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May 9, 2025

VIA ECFS

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street NE
Washington, DC 20554

Re: *Human Exposure to RadioFrequency Electromagnetic Energy*, ET Docket No. 03-137; *In the Matter of Implementation of Section 621(a) of the Cable Communications Policy Act of 1984*, MB Docket No. 05-311; *Reassessment of FCC Radiofrequency Exposure Limits and Policies*, ET Docket No. 13-84; *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*, WT Docket No. 17-79; *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*, WC Docket No. 17-84; *Empowering Broadband Consumers Through Transparency*, CG Docket No. 22-2; *Preventing Digital Discrimination*, GN Docket No. 22-69; *All-In Pricing for Cable and Satellite Television Service*, MB Docket No. 23-203; *CTIA Petition for Rulemaking on the Commission's National Environmental Policy Act Rules*, RM-12003

Dear Secretary Dortch:

To ensure a complete record of their positions in relevant dockets, Local Government commenters, Anne Arundel County, MD; City of Boston, MA; District of Columbia; City of Eugene, OR; Fairfax County, VA; City of Gaithersburg, MD; Howard County, MD; Los Angeles County, CA; Montgomery County, MD; City of Ontario, CA; City of Rye, NY; and Texas Coalition of Cities for Utility Issues, file in the above-captioned dockets their comments previously filed in Delete, Delete, Delete, GN Docket No. 25-133.

Sincerely,

Cheryl A. Leanza
for BEST BEST & KRIEGER LLP

Before the
Federal Communications Commission
Washington, D.C. 20554

In Re: Delete, Delete, Delete	)	GN Docket No. 25-133

REPLY COMMENTS OF LOCAL GOVERNMENT COMMENTERS
ANNE ARUNDEL COUNTY, MD
CITY OF BOSTON, MA
DISTRICT OF COLUMBIA
CITY OF EUGENE, OR
FAIRFAX COUNTY, VA
CITY OF GAITHERSBURG, MD
HOWARD COUNTY, MD
LOS ANGELES COUNTY, CA
MONTGOMERY COUNTY, MD
CITY OF ONTARIO, CA
CITY OF RYE, NY
TEXAS COALITION OF CITIES FOR UTILITY ISSUES

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Counsel for
Local Government Commenters

April 28, 2025

EXECUTIVE SUMMARY

The Federal Communications Commission (the FCC or the Commission) should proceed with care, proposing with specificity in new rulemaking proceedings potential changes raised for consideration in this docket and worthy of consideration, placing the protection of consumers and public safety at the center of its decision making, and respecting local jurisdictions as partners in the regulation of our communications infrastructure.

Because of procedural infirmities, this docket does not meet the requirements of the Administrative Procedure Act (APA). Compliance with legal and procedural protections will not only produce outcomes that will be upheld in court but also will permit the Commission and the public to benefit from the best thinking of interested parties. Guidance adopted outside of the APA's bounds is non-binding. The "good cause" exception of the APA is extremely narrow. We urge the Commission to heed, for rules or other actions that apply to local governments, pronouncements such as Executive Order 13892, which is designed to expand protections for regulated parties. Because lack of public notice and public participation is often found to be legally infirm regardless of whether the changes are governed by the APA, the Commission should proceed with care and full public participation.

Substantively, the Commission should not pursue extending shot clocks and other rules governing local permitting and right-of-way management authority in the wireless arena to fiber deployments. Evidence has not shown that the existing rules promote deployment. Commenters encouraging shot clocks on fiber deployment have no support in statutory text. The wireless rules themselves are the subject of widespread criticism, and deservedly so.

The intense level of attention in the docket to regulation of RF emissions exposure is explained in large measure by the fact that some thirty-five years after adoption by the Commission—in the early days of wireless network deployments—the existing RF guidelines do little to quell public concerns about the safety in today's world of ubiquitous wireless devices and antennas. The same level of intensity often finds its way to local hearings or meetings that last long into the evening or early hours of the morning, despite the prohibition on local officials' consideration of the health and environmental effects of RF emission exposure as long as proposed facilities meet existing FCC guidelines. The Commission should heed the public's call to institute proceedings to update its current RF guidelines.

The Commission should not deregulate federal environmental and historical reviews, but to the extent that it does, at a minimum the Commission should not preempt state and local authority to perform local environmental and historic protection reviews.

In the sphere of cable regulation, the FCC should not preempt local franchise authorities (LFAs) any further. The FCC cannot unilaterally cut LFAs out of the process of reviewing or approving transfers or acquisitions. The need to ensure a new corporate entity will be bound by and assume all responsibility for all liabilities of its predecessor is a basic contractual safeguard and the Commission cannot, and should not, abrogate it. The FCC should not, and cannot in this proceeding, adopt cable franchise renewal shot clocks. Requests to delete Public Educational and Governmental (PEG) Channels are outside of the Commission's authority because they are permitted by statute and are constitutional. While some parties recommend the FCC eliminate its cable rate regulation rules, ironically those rules broadly interpret "effective competition" and largely remove the cable industry from rate regulation; the effective competition presumption is supported by at least one commenter that supports deregulation.

The Commission's consumer protection rules serve as a vital foundation for ensuring fairness, transparency, and accountability within the communications industry. As the industry continues to expand and evolve, the potential for consumer harm—ranging from deceptive billing practices to data privacy breaches—has grown significantly. The Commission's oversight is essential to mitigating these risks, upholding public trust, and ensuring equitable access to essential communication services. The Commission should not repeal the cable and satellite "all-in" pricing transparency rule, the 2023 digital discrimination rules, privacy and CPNI protections, or preempt state regulation of VoIP, and in no event should the Commission preempt local government backstops if the federal government reduces its protections.

Proposals to streamline burdens placed on E-rate program participants are worthy of consideration. Local Government Commenters caution that any 911 or outage reporting deregulation efforts should proceed with caution because outage reporting, wireless location accuracy, security, and system reliability are critical and should be improved.

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Washington, D.C. 20554

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INTRODUCTION

Anne Arundel County, MD; City of Boston, MA; District of Columbia; City of Eugene, OR; Fairfax County, VA; City of Gaithersburg, MD; Howard County, MD; Los Angeles County, CA; Montgomery County, MD; City of Ontario, CA; City of Rye, NY and the Texas Coalition of Cities for Utility Issues (Local Government Commenters) appreciate the opportunity to participate in this docket, and its ultimate goals of ensuring that federal regulation serves important objectives without being unnecessarily burdensome. Local governments often bear the burden of unnecessary and ineffective rules and policies. The Federal Communication Commission (the FCC or the Commission) has an important role balancing the interests of industry and consumers. As former Chairman Kevin Martin explained, the FCC's goal should be "to pursue deregulation while paying close attention to its impact on consumers and the particulars of a given market; to balance deregulation with consumer protection."[1]

[1] Kevin J. Martin, *Balancing Deregulation and Consumer Protection*, 17 CommLaw Conspectus ii (2008), https://scholarship.law.edu/commlaw/vol17/iss1/2.

