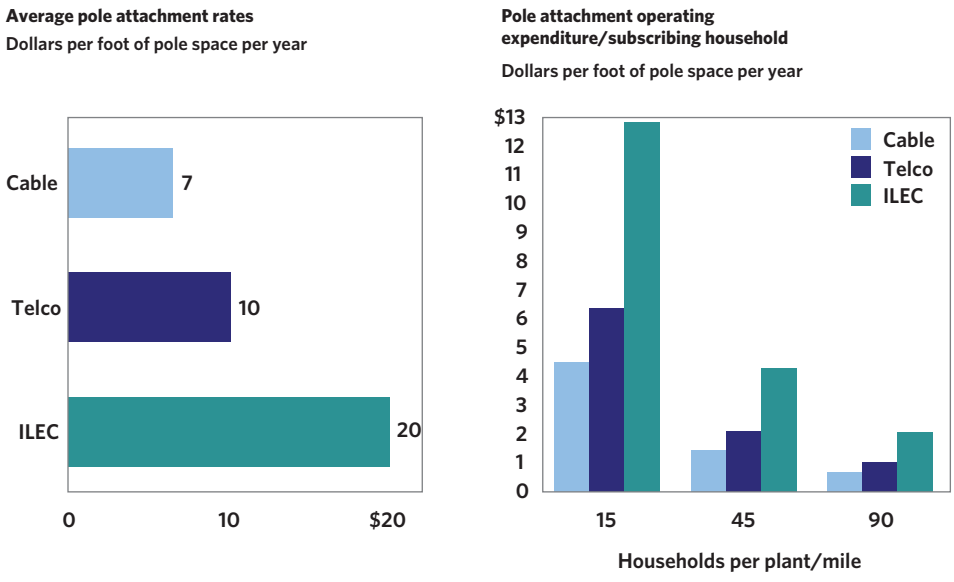
As Exhibit 6-A shows, the rental rates paid by communications companies to attach to a utility pole vary widely—from approximately $7 per foot per year for cable operators to $10 per foot per year for competitive telecommunications companies to more than $20 per foot per year for some incumbent local exchange carriers (ILECs).[4] The impact of these rates can be particularly acute in rural areas, where there often are more poles per mile than households.[5] In a rural area with 15 households per linear mile, data suggest that the cost of pole attachments to serve a broadband customer can range from $4.54 per month per household passed (if cable rates are used) to $12.96 (if ILEC rates are used). If the lower rates were applied, and if the cost differential in excess of $8 per month were passed on to consumers, the typical monthly price of broadband for some rural consumers could fall materially.[6] That could have the added effect of generating an increase—possibly a significant increase—in rural broadband adoption.

Different rates for virtually the same resource (space on a pole), based solely on the regulatory classification of the attaching provider, largely result from rate formulas established by Congress and the FCC under Section 224 of the Communications Act of 1934, as amended ("the Act").[8] The rate structure is so arcane that, since the 1996 amendments to Section 224, there has been near-constant litigation about the applicability of "cable" or "telecommunications" rates to broadband, voice over Internet protocol and wireless services.[9]

To support the goal of broadband deployment, rates for pole attachments should be as low and as close to uniform as possible. The rate formula for cable providers articulated in Section 224(d) has been in place for 31 years and is "just and reasonable" and fully compensatory for utilities.[10] Through a rulemaking, the FCC should revisit its application of the telecommunications carrier rate formula to yield rates as close as possible to the cable rate in a way that is consistent with the Act.

Applying different rates based on whether the attacher is classified as a "cable" or a "telecommunications" company distorts attachers' deployment decisions. This is especially true with regard to integrated, voice, video and data networks. This uncertainty may be deterring broadband providers that pay lower pole rates from extending their networks or adding capabilities (such as high-capacity links to wireless towers). By

Exhibit 6-A: Annual Pole Rates Vary Considerably by Provider Type[7]



expanding networks and capabilities, these providers risk having a higher pole rental fee apply to their entire network.[11]

FCC rules that move toward low rates that are as uniform as possible across service providers would help remove many of these distortions. This approach would also greatly reduce complexity and risk for those deploying broadband.

RECOMMENDATION 6.2: The FCC should implement rules that will lower the cost of the pole attachment "make-ready" process.

Rearranging existing pole attachments or installing new poles—a process referred to as "make-ready" work—can be a significant source of cost and delay in building broadband networks. FiberNet, a broadband provider that has deployed 3,000 miles of fiber in West Virginia, states that "the most significant obstacle to the deployment of fiber transport is FiberNet's inability to obtain access to pole attachments in a timely manner."[12]

Make-ready work frequently involves moving wires or other equipment attached to a pole to ensure proper spacing between equipment and compliance with electric and safety codes. The make-ready process requires not only coordination between the utility that owns the pole and a prospective broadband provider, but also the cooperation of communications firms that have already attached to the pole. Each attaching party is generally responsible for moving its wires and equipment, meaning that multiple visits to the same pole may be required simply to attach a new wire.

Reform of this inefficient process presents significant opportunities for savings. FiberNet commented that its make-ready charges for several fiber runs in West Virginia averaged $4,200 per mile and took 182 days to complete,[13] but the company estimates that these costs should instead have averaged $1,000 per mile.[14] Another provider, Fibertech, states that the make-ready process averages 89 days in Connecticut and 100 days in New York, where state commissions regulate the process directly.[15]

Delays can also result from existing attachers' action (or inaction) to move equipment to accommodate a new attacher, potentially a competitor.[16] As a result, reform must address the obligations of existing attachers as well as the pole owner.

An evaluation of best practices at the state and local levels reveals ample opportunities to manage this process more efficiently. Yet, absent regulation, pole owners and existing attachers have few incentives to change their behavior.