Deregulation undertaken without care or forethought, or outside of the boundaries of the law or good policy, will not serve anyone. Local Government Commenters file in this docket to address their own interests and needs as critical partners in the nation's communications infrastructure and emergency preparedness, as well as those of the many constituents and consumers we represent.

I. NO RULE CHANGES CAN BE MADE IN RESPONSE TO COMMENTS IN THIS DOCKET WITHOUT FURTHER PROCEEDINGS AND THE COMMISSION SHOULD COMMIT TO PROCEDURAL BEST PRACTICES REGARDLESS OF WHETHER THE APA APPLIES.

A. This docket does not meet Administrative Procedure Act requirements for rule changes.

The Public Notice in this docket was not issued under standard procedures, as it has not been published in the Federal Register and offered a short reply comment cycle of 17 days—very condensed given the breadth of the inquiry and the vast range of proposals submitted in the docket.[2] Thus, the proceeding is infirm if the goal is to repeal binding rules issued under the Administrative Procedure Act (APA).

To change rules—either to delete or to adopt—requires adherence to the APA.[3] Even a minor change such as delaying effective dates is a rulemaking under the APA.[4] The APA and the

[2] Public Notice, Delete, Delete, Delete, GN 25-133, DA 25-219 (rel. Mar. 12, 2025), https://www.fcc.gov/document/fcc-opens-re-delete-delete-delete-docket. Typically, a document issued under delegated authority would identify the Bureau or Office to whom authority was delegated. *See, e.g.*, 47 C.F.R. §§ 0.5, 0.201-0.392.

[3] 5 U.S.C. § 553; *Encino Motorcars, LLC v. Navarro*, 579 U.S. 211, 220 (2016); *Perez v. Mortg. Bankers Ass'n*, 575 U.S. 92, 101 (2015); *Telecomms. Research & Action Ctr. v. FCC*, 800 F.2d 1181, 1186 (D.C. Cir. 1986) ("Before an agency may adopt a substantive rule, it must publish a notice of the proposed rule and provide interested persons an opportunity to comment.").

[4] *Clean Water Action v. EPA*, 936 F.3d 308, 314 (5th Cir. 2019) ("modification of effective dates is itself a rulemaking").

Commission's rules also generally bind the Commission to publication in the Federal Register.[5] Under those rules, notice periods relating to both "notice and comment and non-notice and comment rulemaking proceedings required by the Administrative Procedure Act" start from Federal Register publication;[6] effective dates for rules are upon 30 days of publication in the Federal Register, except in narrow, exceptional circumstances.[7] The Commission's rules direct Petitions for Declaratory Rulings, too, to be docketed and subject to public notice and comment.[8] Moreover, the shortness of time for replies in this docket undermines the purpose of notice and comment, which is to ensure an "exchange of views" while the FCC has an open mind, to test the proposed rule and develop evidence.[9] Comment periods of less than 30 days have been found deficient.[10] This exchange of views requires sufficient time to comment.

The FCC's attempt to short-circuit notice and comment was rejected recently by the U.S. Court of Appeals for the Ninth Circuit in *League of Cal. Cities* v. *FCC*.[11] In that case, the court resoundingly rejected the FCC's argument that insufficient notice and opportunity to comment was "harmless error" when the FCC utilized a declaratory ruling process, but later defended its decision as a rulemaking because the changes adopted could not be justified

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[5] 5 U.S.C. § 553(b); 47 C.F.R. § 1.4(b)(1).

[6] 47 C.F.R. § 1.4(b)(1).

[7] *Id.*, § 1.427.

[8] 47 C.F.R. § 1.2.

[9] *Prometheus Radio Project v. FCC*, 652 F.3d 431, 449–50 (3rd Cir. 2011); *Time Warner Cable Inc. v. FCC*, 729 F.3d 137, 170 (2d Cir. 2013) ("'[g]eneral notice that a new standard will be adopted'" is insufficient) (citations omitted).

[10] *Nat'l Lifeline Ass'n v. FCC,* 921 F.3d 1102, 1117 (D.C. Cir. 2019) ("a 30-day comment period is generally the shortest time period sufficient for interested persons to meaningfully review a proposed rule and provide informed comment"); *Prometheus*, 652 F.3d at 453 (a week is insufficient); *see also N.Car. Growers' Ass'n, Inc. v. United Farm Workers*, 702 F.3d 755, 770 (4th Cir. 2012) (10 days insufficient for comment on rule suspension).

[11] 118 F.4th 995 (9th Cir. 2024).

as interpretive. The court concluded that, because "the harmless error rule threatens to 'gut[] the APA's procedural requirements,' we do not find harmless error lightly,"[12] and in that case "finding the significant APA error to be harmless would indeed work an evisceration" of the APA's notice and comment process.[13] The court explained that using such "deficient procedures deprived Petitioners of an opportunity to criticize the proffered clarifications,"[14] and that it would be "impossible" to claim that the result would have been "clearly" the same if Petitioners had the chance to comment on the changes.[15] The D.C. Circuit similarly forecast problems if the FCC dispenses with full notice and comment and incorrectly deems these failures as "harmless error."[16]

B. The APA's good cause exception is very narrow.

A recent Presidential Memorandum, supported by some commenters,[17] stated that agencies should repeal rules without notice and comment pursuant to the APA's "good cause" exception.[18] That exception is exceedingly narrow and should not be used in this docket.[19]

The courts have rejected attempts to expand this exception beyond its limit. For example, in a case where NHTSA delayed a rule that was intended to go into effect and simultaneously

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[12] *Id.* at 1030 (citations omitted).

[13] *Id.* at 1031.

[14] *Id.*

[15] *Id*.

[16] *Sprint Corp. v. FCC*, 315 F.3d 369, 376-77 (D.C. Cir. 2003).

[17] *See, e.g.,* Comments of NCTA—The Internet & Television Association, GN Docket No. 25-133 at 2 (filed Apr. 11, 2025) (NCTA Comments).

[18] THE WHITE HOUSE, Presidential Actions, *Directing the Repeal of Unlawful Regulations*, Presidential Memoranda (April 9, 2025), https://www.whitehouse.gov/presidential-actions/2025/04/directing-the-repeal-of-unlawful-regulations/.