To lower the cost of the make-ready process and speed it up, the FCC should, through rulemaking:

- Establish a schedule of charges for the most common categories of work (such as engineering assessments and pole construction).
- Codify the requirement that gives attachers the right to use space- and cost-saving techniques such as boxing or extension arms where practical and in a way that is consistent with pole owners' use of those techniques.[17]
- Allow prospective attachers to use independent, utility-approved and certified contractors to perform all engineering assessments and communications make-ready work, as well as independent surveys, under the joint direction and supervision of the pole owner and the new attacher.[18]
- Ensure that existing attachers take action within a specified period (such as 30 days) to accommodate a new attacher. This can be accomplished through measures such as mandatory timelines and rules that would allow the pole owner or new attacher to move existing communications attachments if the timeline is not met.
- Link the payment schedule for make-ready work to the actual performance of that work, rather than requiring all payment up front.

These cost-saving steps can have an immediate impact on driving fiber deeper into networks, which will advance the deployment of both wireline and wireless broadband services.

RECOMMENDATION 6.3: The FCC should establish a comprehensive timeline for each step of the Section 224 access process and reform the process for resolving disputes regarding infrastructure access.

There are no federal regulations addressing the duration of the entire process for obtaining access to poles, ducts, conduit and rights-of-way. While the FCC in the past has recognized that "time is critical in establishing the rate, terms and conditions for attaching," current FCC rules only require that a utility provide a response to an application within 45 days.[19] The FCC does not have any deadlines for subsequent steps in the process, which can drag on for months if not years.[20] This causes delays in the deployment of broadband to communities and anchor institutions.[21]

Several states, including Connecticut and New York, have established firm timelines for the entire process, from the day that a prospective attacher files an application, to the issuance of a permit indicating that all make-ready work has been completed.[22] Timelines speed the process considerably in states where they have been implemented,[23] thus facilitating the deployment of broadband.

The FCC should establish a federal timeline that covers each step of the pole attachment process, from application to issuance of the final permit. The federal timeline should be implemented through a rulemaking and be comprehensive and applicable to all forms of communications attachments.[24] In addition, the FCC should establish a timeline for the process of certifying wireless equipment for attachment.[25]

The FCC also should institute a better process for resolving access disputes. For large broadband network builds, the pole attachment process is highly fragmented and often involves dozens of utilities, cable providers and telecommunications providers in multiple jurisdictions. Yet there is no established process for the timely resolution of disputes.[26]

The FCC has the authority to enforce its pole attachment rules, but today it generally attempts to informally resolve attachment disputes through mediation. This process has significant flaws. Under the current system of case-by-case adjudication, the attacher always bears the burden of bringing a formal complaint.[27] The formal dispute rules also do not provide for compensation dating from the time of the injury, so attachers have minimal incentive to initiate costly formal pole attachment cases that may linger for years.

Also, because time is often of the essence during the make-ready process, methods for resolving disputes over application of individual safety and engineering standards may be necessary. Informal local procedures and mediation may sometimes result in satisfactory settlements, but they do not create precedents for what constitutes a "just and reasonable" practice under Section 224 of the Act.

In revising its dispute resolution policies, the FCC should consider approaches that not only speed the process but also provide future guidelines for the industry. Institutional changes, such as the creation of specialized fora and processes for attachment disputes, and process changes, such as target deadlines for resolution, could expedite dispute resolution and serve the overarching goal of lowering costs and promoting rapid broadband deployment. The FCC also could use its authority under Section 224 to require utilities to post standards and adopt procedures for resolving safety and engineering disagreements and encourage appropriate state processes for resolving such disputes. Finally, awarding compensation that dates from the denial of access could stimulate swifter resolution of disputes.

RECOMMENDATION 6.4: The FCC should improve the collection and availability of information regarding the location and availability of poles, ducts, conduits and rights-of-way.

There are hundreds of private and public entities that own and control access to poles, ducts, conduits and rights-of-way, and an even greater number of parties that use that infrastructure. Accurate information about pole owners and attachments is critical if there is to be a timely and efficient process for accessing and utilizing this important infrastructure.[28] The FCC should ensure that attachers and pole owners have the data they need to lower costs and accelerate the buildout of broadband networks.

Consistent with its current jurisdiction under Section 224, the FCC should ensure that information about utility poles and conduits is up-to-date, readily accessible and secure, and that the costs and responsibility of collecting and maintaining data are shared equitably by owners and users of these vital resources. For example, data could be collected systematically as in Germany, which is mapping fiber, ducts and conduits and is planning to coordinate these data with information about public works and infrastructure projects.[29] Existing industry efforts to collect and coordinate data could be expanded and made more robust.[30] In addition, the participation of all pole owners subject to Section 224 and attaching parties in any such database effort could be regulated and streamlined. These databases should be easily searchable, identify the owner of each pole and should contain up-to-date records of attachments and make-ready work that has been performed. For conduits and ducts, any database should note whether there is space available. Whichever methods are used, data must be regularly updated, secure and accessible in order to further the FCC's efforts to ensure that broadband providers have efficient access to essential infrastructure information.

RECOMMENDATION 6.5: Congress should consider amending Section 224 of the Act to establish a harmonized access policy for all poles, ducts, conduits and rights-of-way.

Even if the FCC implemented all of the recommendations related to its Section 224 authority, additional steps would be needed to establish a comprehensive national broadband infrastructure policy. As previously discussed, without statutory change, the convoluted rate structure for cable and telecommunications providers will persist. Moreover, due to exemptions written into Section 224, a reformed FCC regime would apply to only 49 million of the nation's 134 million poles.[31] In particular, the statute does not apply in states that adopt their own system of regulation and exempts poles owned by co-operatives, municipalities and non-utilities.[32]

The nation needs a coherent and uniform policy for broadband access to privately owned physical infrastructure. Congress should consider amending or replacing Section 224 with a harmonized and simple policy that establishes minimum standards throughout the nation—although states should remain free to enforce standards that are not inconsistent with federal law. The new statutory framework could provide that:

- All poles, ducts, conduits and rights-of-way be subject to a regulatory regime addressing a minimum set of criteria established by federal law.
- All broadband service providers, whether wholesale or retail, have the right to access pole attachments, ducts, conduit and rights-of-way based on reasonable rates, terms and conditions.
- Infrastructure access be provided within standard timelines established by the FCC, and that the FCC has the authority to award damages for non-compliance.

- The FCC has the authority to compile and update a comprehensive database of physical infrastructure assets.

RECOMMENDATION 6.6: The FCC should establish a joint task force with state, Tribal and local policymakers to craft guidelines for rates, terms and conditions for access to public rights-of-way.

Because local, state, Tribal and federal governments control access to important rights-of-way and facilities, a comprehensive broadband infrastructure policy necessarily requires a coordinated effort among all levels of government.

There is wide diversity among state and local policies regarding access to and payment for accessing public rights-of-way. Many jurisdictions charge a simple rental fee. Other jurisdictions use other compensation schemes, including per-foot rentals, one-time payments, in-kind payments (such as service to public institutions or contributions of fiber to city telecommunications departments) and assessments against general revenues.[33] Some jurisdictions calculate land rental rates based on local real estate "market value" appraisals.

Many states have limited the rights-of-way charges that municipalities may impose, either by establishing uniform rates (Michigan) or by limiting fees to administrative costs (Missouri).[34] Other states, including South Carolina, Illinois and Florida, do not allow municipalities to collect rights-of-way fees directly; instead, the state compensates local governments for the use of their rights-of-way with proceeds from state-administered telecommunications taxes.

Broadband service providers often assert that the expense and complexity of obtaining access to public rights-of-way in many jurisdictions increase the cost and slow the pace of broadband network deployment.[35] Representatives of state and local governments dispute many of these contentions.[36] However, nearly all agree that there can and should be better coordination across jurisdictions on infrastructure issues.[37]

Despite past efforts by the National Telecommunications and Information Administration (NTIA) and the National Association of Regulatory Utility Commissioners (NARUC),[38] a coordinated approach to rights-of-way policies has not taken hold. There are limits to state and local policies; Section 253 of the Communications Act prohibits state and local policies that impede the provision of telecommunications services while allowing for rights-of-way management practices that are nondiscriminatory, competitively neutral, fair and reasonable.[39] However, disputes under Section 253 have lingered for years, both before the FCC and in federal district courts.[40]

In consultation and partnership with state, local and Tribal authorities, the FCC should develop guidelines for public rights-of-way policies that will ensure that best practices from state and local government are applied nationally. For example, establishing common application information and inspection protocols could lower administrative costs for the industry and governmental agencies alike. Fee structures should be consistent with the national policy of promoting greater broadband deployment. A fee structure based solely upon the market value of the land being used would not typically take into account the benefits that the public as a whole would receive from increased broadband deployment, particularly in unserved and underserved areas. In addition, broadband network construction often involves multiple jurisdictions. The timing of the process and fee calculations by one local government may not take into account the benefits that constituents in neighboring jurisdictions would receive from increased broadband deployment. The cost and social value of broadband cut across political boundaries; as a result, rights-of-way policies and best practices must reach across those boundaries and be developed with the broader public interest in mind.

To help develop this consistent rights-of-way policy, the FCC should convene a joint task force of state, local and Tribal authorities with a mandate to:

- Investigate and catalog current state and local rights-of-way practices and fee structures, building on NTIA's 2003 compendium and the 2002 NARUC Rights-of-Way Project.
- Identify public rights-of-way and infrastructure policies and fees that are consistent with the national public policy goal of broadband deployment and those that are inconsistent with that goal.[41]
- Identify and articulate rights-of-way construction and maintenance practices that reduce overall capital and maintenance costs for both government and users and that avoid unnecessary delays, actions, costs and inefficiencies related to the construction and maintenance of broadband facilities along public rights-of-way.[42]
- Recommend appropriate guidelines for what constitutes "competitively neutral," "nondiscriminatory" and "fair and reasonable" rights-of-way practices and fees.
- Recommend a process for the FCC to use to resolve disputes under Section 253. Creating a process should expedite resolution of public rights-of-way disputes in areas either unserved or underserved by broadband.

The FCC should request that the task force make its recommendations within six months of the task force's creation. These recommendations should then be considered by the FCC as part of a proceeding that seeks industry-wide comment on these issues.

6.2 MAXIMIZING IMPACT OF FEDERAL RESOURCES

Federal government can also play an important role in directly lowering the costs of future infrastructure deployment. The federal government has already made efforts to simplify access to federal rights-of-way under President George W. Bush,[43] and to improve access to federal government facilities for wireless services under President William J. Clinton.[44] However, policies have generally taken a permissive approach, simply allowing the federal government to take steps, rather than requiring that those steps be taken.

RECOMMENDATION 6.7: The U.S. Department of Transportation (DOT) should make federal financing of highway, road and bridge projects contingent on states and localities allowing joint deployment of conduits by qualified parties.

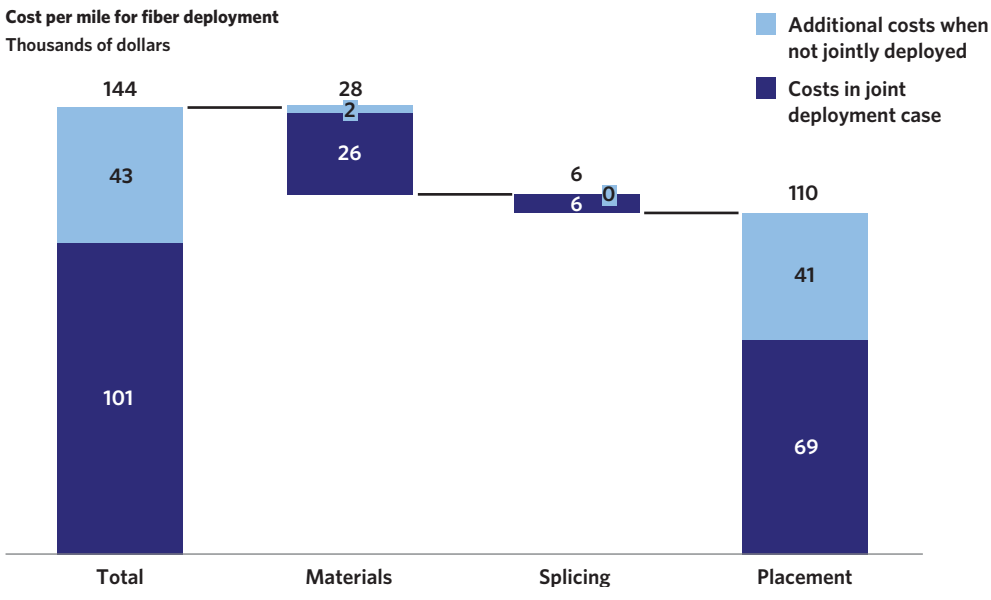
RECOMMENDATION 6.8: Congress should consider enacting "dig once" legislation applying to all future federally funded projects along rights-of-way (including sewers, power transmission facilities, rail, pipelines, bridges, tunnels and roads).