[19] TechFreedom offers a useful set of criteria to consider as a limit on the good cause exception. *See* Comments of TechFreedom, GN Docket No. 25-133 at 21 (filed Apr. 11, 2025) (TechFreedom Comments).

sought comment on the extension or delay, the D.C. Circuit rejected NHTSA's use of the good cause exception.

> [T]he good cause exception applies only in circumstances when notice and comment is 'impracticable, unnecessary, or contrary to the public interest.' Impracticality is fact and context specific, but is generally confined to emergency situations in which a rule would respond to an immediate threat to safety, such as to air travel, or when immediate implementation of a rule might directly impact public safety.[20]

In fact, "'since notice and comment are regarded as beneficial to the public interest, for the exception to apply, the use of notice and comment must actually harm the public interest.'"[21] Even when acting quickly to deter fraud, the FCC has been reversed for using the good cause exception beyond its bounds because "the good-cause inquiry is 'meticulous and demanding.'"[22] It should be "'narrowly construe[d']" and "'reluctantly countenance[d].'"[23] Agency decisions of this kind are therefore reviewed *de novo*,[24] even before agency deference was severely limited by *Loper Bright*.[25]

C. Significant limits bound Commission action outside of notice-and-comment rulemaking.

The Commission cannot evade the APA's requirements. If the Commission does not follow full notice and comment procedures, at best it can only adopt a non-binding interpretive rule or policy guidance. Such rules "do not have the force and effect of law."[26] As TechFreedom

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[20] *NRDC v. Nat'l Highway Traffic Safety Admin.*, 894 F.3d 95, 114 (2nd Cir. 2018) (quoting 5 U.S.C. § 553(b)(4)(B)) (*NRDC*).

[21] *NRDC*, 894 F.3d at 114 (quoting *Mack Trucks*, 682 F.3d at 94-95).

[22] *Sorenson Commc'n, Inc. v. FCC*, 755 F.3d 702, 706 (D.C. Cir. 2014).

[23] *Sorenson*, 755 F.3d at 706 (quoting *Mack Trucks*, 682 F.3d at 93).

[24] *Sorenson*, 755 F.3d at 706.

[25] *Loper Bright Enters. v. Raimondo*, 603 U.S. 369 (2024).

[26] *Perez*, 575 U.S. at 103.

explains, such actions "provide informal guidance for the Commission's approach on certain issues, and the way it operates."[27] These rules are often expressly limited for that reason, using language such as, "this Policy Statement is not binding on the Commission or other parties, and it will not prevent the Commission from making a different decision."[28] The Supreme Court has recently, consistent with the current trend against broad agency discretion, imposed severe constraints on an agency's ability to reinterpret its own rules. In *Kisor v. Willkie*, the Court listed a multi-factor test which focuses on whether the agency has acted reasonably, within a genuinely ambiguous regulatory text, using fair process, implicating the agency's expertise and avoiding unfair surprise.[29]

Even if the Commission is changing non-binding guidance not subject to the APA, public notice and opportunity to participate is sound policy—and may be required as current legal trends move toward less agency discretion. As TechFreedom explained, even though in some cases prior FCC decisions to repeal non-binding guidance did not require notice, "it was wise to consult the public."[30] The degree of care an agency takes strongly influences whether a court will grant the FCC deference or uphold its decision, whether pursuant to notice and comment procedures or not. For example, in *United States v. Mead Corp.*, the Supreme Court listed "the degree of the agency's care, its consistency, formality, and relative expertness" as indicative of whether it is due deference.[31] Delaying or altering a rule without notice or "fair warning" has been rejected by the

[27] TechFreedom Comments at 5-6.

[28] *Id.* (quoting *In re Principles for Promoting Efficient Use of Spectrum*, FCC 23-27, ET Docket 23-122, at 1 (Apr. 21, 2023), https://docs.fcc.gov/public/attachments/FCC-23-27A1.pdf).

[29] *Kisor v. Wilkie*, 588 U.S. 558, 574-80 (2019).

[30] TechFreedom Comments at 19.

[31] *United States v. Mead Corp.,* 533 U.S. 218, 228 (2001); TechFreedom Comments at 24-25.

courts.[32] Other cases limiting agency discretion—before the *Loper Bright* decision—often focus on the lack of warning or reliance interests, even when the agency is interpreting its own rules, rather than issuing new ones.[33] Because lack of public notice and public participation is often found to be legally infirm regardless of whether the changes are governed by the APA, the Commission should proceed with care and full public participation.

D. Local governments impacted by agency rules should be accorded procedural safeguards as directed by this Administration.

While industry actors often seek changes in their favor expeditiously, local governments are also sometimes treated by the Commission as regulated entities. Any party impacted by FCC rules, whether perceived as favorable or not, should be concerned that process and adherence to law are maintained—any process deficiency in one matter can easily bleed over into proceedings that may not align with a sector's regulatory goals. TechFreedom made this point well in its comments. For this reason, we urge the Commission to heed, for rules or other actions that apply to local governments, pronouncements designed to expand protections for regulated parties.[34] For example, Executive Order No. 13892 states:

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[32] *Christopher v. SmithKline Beecham Corp.*, 567 U.S. 142, 156 (2012); TechFreedom Comments at 23 (citing *Nat'l Venture Capital Assn. v. Duke*, 291 F.Supp.3d 5, 8 (D.D.C. 2017) (the agency "gave little thought to those foreign entrepreneurs who may have already relied on the impending" final rule).

[33] *Kisor v. Wilkie*, 139 S. Ct. 2400, 2417-18 (2019); *Encino Motorcars, LLC v. Navarro*, 579 U.S. 211, 212 (2016) ("[I]n explaining its changed position, an agency must also be cognizant that longstanding policies may have 'engendered serious reliance interests that must be taken into account.'") (citation omitted).

[34] Exec. Order No. 13892, *Promoting the Rule of Law Through Transparency and Fairness in Civil Administrative Enforcement and Adjudication*, 84 Fed. Reg. 55,239 (2019). Executive Order No. 13892 was repealed under the Biden Administration, Executive Order 13992 *Revocation of Certain Executive Orders Concerning Federal Regulation*, 86 Fed. Reg. 7049 (2021), but revived via Executive Order No. 14148, *Initial Rescissions of Harmful Executive Orders and Actions*, 90 Fed. Reg. 8237 (2025).

- "Regulated parties must know in advance the rules by which the Federal Government will judge their actions."

- "Guidance documents may not be used to impose new standards of conduct on persons outside the executive branch except as expressly authorized by law or as expressly incorporated into a contract."

- "The agency may not treat noncompliance with a standard of conduct announced solely in a guidance document as itself a violation of applicable statutes or regulations."