Although pushing fiber deeper into broadband networks considerably improves the performance and reliability of those networks, deploying a mile of fiber can easily cost more than $100,000 (see Exhibit 6-B). The largest element of deployment costs is not the fiber itself, but the placement costs associated with burying the fiber in the ground (or attaching it to poles in an aerial build). These placement costs can, in certain cases, account for almost three-quarters of the total cost of fiber deployment. Running a strand of fiber through an existing conduit is 3–4 times cheaper than constructing a new aerial build.[45]

Substantial savings can be captured if fiber builds are coordinated with other infrastructure projects in which the right-of-way (e.g., road, water, sewer, gas, electric, etc.) is already being dug. For example, the city of San Francisco has a "trench once" policy, in which a 5-year moratorium is placed on opening up a road bed once the trench along that road bed has been closed.[47] San Francisco uses a notification process to ensure that other interested parties have the opportunity to install conduits and cabling in the open trench.[48] The city of Boston has implemented a "Shadow Conduit Policy," in which the first company to request a trench takes a lead role, inviting other companies to add additional empty (or "shadow") conduits for future use by either the city of Boston or a later entrant.[49] The city of Chicago seeks to "inexpensively deploy excess conduit when streets are opened for other infrastructure and public works projects."[50] In the Netherlands, a committee in the city of Amsterdam similarly coordinates digging and trenching activities between the public and private sector.[51]

These policies have clear benefits, as shown by the case of Akron, Ohio. When Akron was deploying facilities and conduit to support its public safety network, it shared those facilities with OneCommunity, a northeast Ohio public-private partnership that aggregates demand by public institutions and private

Exhibit 6-B: Joint Deployment Can Materially Reduce the Cost of Fiber Deployment[46]



broadband service providers. As a result of that coordination, those same facilities and conduits now support health care institutions, schools and Wi-Fi access in Akron.[52] Similarly, along Interstate 91 in western Massachusetts, collaboration among the Massachusetts Department of Transportation, the Massachusetts Broadband Institute and the federal DOT is resulting in the installation of 55 miles of fiber optic cable with 34 interconnection points.[53]

DOT should implement "joint trenching" and conduit policies to lower the installation costs for broadband networks.[54] At a minimum, states and localities undertaking construction along rights-of-way that are partially or fully financed by DOT should be required to give at least 90 days' notice before projects begin. This would allow private contractors or public entities to add conduits for fiber optic cables in ways that do not unreasonably increase cost, add to construction time or hurt the integrity of the project. Opportunities for joint trenching and conduit deployment are varied, from construction of Intelligent Transportation Systems alongside interstates to building and maintenance of recreational rail trails.[55] As a result, information about potential joint trenching and conduit deployment opportunities should be available and accessible to prospective broadband network providers whenever government engages in an infrastructure project, subject to security precautions.

Congress also should consider enacting "dig once" legislation to extend similar joint trenching requirements to all rights-of-way projects (including sewers, power transmission facilities, rail, pipelines, bridges, tunnels and roads) receiving federal funding.

RECOMMENDATION 6.9: Congress should consider expressly authorizing federal agencies to set the fees for access to federal rights-of-way on a management and cost recovery basis.

RECOMMENDATION 6.10: The Executive Branch should develop one or more master contracts to expedite the placement of wireless towers on federal government property and buildings.

The federal government is the largest landowner in the country—650 million acres, constituting nearly one-third of the land area of the United States.[56] The federal government's General Services Administration (GSA) also owns or leases space in 8,600 buildings nationwide.[57] To effectively deploy broadband, providers often need to be able to place equipment on this federally controlled property, or to use the rights-of-way that pass through the property.

Based on an August 1995 executive memorandum by President Clinton,[58] GSA developed guidelines to allow wireless antennas on federal buildings and land.[59] Additionally, since 1989, GSA has run the National Antenna Program to facilitate wireless tower placement on federal government buildings.[60] On more than 1,900 buildings administered by GSA, there are currently antennas covered by approximately 100 leases that result in millions of dollars in revenue for the Federal Buildings Fund annually.[61] For each of the leases managed by GSA, market rent is charged, and the leases are tightly crafted to cover rooftop space, specific equipment and technology.

Even given this progress, the federal government can do more to facilitate access to its rights-of-way and facilities that it either develops or maintains. In many instances, federal law currently requires that rental fees for rights-of-way controlled by federal agencies be based upon the market value of the land. As a result, these fees are often much higher than the direct costs involved.[62] To facilitate the development of broadband networks, Congress should consider allowing all agencies to set the fees for access to rights-of-way for broadband services on the basis of a direct cost recovery approach, especially in markets currently underserved or unserved by any broadband service provider.

The Executive Branch should also develop one or more master contracts for all federal property and buildings covering the placement of wireless towers. The contracts would apply to all buildings, unless the federal government decides that local issues require non-standard treatment. In the master contracts, GSA should also standardize the treatment of key issues covering rooftop space, equipment and technology. The goal of these master contracts would be to lower real estate acquisition costs and streamline local zoning and permitting for broadband network infrastructure.

While reducing the prices for leases on government property may reduce fees paid to governments at the local, state and federal levels, the decline in prices may also greatly increase the number of companies that acquire leases on government property. In any case, the increased deployment of broadband will stimulate investment and benefit society.

CHAPTER 6 ENDNOTES

1 *Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, WT Docket No. 08-165, Declaratory Ruling, 24 FCC Rcd 13994 (2009).

2 *See* Letter from Judith A. Dumont, Director, Massachusetts Broadband Initiative, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-47, 09-51, 09-137 (Jan. 8, 2010) (Dumont Jan. 8, 2010 *Ex Parte*) at 2 (noting that permitting requirements and procedures for rights of way, poles, conduits and towers "are key to the efficient and streamlined deployment of broadband," and that difficulties in such access "often prove to be the greatest impediment to the efficient, cost-effective, and timely deployment of broadband.").

3 We derive this estimate from several sources. Omnibus Broadband Initiative, The Broadband Availability Gap. (forthcoming) *See* Letter from Thomas Jones, Counsel to FiberNet, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-51, WC Docket No. 07-245 (Sept. 16, 2009) (FiberNet Sept. 16, 2009 *Ex Parte*) at 20 (noting average cost for access to physical infrastructure of $4,611–$6,487 per mile); *Comment Sought on Cost Estimates for Connecting Anchor Institutions to Fiber—NBP Public Notice #12*, GN Docket Nos. 09-47, 09-51, 09-137, Public Notice, 24 FCC Rcd 12510 (2009) (*NBP PN #12*) App. A (Gates Foundation estimate of $10,500–$21,120 per mile for fiber optic deployment); *see also* Letter from Charles B. Stockdale, Fibertech, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-47, 09-51, 09-137 (Oct. 28, 2009) at 1–2 (estimating costs ranging from $3,000–$42,000 per mile).

4 One wireless carrier has cited instances in which it has been asked to pay a rental rate of $1,200–$3,000 per pole per year. *See, e.g.*, Letter from T. Scott Thompson, Counsel for NextG Networks, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-245, RM-11293, RM-11303 (June 27, 2008) Attach. at 11.

5 *See, e.g.*, Am. Cable Ass'n Comments in re National Broadband Plan NOI, filed June 8, 2009, at 8–9; *Amendment of the Commission's Rules and Policies Governing Pole Attachments*, WC Docket No. 07-245, Report and Order, 15 FCC Rcd 6453, 6507–08, para. 118 (2000) ("The Commission has recognized that small systems serve areas that are far less densely populated areas than the areas served by large operators. A small rural operator might serve half of the homes along a road with only 20 homes per mile, but might need 30 poles to reach those 10 subscribers.").

6 This analysis assumes that the customer purchases from an ILEC that rents all of its poles.

7 NCTA Comments in re American Electric Power Service Corp. et al., Petition for Declaratory Ruling that the Telecommunications Rate Applies to Cable System Pole Attachments Used to Provide Interconnected Voice over Internet Protocol Service, WC Docket No. 09-154 (filed Aug. 17, 2009) (Pole Attachments Petition), filed Sept. 24, 2009, App. B at 8–10; Letter from Thomas Jones, Counsel, Time Warner Telecom Inc., to Marlene H. Dortch, Secretary, FCC RM-11293, filed Sept. 24, 2009, at 8; George S. Ford et al., Phoenix Ctr., The Pricing of Pole Amendment: Implications and Recommendations 7 (2008); Independent Telephone and Telecommunications Alliance (ITTA) Comments in re *implementation of Section 224 of the Act; Amendment of the Commission's Rules and Policies Governing Pole Attachments*, WC Docket No. 07–245, Notice of Proposed Rulemaking, 22 FCC Rcd 20195 (2007) (*Pole Attachments NRM*), filed Mar. 7, 2008. As Pelcovits notes, monthly cost assumes 35 poles per mile and a 30% take rate. NCTA Comments in re Pole Attachments Petition, filed Sept. 24, 2009, App. B at 14. Additionally, this analysis assumes that all poles are rented by the broadband provider and not owned by it.

8 The variation in rates charged to incumbent LECs also can arise from the history of pole ownership by the incumbent LECs and certain "joint use" agreements that exist between some incumbent LECs and electric utilities.

9 *See, e.g.*, *Nat'l Cable & Telecom. Ass'n v. Gulf Power Co.*, 534 U.S. 327 (2002).

10 *See, e.g.*, *Alabama Power Co. v. FCC*, 311 F.3d 1357 (11th Cir. 2002); *FCC v. Florida Power Corp.*, 480 U.S. 245 (1987).

11 *See, e.g.*, Letter from Daniel L. Brenner, Counsel, Bright House Networks, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-47, 09-51, 09-137 (Jan. 8, 2010) Attach. at 4; Letter from Daniel L. Brenner, Counsel, Bright House Networks, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-47, 09-51, 09-137 (Feb. 16, 2010) Attach. (Affidavit of Nick Lenochi) (providing example of how application of higher telecommunications rate for poles would increase expense of deploying Fast Ethernet connections to a large school district by $220,000 annually); NCTA Comments in re Pole Attachments Petition, filed Sept. 24, 2009, at 15–17.

12 tw telecom et al. Comments in re NBP Staff Workshops PN (*The Commission Welcomes Responses to Staff Workshops,* GN Docket No. 09-51, Public Notice, 24 FCC Rcd 11592 (WCB 2009) (*NBP Staff Workshops PN*)), filed Sept. 15, 2009, at 14.

13 FiberNet Sept. 16, 2009 *Ex Parte* Attachs.; Letter from Thomas Jones, Counsel, FiberNet, LLC, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-245, GN Docket No. 09-51 (Nov. 16, 2009) (filed by One Communications Corp.) (FiberNet Nov. 16, 2009 *Ex Parte*) at 3 (providing cost estimate breakdown). Similarly, Fibertech reports that it pays pole owners anywhere from $225–$780 to move a single cable on a pole, even though it estimates that it could do the work itself for $60. Fibertech Comments in re NBP PN #12, filed Oct. 26, 2009, at 2–3; *see also* Dumont Jan. 8, 2010 *Ex Parte* at 5–6 (proposing changes to pole attachment regulations so as to "facilitate easier access to existing infrastructure," including reform to the application and make-ready process).