- "Agencies shall afford regulated parties the safeguards described in this order, above and beyond those that the courts have interpreted the Due Process Clause of the Fifth Amendment to the Constitution to impose."

Regardless of whether this Executive Order technically applies to the FCC, its guidance takes boundaries on federal action seriously and should be a touchstone for the FCC in any actions affecting local governments and other parties.

In sum, we urge the Commission to take a cautious approach to regarding the process followed to take potential actions based on the information collected in this docket. Compliance with legal and procedural protections will not only produce outcomes more likely to be upheld in court, but also will permit the Commission and the public to benefit from the best thinking of interested parties.

In the remaining portion of the reply, we address various substantive matters raised by commenters as potential areas for action in future proceedings.

II. THE FCC SHOULD NOT PURSUE ADOPTION OF NEW SHOT CLOCKS OR FEE LIMITATIONS FOR BROADBAND.

The Commission should not pursue additional restraints on local governments' permitting and right-of-way management authority. INCOMPAS and the U.S. Chamber of Commerce urge the Commission to impose shot clocks applications to install on wireline fiber and to limit rights-

of-way use charges and siting application fees in a manner similar to the current regulation of wireless facilities under Sections 253 and 332 of the Communications Act, with the stated purpose of "streamlining" fiber permitting regulations.[35] Yet evidence shows that local government permitting and right-of-way management practices have no impact on broadband deployment or adoption—this proposed "streamlining" offers no tangible proof of facilitating buildout.

As local government commenters have demonstrated via extensive research and reports submitted in prior dockets relating to the Commission's regulation of wireless infrastructure, regardless of whether one examines issues relating to deployment from an economic or engineering standpoint, permitting and right-of-way use charges do not slow down deployment.[36] The Commission's extensive rules imposed on local permitting processes for wireless facilities did not result in the industry-promised expansion in buildout.[37] For example, internal analysis by Boston, MA indicates that, between January 2017 and April 2025, small cell providers with city license agreements made 2,633 individual location requests; 1,742 were submitted for

[35] *See* Comments of INCOMPAS, GN Docket No. 25-133 (filed Apr. 11, 2025) at 8 (INCOMPAS Comments*)* ("To further enable competitive fiber builds and fixed broadband competition . . . streamlin[e] policies . . . including (1) shot clocks applicable to wireline fiber deployment applications . . . and (2) limiting rights-of-way use charges and siting application fees, consistent with Sections 253 and 332 of the Communications Act."); Comments of U.S. Chamber of Commerce, GN Docket No. 25-133 at 5 (filed Apr. 11, 2025) (U.S. Chamber Comments).

[36] *See* Comments of National Organizations, WC Docket No. 11-59 (filed July 18, 2011); Comments of National League of Cities, *et al*., WT Docket No. 19-250, *et al.* (filed Oct. 29, 2019) (2019 NLC *et al* Small Cell Comments). *See also* Attachments to these Reply Comments previously submitted to the Commission as attachments to the 2019 NLC *et al.* Small Cell Comments. Exhibit A, Kevin E. Cahill, Ph.D, ECONorthwest, *The Economics of Local Government Rights of Way Fees* (Mar. 8, 2017); Exhibit B, Columbia Telecommunications Corporation, *An Engineering Analysis of Public Rights-of-Way Processes in the Context of Network Design and Construction* (July 13, 2011); Exhibit C, ECONorthwest, *Effect of Broadband Deployment of Local Government Right of Way Fees and Practices* (July 18, 2011).

[37] *See* Comments of National Association of Counties, National League of Cities, and The United States Conference of Mayors Comments, GN Docket No. 25-133 at 1-2 (filed April 11, 2025) (NLC/NACO/USCM Comments).

grant of location approval and 1,413 were approved. Of these 1,413 approved, 1,073 requests have already been cancelled and Boston understands another 300 locations will be cancelled, meaning approximately 42 percent of all applications were actually built.

Before rushing to extend these regulations to fiber, based on assumptions about the efficacy of its existing rules, the Commission should solicit and thoroughly review additional evidence to determine whether the industry came anywhere near the massive buildout projections it used to justify limiting local governments' power,[38] and the reasons why. Independent assessments, for example, often did not cite permitting or other local government processes as a reason for less-than-anticipated 5G deployment.[39] In reality, rather than reducing deployment costs, federal

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[38] *See In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Inv.*, 33 FCC Rcd 9088, 9111-12 ¶ 47 (2018) (*Small Cell Order*):

> Verizon anticipates that network densification and the upgrade to 5G will require 10 to 100 times more antenna locations than currently exist. AT&T estimates that providers will deploy hundreds of thousands of wireless facilities in the next few years alone—equal to or more than the number providers have deployed in total over the last few decades. Sprint, in turn, has announced plans to build at least 40,000 new small sites over the next few years. A report from Accenture estimates that, overall, during the next three or four years, 300,000 small cells will need to be deployed—a total that it notes is "roughly double the number of macro cells built over the last 30 years."

(citation omitted).

[39] *See*, *e.g.*, John Celentano, *Outdoor Small Cells Grow with Escalating Mobile Data Demand*, Inside Towers (June 28, 2024), https://insidetowers.com/outdoor-small-cells-grow-with-escalating-mobile-data-demand/ ("[Wireless providers] found that much of the increased capacity demand could be handled from macrocells. As a consequence, the projected high-volume small cell rollout slowed or certainly has been deferred.") (citing *Inside Towers Intelligence* quarterly market industry report); Mike Dano, *America's 5G spending slowdown proves bigger than expected*, LightReading (Jan. 24, 2023), https://www.lightreading.com/5g/america-s-5g-spending-slowdown-proves-bigger-than-expected (citing providers' completion of mid-band buildout and inventory absorption as basis for 5G slowdown, without mention of permitting costs); Ash Kreider, *Why Has the 5G Rollout in North America Been So Slow?*, iQmetrix (Jan. 4, 2023), https://www.iqmetrix.com/blog/why-has-the-5g-rollout-in-north-america-been-so-slow (citing primarily equipment-related issues as "Top Logistical Obstacles to 5G Deployment in North America" with no mention of permitting costs as barrier).

regulations setting rates at cost for use of state and local property not only distorts the market for placement of wireless facilities, but also complicates existing processes and imposes an enormous regulatory burden on local governments (and thus on taxpayers) to measure, aggregate, and allocate such costs, or accept very low "safe harbor" amounts. This diverts local governments' limited resources from more productive work with providers to facilitate buildout.