14 FiberNet Nov. 16, 2009 *Ex Parte* Attach. C (providing cost estimate breakdown).

15 Letter from Kelley A. Shields, Counsel, Fibertech and Kentucky Data Link, Inc. (KDL), to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-51, WC Docket No. 07-25, RM-11293, RM-11303 (Jan. 7, 2009) Attach. 2 at 2.

16 Letter from Joseph R. Lawhon, Counsel, Georgia Power Co., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-245, GN Docket Nos. 09-29, 09-51 (Nov. 17, 2009) Attach. B (noting one example covering 294 poles in Georgia in which the electric utility completed its work within 55 days but in which the process of coordinating with existing attachers took an additional 5 months).

17 The FCC has already decided that utilities cannot discriminatorily prohibit such techniques when they use those techniques themselves. *See Salsgiver Commc'ns, Inc. v. North Pittsburgh Tel. Co.,* Memorandum Opinion and Order, 22 FCC Rcd 20536, 20543–44 (EB 2007); *Cavalier Tel. v. Virginia Elec. and Power Co.,* Order and Request for Information, 15 FCC Rcd. 9563, 9572 (EB 2000). One provider asserts that rules allowing these practices more generally in Connecticut has allowed it to deploy many more miles of fiber in its Connecticut markets. Fibertech & KDL Comments in re Pole Attachments NPRM, filed Mar. 25, 2009, at 7–8.

18 Letter from John T. Nakahata, Counsel to Fibertech and KDL, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-245, RM 11293, RM 11303, GN Docket Nos. 09-29, 09-51 (July 29, 2009) at 7.

19 *Implementation of Section 703(e) of the Telecommunications Act of 1996; Amendment of the Commission's Rules and Policies Governing Pole* Attachments, Report and Order, 13 FCC Rcd 6777, 6787–88, para. 17 (1998) (*1998 Pole Attachment Order*).

20 *See, e.g.*, Crown Castle Comments in re Pole Attachments NPRM, filed Mar. 11, 2008, at 7 (12 month delay); Sunesys Comments in Petition for Rulemaking of Fibertech Networks, LLC, RM-11303 (Dec. 7, 2005) (Fibertech Petition), filed Jan. 30, 2006, at 11 (15 months); The DAS Forum Comments in re Pole Attachments NPRM, filed Mar. 7, 2008, at 11 (3 years); T-Mobile Comments in re Pole Attachments NPRM, filed Mar. 7, 2008, at 7 (4 years).

21 *See, e.g.*, Fibertech & KDL Comments in re Pole Attachments NPRM, filed Mar. 25, 2009, at 4 (describing project to construct fiber to three rural school districts in Kentucky that KDL was unable to complete because of pole access delays); *1998 Pole Attachment Order*, 13 FCC Rcd. at 6788, para. 17 (delays in resolving access disputes can "delay a telecommunication's carrier's ability to provide service and unnecessar[ily] obstruct the process").

22 *Order Adopting Policy Statement on Pole Attachments*, Case 03-M-0432 (New York Pub. Serv. Comm'n 2004) (*New York Timeline Order*) (requiring that all work be completed in 105 days), *available at* http://documents.dps.state.ny.us/public/Common/ViewDoc.aspx?DocRefId={C0C4902C-7B96-4E20-936B-2174CE0621A7}; *Review of the State's Public Service Company Utility Pole Make-Ready Procedures,* Decision, Docket No. 07-02-13 (Conn. Dep't of Pub. Util. Control, Apr. 30, 2008) (*Connecticut Timeline Order*) *available at*

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http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e8525761900 52b64d/69ccb9118f035bc38525755a005df44a/$FILE/070213-043008.doc (90 days or 125 days when poles must be replaced).

23 *See, e.g.*, Fibertech Comments in re NBP PN #12, filed July 21, 2009, Attach. (noting that since implementing timelines, in Connecticut it takes pole owners an average of 89 days to issue licenses and New York pole owners average 100 days for Fibertech's applications, compared to longer intervals elsewhere).

24 *See, e.g.*, Connecticut *Timeline Order; New York Timeline Order*; Utah Admin. Code § R746-345-3; Vermont Public Service Board, Rules 3.708; *See also Utility Pole Make-Ready Procedures*, Docket No. 07-02-13 (Conn. Dep't of Pub. Util. Control, 2008), *available at* http://www.dpuc.state.ct.us/dockhist.nsf/8e6fc37a54110e3e852576190052b64d/69ccb9118f035bc38525755a005df44a?OpenDocument; Sunesys Comments in re National Broadband Plan NOI, filed June 8, 2009, at 6 ("By permitting pole owners to have an uncapped and unspecified period of time in which to issue a permit, many pole owners have caused tremendous delays in the process, thereby undermining broadband deployment."); Letter from Jacqueline McCarthy, Counsel, Broadband & Wireless Pole Attachment Coalition, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-245 (Feb. 23, 2009) at 1–5.

25 Wireless providers assert that negotiations with pole owners to attach wireless devices "often face a period of years in negotiating pole agreements." PTIA—The Wireless Infrastructure Association & The DAS Forum Comments in re National Broadband Plan NOI, filed June 8, 2009, at 7. As telecommunications providers, wireless providers have the right to attach to poles under Section 224 of the Act to provide service.

26 Letter from Joshua Seidemann, Vice President, Regulatory Affairs, ITTA, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 07-245, RM-11293, WC 09-154 (Dec. 22, 2009) (ITTA Dec. 22, 2009 *Ex Parte*) at 3 (noting a pole attachment dispute pending before a state for five years before the parties settled).

27 *See* 47 C.F.R. §§ 1.1404–1.1410 (pole attachment complaint procedures).

28 *See, e.g.*, ITTA Dec. 22, 2009 *Ex Parte* at 3 (noting that one provider alone deals with 600 separate entities and that the "lack of uniform rules, standards, and oversight makes negotiating reasonable attachment terms very difficult and extremely time consuming").

29 Fed. Ministry of Econ. & Tech., Gov't of Germany, The Federal Government's Broadband Strategy 12 (2009), *available at* http://www.bmwi.de/English/Redaktion/Pdf/broadband-strategy,property=pdf,bereich=bmwi,sprache=en,rwb=true.pdf.

30 For example, many pole owners utilize the National Joint Utilities Notification System (NJUNS) for maintaining and communicating data about their pole infrastructure. *See generally* National Joint Utilities Notification System—NJUNS, Inc., http://www.njuns.com/NJUNS_Home/default.htm (last visited Mar. 2, 2010).

31 NCTA Comments in re Pole Attachments Petition, filed Sept. 24, 2009, App. B (Declaration of Dr. Michael D. Pelcovits) Attach. 2 (Methodology and Sources) at 1–3.

32 Nineteen states and the District of Columbia (representing approximately 45% of the U.S. population) have exercised this type of "reverse preemption" and have certified that they directly regulate utility-owned infrastructure in their regions. *See Corrected List of States That Have Certified That They Regulate Pole Attachments*, WC Docket No. 07-245, Public Notice, 23 FCC Rcd 4878 (WCB 2008). Section 224(a)(1) expressly excludes poles owned by cooperatives from regulation, an exemption that dates back to 1978. According to the National Rural Electric Cooperative Association, electric co-operatives own approximately 42 million poles. Letter from David Predmore, National Rural Electric Cooperative Association, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 09-47, 09-51, 09-137, WC Docket No. 09-245 (Feb. 26, 2010). The exclusion of co-operatives from Section 224 regulation may impede broadband deployment in rural areas. For instance, one small broadband cable company claims that it ceased offering service in two rural communities in Arkansas because of an increase in pole attachment rates by unregulated electric cooperatives that owned the poles in those communities. Letter from Bennett W. Hooks, Jr., Buford Media Group, LLC, to Bernadette McGuire-Rivera, Assoc. Adm'r, Office of Telecom. & Info. Admin., Dep't of Comm. (Apr. 13, 2009) at n.2, 3, *available at* http://www.ntia.doc.gov/broadbandgrants/comments/79C5.pdf.

33 For a review of various approaches to state and local rights of way policies, see NTIA, State and Local Rights of Way Success Stories, *available at* http://www.ntia.doc.gov/ntiahome/staterow/ROWstatestories.pdf .

34 In 2003, the NTIA compiled a comprehensive survey of state rights-of-way approaches that may be found at NTIA, Rights-of-Way Laws by State, http://www.ntia.doc.gov/ntiahome/staterow/rowtableexcel.htm (last visited Feb. 18, 2010). In 2002, the National Association of Regulatory Utility Commissions undertook a similar project and issued a comprehensive report. *See* NARUC, Promoting Broadband Access Through Public Rights-of-Way and Public Lands (July 31, 2002).

35 *See, e.g.*, Level 3 Comments in re National Broadband Plan NOI, filed Jun. 8, 2009, at 19; Windstream Comments in re National Broadband Plan NOI, filed Jun. 8, 2009, at 2; Verizon Comments in re National Broadband Plan NOI, filed June 8, 2009, at 66; Qwest Comments in re National Broadband Plan NOI, filed June 8, 2009, at 27. Sunesys urges the FCC to "clarify the standards related to timely and reasonably priced access to necessary governmental rights of way." Sunesys Comments in re NBP PN #7 (*Comment Sought on the Contribution of Federal, State, Tribal, and Local Government to Broadband—NBP Public Notice #7*, GN Docket Nos. 09-47, 09-51, 09-137, Public Notice, 24 FCC Rcd 12110 (WCB 2009) (*NBP PN #7*)), filed Nov. 6, 2009, at 4.

36 *See, e.g.*, NATOA et al. Reply in re NBP PN #30, (Reply Comments Sought in Support of National Broadband Plan—NBP Public Notice #30, GN Docket Nos. 09–47, 09–51, 09–137, Public Notice 25 FCC Rcd 241 (2010) (NBP PN #30) filed Jan. 27, 2010, at 12–13; NATOA et al. Comments in re NBP PN #7, filed Nov. 7, 2009, at 46–47; City of New York Comments in re NBP PN #7, filed Nov. 6, 2009, at 8; City and County of San Francisco Comments in re NBP PN #7, filed Nov. 6, 2009, at 16–20. *But cf.* Dumont Jan. 8, 2010 *Ex Parte* at 2 (noting that "difficulties involved in negotiating and gaining access to the rights of way often prove to be the greatest impediment to the efficient, cost-effective, and timely deployment of broadband.").

37 For example, the Broadband Principles adopted by the National Association of Telecommunications Officers and Advisors (NATOA), an organization for local government agencies, staff and public officials, states that "[t]he desired development of high capacity broadband networks and broadband services will require extensive collaboration among parties: local communities, regions, state governments, national government, the private sector, interest groups, and others." NATOA et al. Comments in re National Broadband Plan NOI, filed Jun. 8, 2009, at 3; *see also* Gary Gordier, CIO and IT Director, El Paso, Texas, Remarks at the FCC State and Local Government Workshop 161 (Sept. 1, 2009) ("There needs to be a lot better coordination across all jurisdictional levels to economize and share jointly in the infrastructure"), *available at* http://www.broadband.gov/docs/ws_19_state_and_local.pdf; Ray Baum, Comm'r, Oregon Pub. Util. Comm'n, Remarks at FCC State and Local Government Workshop 61 (Sept. 1, 2009) ("[W]e have a lot of infrastructure out there owned by utilities[,] both public and private[,] that sitting there that could be better utilized than it is today"); Lori Sherwood, Cable Adm'r, Howard County, Maryland, Remarks at the FCC State and Local Government Workshop 120 (Sept. 1, 2009) ("We have an opportunity to do this right and 25 years from now we don't want to say that we should have done a better job coordinating and talking to each other. For development of a national policy, the FCC should draw on its decade of government experiences including local governance.").