Commenters encouraging shot clocks on fiber deployment[40] offer no support in statutory text for their proposals. Wireless shot clocks developed as an interpretation of the requirement to act within a "reasonable period" under 47 U.S.C. § 332, which applies only to personal wireless service facilities—*i.e.*, not fiber projects.[41] There is no language in Section 253 or elsewhere in the Communications Act that would support an expansion the of Commission's shot clock rules to apply to fiber buildouts.

The Commission's existing wireless rules themselves are the subject of appropriate critique in this docket.[42] Regardless whether the Commission desires to revisit or delete entirely its regulations governing the permitting of wireless facilities, as some commenters have suggested, it should take note of the widespread concern with encroachments on local authority lodged in this docket.[43] To expand wireless rules to fiber deployment would only further infringe on local

[40] *See* INCOMPAS Comments at 8.

[41] *See In the Matter of Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(b)*, 24 FCC Rcd 13994, 14000 ¶ 19 (2009); *Small Cell Order*, 33 FCC Rcd at 9093 ¶ 17.

[42] *See* NLC/NACO/USCM Comments at 1-2 (noting the substantial and inappropriate limits placed on local governments by the Commission's 2018 Small Cell Order and 2020 6409 Order) (citing *Small Cell Order*; *In the Matter of Implementation of State and Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, 35 FCC Rcd 5977 (June 10, 2020)).

[43] *See* Comments of Wired Broadband, Inc., GN Docket No. 25-133 at 5-7, 13-14 (filed Apr. 11, 2025) (encouraging the preservation of local government authority because "local government is closest to the people . . . it must have the right to manage the ROW"); Comments of Pennsylvanians

governments' ability to protect public health and safety, encourage economic development, facilitate efficient use of public property, promote a sustainable community, and provide for fair compensation for the private use of public property. Federal shot clocks and permitting fee regulation has not resulted in promised expansion for wireless facilities; the Commission should not pursue a similar approach (on legally more shaky grounds) to regulating local authority over fiber deployments.

III. THE FCC SHOULD HEED REQUESTS TO UPDATE RF EMISSIONS GUIDELINES AND IGNORE REQUESTS TO ERODE ROBUST ENVIRONMENTAL AND HISTORICAL REVIEW OF WIRELESS FACILITIES.

A. Updates to RF emission guidelines are needed.

Local Government Commenters supports the initiation of proceedings to thoroughly review the latest scientific data and update the Commission's current guidelines for exposure to radiofrequency (RF) radiation. Many commenters have highlighted the need for updates to the Commission's RF emissions standards.[44] Local governments hear public concerns about RF emissions on a regular basis, often at meetings that last long into the evening or early hours of the morning, even though local officials are barred by federal law from considering the health and environmental effects of RF emission exposure if proposed facilities meet existing standards.[45] As multiple commenters have noted,[46] the Commission has yet to take action following the D.C.

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for Safe Technology, GN Docket No. 25-133 at 1 (filed Apr. 11, 2025) (PA Safe Technology Comments) (encouraging the deletion of Small Cell Order, Moratoria Order, and Section 6409 rules, which curtail local government authority).

[44] *See*, *e.g.*, PA Safe Technology Comments at 1-2; Wired Broadband Comments at 4-5, 11-13; People's Initiative Comments at 2-3; Environmental Health Sciences Comments at 2-20; Alliance for Natural Health Comments at 2; *see also*, *e.g.*, Valeri Marsh Comments (form filing encouraging more thorough regulation of RF emissions filed by at least 30 other individual filers).

[45] 47 U.S.C. § 332(c)(7)(B)(iv).

[46] Wired Broadband Comments at 11 (citing *Env't Health Tr. v. FCC*, 9 F.4th 893, 901, 906 (D.C. Cir. 2021)); PA Safe Technology Comments at 1-2 (same); *see also Env't Health Tr.*, 9 F.4th at

Circuit Court's 2021 decision overturning the FCC's decision to terminate its Notice of Inquiry on this topic because "the Commission's cursory analysis of material record evidence was insufficient as a matter of law."[47] Thirty-year-old standards do little to quell public concerns about the issue. The Commission should therefore comply with the D.C. Circuit Court's ruling and finish its proceeding to consider whether its current RF guidelines should be the subject of a rulemaking proceeding or alternatively provide a reasoned justification that its existing guidelines do, in fact, protect against the harmful effects of exposure to RF radiation.[48]

B. Environmental and historical review of wireless facilities offer important safeguards.

Several commenters encourage deregulation of NEPA and NHPA review for wireless facilities.[49] We note that the Commission's previous attempt to eliminate federal environmental and historic preservation review of small wireless facilities was found to be unlawful.[50] The

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901 ("[t]he Commission last updated its limits for RF exposure in 1996") (citing *Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order*, 34 FCC Rcd 11,687, 11,689–90 (2019)).

[47] *Env't Health Tr.*, 9 F.4th at 914.

[48] *See Env't Health Tr.*, The Commission must:

> (i) provide a reasoned explanation for its decision to retain its testing procedures for determining whether cell phones and other portable electronic devices comply with its guidelines, (ii) address the impacts of RF radiation on children, the health implications of long-term exposure to RF radiation, the ubiquity of wireless devices, and other technological developments that have occurred since the Commission last updated its guidelines, and (iii) address the impacts of RF radiation on the environment.

9 F.4th at 914.

[49] *See* Comments of CTIA, GN Docket No. 25-133 at 13-14 (filed Apr. 11, 2025) (CTIA Comments); Comments of International Center for Law & Economics, GN Docket No. 25-133 at 18 (filed Apr. 11, 2025) (Int'l Law & Econ Comments); Comments of Competitive Carriers Association, GN Docket 25-133 at 10-11 (filed Apr. 11, 2025) (CCA Comments); Comments of Taxpayers Protection Alliance, GN Docket No. 25-133, *et al.* at 3 (filed Apr. 11, 2025) (Taxpayers Protection Alliance Comments).

[50] *See United Keetoowah Band of Cherokee Indians in Okla. v. FCC*, 933 F.3d 728, 745 (D.C. Cir. 2019).

Commission should refrain from similar attempts.

Further, commenters ignore the vital role that state and local regulations play in filling the gaps left by NEPA and NHPA.[51] The Commission should avoid deregulating federal environmental and historical reviews without at the very least undertaking a rigorous assessment of the potential harms and gaps created by federal deregulation. Finally, whatever course the Commission may pursue at the federal level, there is no basis to preempt state and local authority to perform environmental and historic protection reviews.

IV. THE FCC SHOULD NOT PREEMPT LOCAL FRANCHISE AUTHORITIES FURTHER IN FRANCHISING CABLE OPERATORS.

A. The FCC cannot prevent Local Franchise Authorities from reviewing transfers.

Some commenters ask the Commission to eliminate the Commission's rules placing time limits on local franchise authority (LFA) review of applications for cable franchise transfers of control.[52] These comments fail to acknowledge that eliminating the rules would not eliminate local authority to review the transfers. And the existing regulation targeted for deletion imposes a time limit on local franchise authority participation in an FCC transfer review. Further, local franchises often contain provisions requiring local consent to transfers: changing the national rules does not change this authority.

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[51] *See*, *e.g.*, *Verizon Wireless of E. LP v. Town of Wappinger*, No. 20-CV-8600 (KMK), 2022 WL 282552, at *3, 22 (S.D.N.Y. Jan. 31, 2022) (The New York State Environmental Quality Review Act (SEQRA) "'was designed, in part, to fill a gap left by the National Environmental Policy Act'" and the Town's obligations under 47 U.S.C. § 332 did not preclude its separate obligations to perform SEQRA reviews.) (quoting *Wilder v. Thomas*, 854 F.2d 605, 609 (2d Cir. 1988)).

[52] *See* U.S. Chamber Comments at 8; NCTA at A-1 (citing 47 C.F.R. §76.502); Int'l Law & Econ Comments at 20; Comments of Digital Liberty. GN Docket No. 25-133 at 3 (filed Apr. 11, 2025) (Digital Liberty).

Cable franchises bestow a privilege to use local public rights of way and contain important rights and obligations reflecting the negotiation, by the local franchise authority and the cable operator, of the terms of use of the local public rights-of-way, the payment of franchise fees and PEG grants, consumer protections and other matters within the authority of the local jurisdiction under to the Cable Act. Retaining authority to review transfers is a very important tool to ensure that any potential new entity stepping into the shoes of the existing franchisee, with access to local streets and financial obligations to a local government, will indeed be able and willing to perform. For example, Comcast recently announced a re-organization[53] that has prompted affected local governments to exercise their review authority to ensure that the new corporate entity will be bound by and assume all responsibility for all obligations of its predecessor pursuant to existing franchises. This is a basic contractual safeguard and the Commission cannot, and should not attempt to, abrogate it.

B. Cable Operators are the primary cause of delay in franchise renewals.

The Commission should reject NCTA's proposal to establish a "'shot clock' time limit[] on the cable franchise renewal process, *see* 47 U.S.C. § 546, similar to those it has applied in other contexts."[54] The proposal is based on the false premise that LFAs are the reason for any unreasonable delay.

Cable franchises have typically been 10 or 15 years long and are very valuable transactions to both the operator and the LFA. There can be no rational basis for tipping the scales in the

[53] *Comcast Announces Intention to Create Leading Independent Media Business Through Spin-Off of Select Cable Television Networks*, COMCAST (Nov. 20, 2024), https://corporate.comcast.com/press/releases/spin-off-select-cable-television-networks.

[54] NCTA Comments at 3, n.8.

negotiation further for the benefit of the cable operator by imposing a deadline on the LFA (without any corresponding deadline for the operator). Section 546 already gives the cable operator significant protections. It contains a timeline already, enabling an LFA or cable operator to initiate a formal franchise renewal process three years in advance of a franchise expiration.[55] And as the cable industry well knows, most cable renewals currently use the alternative renewal process in Section 546(h). The formal process is in practice a last resort for both sides because the formal process must be followed if there is to be any possibility of a denial, and it is governed in detail by statute and subject to judicial review.[56]

Delay in renewals is very often caused by cable operators that take months to respond to negotiation points, refuse reasonable requests to meet community needs and interests, and rely upon holdover periods that give them a continued presence in the local right-of-way without meeting updated community needs. NCTA does not propose a remedy if a time limit were reached. Indeed, the proposal is referenced only in a footnote in NCTA's filing but it raises complex and contentious issues. Local governments remind the Commission that this proposal has not been noticed pursuant to the APA and if the Commission were to consider it, which Local Government Commenters oppose, the Commission must seek comment and fully consider the implications before acting.

[55] 47 U.S.C. § 546(a).
[56] *Id.*, § 546(h).

C. Public Educational and Governmental access channels are permitted by statute and are constitutional.

Several commenters, including NCTA, propose the Commission eliminate Public Educational and Governmental (PEG) access channels,[57] ignoring the fact that this is outside the Commission's purview because Congress directed that local governments could require such channels.[58] The Supreme Court has upheld the Cable Act in this respect and established the appropriate level of constitutional scrutiny.[59] Moreover, even if they were not statutorily mandated, PEG access furthers First Amendment interests and sound policy by increasing access to local news and information to cable subscribers, especially in this era of diminishing local news sources.

NCTA is wrong that PEG violates the Fifth and First Amendments under either strict or intermediate scrutiny.[60] In fact, local governments would have a Fifth Amendment claim if the franchising regime and PEG channels were eliminated. Local governments, negotiated for PEG channels before there was a Cable Act, and the PEG grants that support them are part of their compensation for use of their public rights-of-way.[61]

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[57] *See* U.S. Chamber Comments at 7; NCTA Comments at 15-19; Int'l Law & Econ Comments at 20. Some of the proposals are oddly focused on deleting pro-competition franchising rules. For example, NCTA proposes elimination of 47 C.F.R § 76.41(b)(6), part of the competitive cable entrant rules which require a provider to indicate the PEG channel capacity and capital support it proposes—a rule that does not mandate any action but disclosure as to what a potential franchisee seeks in its federally-mandated franchise. NCTA Comments at A-4.

[58] 47 U.S.C. § 531

[59] *Turner Broad. Sys., Inc. v. FCC* (*Turner I*), 512 U.S. 622 (1994); *Turner Broad. Sys., Inc. v. FCC*, 520 U.S. 180 (1997); *Denver Area Educ. Telecomm. Consortium, Inc. v. FCC*, 518 U.S. 727 (1996) (plurality opinion).

[60] *See* NCTA Comments at 17-19.

[61] *E.g.*, Opinion of Kamala D. Harris, Attorney General, State of California, Office of the Attorney general (No. 13-403, Jan. 15, 2016), https://oag.ca.gov/system/files/opinions/pdfs/13-403_1.pdf (PEG fees are rent for use of public rights-of-way, not a tax).