38 *See* note 34, *supra*.

39 *See* 47 U.S.C. § 253(c).

40 A public record search by FCC Staff revealed that since passage of the 1996 Act, the FCC has taken an average of 661 days to resolve Section 253 disputes filed before it, and federal district court litigation of similar disputes has taken an average of 580 days to conclude. Disputes often extend further through review by courts of appeal, as well.

41 *See* NATOA et al. Reply in re NBP PN #30, filed Jan. 27, 2010, at 38 (recommending that the FCC "consider creating a special task force" of rights-of-way experts that would "catalog federal, state, and local right-of-way practices and fees in an effort to identify and articulate existing best practices being employed by federal, state, and local authorities for different categories of public rights of way and infrastructure."). As proposed by NATOA, the task force "could also examine and report to the Commission regarding the advantages and disadvantages of alternative forms of compensation for use of public rights of way, and other rights of way

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related infrastructure, such as poles and conduits." *Id.* at 39.

42 *See* NATOA et al. Reply in re NBP PN #30, filed Jan. 27, 2010, at 38–39.

43 Memorandum on Improving Rights-of-Way Management Across Federal Lands to Spur Greater Broadband Deployment, 40 Wkly. Comp. Pres. Doc. 696 (May 3, 2004).

44 Memorandum on Facilitating Access to Federal Property for the Siting of Mobile Services Antennas, 31 Wkly. Comp. Pres. Doc. 1424 (Aug. 10, 1995).

45 *See* Letter from Thomas Cohen, Counsel for the Fiber to the Home Council, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-51 (Oct. 14, 2009).

46 "Splicing" includes splice kit, installation of splicing enclosure, and splicing of fiber. Splice kit is excluded from "materials" cost. Cost of construction in joint deployment case refers to construction of a single 1-mile, 2" conduit containing 216-count fiber, when coordinated with a road construction project. Additional costs reflect the same project independent of road construction. Letter from Matthew R. Johnson, Legal Fellow, NATOA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-51 (Sept. 17, 2009) (attaching Columbia Telecomm. Corp. Brief Engineering Assessment: Efficiencies Available Through Simultaneous Construction And Co-Location Of Communications Conduit And Fiber tbls. 1, 2 (2009)).

47 Moratoria on re-opening streets for further telecommunications facilities could impede broadband deployment in certain circumstances.

48 Dep't of Public Works, City and County of San Francisco, Order No. 176,707 (rvsd): Regulations for Excavating and Restoring Streets in San Francisco § 5 (Mar. 26, 2007), *available at* http://www.sfgov.org/site/uploadedfiles/sfdpw/bsm/sccc/DPW_Order_176-707.pdf; *see also* City and County of San Francisco Department of Public Works, Coordinating Street Construction, http://www.sfgov.org/site/sfdpw_page.asp?id=32429 (last visited Jan. 4, 2010).

49 Pub. Improvement Comm'n, City of Boston, Policy Relating to Grants of Location for New Conduit Network for the Provision of Commercial Telecommunications Services (Aug. 4, 1988), as amended.

50 Hardik V. Bhatt, CIO, City of Chicago, Remarks at FCC State and Local Governments: Toolkits and Best Practices Workshop (Sept. 1, 2009), *available at* http://www.broadband.gov/docs/ws_19_state_and_local.pdf; *see also id.* at 94 ("we have now started knowing every time a street gets dug up either for putting in a traffic signal interconnect, or putting some street light interconnects, or maybe a private utility has dug up the street, we have an opportunity to see if we could leverage that digging up of the street and maybe put conduit or if conduit is there to put fiber there").

51 Gordon Cook, *Amsterdam's Huge FTTH Build*, Broadband Properties, Sept. 2006, at 68.

52 NATOA et al. Comments in re NBP PN #7, filed Nov. 9, 2009, App. at 14.

53 Dumont Jan. 8, 2010 *Ex Parte* at 3.

54 Dumont Jan. 8, 2010 *Ex Parte* at 4 (recommending "a mechanism to ensure that all U.S. Department of Transportation projects are deploying conduit, and that space is created for four cables").

55 Dumont Jan. 8, 2010 *Ex Parte*.

56 United States Department of the Interior, National Atlas of the United States, http://www.nationalatlas.gov/printable/fedlands.html (last visited Jan. 7, 2010).

57 General Services Administration, GSA Properties Overview, http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_OVERVIEW&contentId=8513 (last visited Jan. 7, 2010).

58 Memorandum on Facilitating Access to Federal Property for the Siting of Mobile Services Antennas, 31 Weekly Comp. Pres. Doc. 1424 (Aug. 10, 1995).

59 *See* Siting Antennas on Federal Property, 41 C.F.R. §§ 102-79.70–.100.

60 GSA, *GSA's National Antenna Program Wins Vice President Al Gore's Hammer Award Agency's National Antenna Program Fosters Innovation and Saves Tax Dollars, Showing Government Can Work Better and Cost Less*, GSA #9552 (press release), Jan. 13, 1999 (GSA, *GSA's National Antenna Program*), http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_BASIC&contentId=9125.

61 GSA, *GSA's National Antenna Program.* These facts have been confirmed via follow-up e-mails and conversations with GSA.

62 NTIA, Improving Rights-of-Way Management Across Federal Lands: A Roadmap for Greater Broadband Deployment 31–33, *available at* http://www.ntia.doc.gov/reports/fedrow/frowreport (discussing applicable statutes and agency procedures). For example, the Federal Land Policy Management Act of 1976, which applies to the Department of Interior Bureau of Land Management and National Forest Service, requires that "fair market value, as determined by the Secretary." 43 U.S.C. § 1764(g). In addition, OMB Circular A-25 (rvsd), § 6(a)(2)(b) requires that agencies assess "user charges based on market prices," although exceptions can be granted.