Congress provides for cable operator access to local rights-of-way via the Cable Act, but such access must still be "subordinate" to the right not to be deprived of property without just compensation.[62] Local franchise authorities' option to require PEG channels is part of local franchise authorities' Fifth Amendment rights. NCTA incorrectly invokes the Supreme Court's ruling in *Loretto,* but NCTA's claimed harm of mandatory digital carriage is not a real property right, a fact which was central to the holding in *Loretto*. In contrast, federal mandates for cable infrastructure in public rights-of-way do "require" the local government "to suffer the physical occupation" of its real property.[63] Such a physical taking compelling access to municipal property is exactly what the Supreme Court found would justify the municipality's charging rent in *W. Union Tel. Co*.[64] In fact, the Court of Federal Claims rejected an argument very similar to NCTA's when it determined *Loretto* did not apply to mandatory carriage of local telephone company signals pursuant to the 1996 Telecommunications Act's local telephone competition provisions.[65]

Nor are PEG channels a threat to the First Amendment. On the contrary, PEG channels promote free speech values. PEG channels promote access to news and community information. For example, Los Angeles County joined with adjoining cities and conducted One Voice Media Briefings to advise county residents about the latest impacts from wildfires, power outages, road conditions and other updates affecting the Los Angeles region.[66] These briefings included ten

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[62] *City of St. Louis v. W. Union Tel. Co.*, 148 U.S. 92, 101 (1893) (*W. Union Tel. Co.*).

[63] *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 440 (1982); *see also Ala. Power Co. v. FCC*, 311 F.3d 1357, 1368 (11th Cir. 2002).

[64] *W. Union Tel. Co.*, 148 U.S. at 99-100.

[65] *Qwest Corp. v. United States*, 48 Fed. Cl. 672 (2001). *See also Berkshire Cablevision of Rhode Island, Inc. v. Burke*, 571 F. Supp. 976 (D.R.I. 1983), *vacated as moot*, 773 F.2d 382 (1st Cir. 1985).

[66] *See, e.g.*, Media Advisory, *Advisory: Tomorrow Windstorm and Wildfires One Voice Media Briefing* (January 14, 2025).

different officials from five jurisdictions, including FEMA. County staff regularly produced video stories of first responders and other county agencies mobilized to assist residents, including disaster resource centers, and stories profiling local residents affected by the natural disasters that aired on the County Channel. Similarly, in 2020, during the coronavirus pandemic (COVID 19), the County coordinated regular press conferences to inform the public on the status of the pandemic and disseminate additional public health orders.[67] In addition, the "16 Around Fairfax" program on Fairfax County Government Channel 16 covers local events that are, at least 75% of the time, not covered elsewhere. State policy often encourages use of public cable access in order to promote public participation.

The Supreme Court has recognized that "it has long been a basic tenet of national communications policy that 'the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public.'"[68] public, educational and local government sources of news and information—including a front row seat to live public decision-making in local towns, cities and county councils throughout the nation—alongside commercial channels serves public interest and First Amendment goals. The Supreme Court has upheld these regimes on multiple occasions.

NCTA claims that access to online content means PEG channels are no longer needed, but that is not accurate. Many older viewers don't have broadband and many communities, particularly in rural areas, still lack access to broadband. Using updated benchmarks for high-speed internet

[67] *See, e.g.*, COVID-19 Emergency Operations Center, Public Advisory, *Virtual Briefing: County and City Officials Announce Additional Public Health Orders Regarding COVID-19* (March 19, 2020).

[68] *Turner I*, 512 U.S. at 663 (quoting United States v. Midwest Video Corp., 406 U.S. 649, 668 n.27 (1972) (plurality opinion) (internal quotation marks omitted).

and a national comprehensive map, the FCC estimated in 2024 that 24 million Americans still lack access to broadband.[69] Connectivity has improved in recent years, but as of 2023, lower-income households still lag in connectivity: eighty percent of people in households annually making $100,000 or more had both fixed and mobile connections, whereas only fifty-four percent of households making less than $25,000 had both.[70] As the Commission's 2024 Communications Marketplace Report confirmed, "most consumers have access to one cable MVPD [Multi-channel Video-Programming Distributor] only, and cable MVPDs do not generally compete directly with one another for the same subscribers."[71] The current marketplace has not ended the cable operator bottleneck.

Because the Commission does not have the authority, nor would it be good policy, proposals to eliminate PEG channels should be rejected.

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[69] Teale, Chris, *New FCC broadband standard increases the number of 'underserved' s in America*, Route Fifty (Apr. 4, 2024), https://www.route-fifty.com/digital-government/2024/04/new-fcc-broadband-standard-increases-number-underserved-households-america/395486/.

[70] Rafi, Goldberg, *New NTIA Data Show 13 Million More Internet Users in the U.S. in 2023 than 2021,* NTIA (June 6, 2024), https://www.ntia.gov/blog/2024/new-ntia-data-show-13-million-more-internet-users-us-2023-2021 (*NTIA Usage Statistics*); Michelle, Cao & Rafi, Goldberg, *Switched Off: Why Are One in Five U.S. Households Not Online?*, NTIA (Oct. 5, 2022), https://www.ntia.gov/blog/2022/switched-why-are-one-five-us-households-not-online.

[71] FCC *2024 Communications Marketplace Report*, Release, GN Docket No. 24-119, FCC 24-136 at ¶ 202 (Dec. 31, 2024), https://docs.fcc.gov/public/attachments/FCC-24-136A1.pdf.

D. Other cable obligations being proposed for elimination serve important functions or are mandated by law.

1. Cable rate regulation rules

The Free State Foundation, among others, requests elimination of the FCC's cable rate regulation rules,[72] ignoring the fact that the rate regulation statute remains on the books.[73] The FCC's rules now interpret broadly the statutory language releasing cable operators from rate regulation when they are subject to "effective competition." The Commission presumes effective competition exists in almost all cases[74] and the means by which effective competition is established is clear.[75] Under these rules, cable rate regulation is rarely invoked or permitted.

The International Center for Law & Economics supports this elimination as a positive deregulatory move.[76] Moreover, because the law is still in place and the FCC's presumptions are rebuttable, the rules continue to serve a purpose. Without the rules, we would return to judicial interpretations of "effective competition" in the statute, adding uncertainty to cable rate regulation.

2. Except for rule changes mandated by final judicial rulings, other proposed MVPD rule changes lack specificity and require extensive APA-compliant proceedings to fully consider their implications.

The Free State, ITIF and NTCA ask the Commission to generally consider disparities between MVPD operators (cable/IPTV) and virtual MVPDs (vMVPDs), such as Google's

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[72] *See* Comments of The Free State Foundation, GN Docket No. 25-133 at 10-11(filed Apr. 11, 2025) (Free State Comments).

[73] 47 U.S.C.§ 543.

[74] FCC *Concerning Effective Competition; Implementation of Section 111 of the STELA Reauthorization Act*, Rule, 80 Fed. Reg. 38001 (2015) (codified at 47 C.F.R. Part 76), https://www.federalregister.gov/documents/2015/07/02/2015-15806/concerning-effective-competition-implementation-of-section-111-of-the-stela-reauthorization-act.

[75] See 47 C.F.R. § 76.905-.906.

[76] Int'l Law & Econ Comments at 6.

YouTube.[77] NCTA describes video streamers in the marketplace, but does not specify any particular rule to delete in light of that analysis.[78] The Free State Foundation states briefly that the FCC "should delete . . . artificial constraints on what facilities-based MVPDs . . . must include in consumer-facing offerings[,] . . . program access, leased access, network non-duplicated protection, and syndicated program exclusivity,"[79] but offers no analysis targeted to those rules nor an analysis of which ones are mandated by statute, just a general pastiche of arguments that the market has changed. NCTA acknowledges that some of its proposals are barred by law, which of course places them outside the bounds of agency authority.

Local Government Commenters believe that if these questions were considered in a future proceeding, the FCC must examine the interconnected set of rules implicated by such a change. For example, would retransmission consent also apply to vMVPDs? This is a particularly good example of an instance where the full notice and comment process under the APA must be utilized to consider the legality and merits of these proposals.[80] Further, such a docket should consider local governments' prior explanations to the Commission that the treatment of cable operators that are also ISPs *vis-à-vis* the use of the right-of-way has not been appropriately managed, and is in

[77] *See* Comments of NTCA-The Rural Broadband Association, GN Docket No. 25-133 at 27-28 (filed Apr. 11, 2025) (NTCA Comments); Comments of Information Technology & Innovation Foundation, GN Docket No. 25-133, MB Docket No. 25-73, OI Docket No. 24-253, MD Docket No. 24-524 at 3 (filed Apr. 11, 2025). Free State Comments at 12-13.

[78] *See* NCTA Comments at 6. NCTA does not categorize any rules in its chart as falling under the category its comment classifies as being overtaken by market and technological developments. *See* NCTA Comments Appendix.

[79] Free State Comments at 3.

[80] *See supra* Part I.

violation of the law and an appellate court decision.[81] This results in an asymmetrical marketplace and inappropriate burdens on local taxpayers.[82]

Regardless of whether it takes up the broader issue of how vMVPDs should be treated, a U.S. Court of Appeals has already directed the FCC to modify 47 C.F.R. § 76.42, to replace "fair market value" with "marginal cost." This should be done without further delay.[83]

V. THE FCC SHOULD NOT REPEAL CONSUMER PROTECTIONS.

The Commission's consumer protection rules serve as a vital foundation for ensuring fairness, transparency, and accountability within the communications industry. As the industry continues to expand and evolve, the potential for consumer harm—ranging from deceptive billing practices to data privacy breaches—has grown significantly. The Commission's oversight is essential to mitigating these risks, upholding public trust, and ensuring equitable access to essential communication services.

Local Government Commenters strongly support the Commission's consumer protection regulations and ask the Commission not to repeal these rules. Should the Commission decide to undertake one or more proceedings to eliminate or weaken any of its existing consumer protection rules, the Commission should not take any steps to thwart state and local governments' independent authority over consumer protection.

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[81] Local Government Commenters support the comments of NLC/NACO/USCM at 2-3 (pointing out the marketplace asymmetry of the Mixed-Use Rule); *see also, e.g.*, Letter from Cheryl A. Leanza, Best Best & Krieger, to Marlene Dortch, Federal Communications Commission, MB Docket No. 05-311 (filed Feb. 8, 2024) (citing filings).

[82] *Id.*

[83] *Id.*

A. The "all-in" pricing rule increases transparency and eliminates the practice of adding "junk fees."

A handful of commenters seek to eliminate the "all-in" pricing rule alleging that the rule exceeds the Commission's authority and confuses customers more than it promotes transparency.[84] Yet the commenters fail to provide evidence of customer confusion. In fact, the notion that showing the real price confuses consumers is absurd on its face. As local government commenters have demonstrated in prior filings, cable operators are notorious for increasing service fees by utilizing hidden company-imposed fees.[85] Such practices prevent a consumer from making well-informed decisions when choosing a video product.

On the other hand, "[c]onsumer access to clear, easy-to-understand, and accurate information is central to a well-functioning marketplace that encourages competition, innovation, low prices, and high-quality services."[86] Local Government Commenters urge the Commission to leave the "all-in" rule in place and appreciate the Commission's efforts in establishing and supporting the rule thus far.

B. Broadband label rules promote transparency and allow customers to make well-informed decisions when shopping for broadband services.

The Infrastructure Investment and Jobs Act required the Commission to establish regulations mandating the display of broadband consumer labels that provide consumers with

[84] *See*, *e.g.*, NCTA Comments at 11-12; U.S. Chamber Comments at 10; Comments of ACA Connects - America's Communications Association, GN Docket No. 25-133 at 10-11 (filed Apr. 11, 2025) (ACA Connects Comments).

[85] Comments of NATOA, MB Docket No. 23-203 at 4-7 (filed Jul. 31, 2023).

[86] *Empowering Broadband Consumers Through Transparency*, CG Docket No. 22-2, FCC 22-86, Report and Order and Further Notice of Proposed Rulemaking, 37 FCC Rcd 13686 at ¶1 (2022) (*Broadband Label Order*).

details about broadband internet access service plans.[87] The Commission did just that.[88] The Commission's label requirements demystify complex service terms and provide consumers with clear, accessible information about key service attributes such as pricing, speeds, data allowances, and network management practices. Despite this, several commenters state that the rules are "needlessly burdensome" and a "substantial monthly expense," yet no evidence is provided to support these statements.[89] Eliminating or reducing the broadband label rules will increase customer confusion and the risk of exploitation by providers. The Commission should respect the Congressional mandate to establish the rules and keep these consumer protections in place.

C. The 2023 Digital Discrimination rules are paramount in facilitating equal access to broadband services.

In response to Section 60506 of the Infrastructure Act, the Commission adopted its 2023 Digital Discrimination rules that make it unlawful for broadband providers "to adopt, implement or utilize policies or practices, not justified by genuine issues of technical or economic feasibility, that differentially impact consumers' access to broadband internet access service based on their income level, race, ethnicity, color, religion, or national origin or are intended to have such differential impact."[90] These rules tackle existing discriminatory practices, such as redlining and limiting service in rural or underserved urban areas, to ensure that low-income, minority, and elderly communities are not excluded from essential digital services.

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[87] Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 § 60504(a) (2021) (Infrastructure Act).

[88] 47 C.F.R. § 8; *Broadband Label Order.*

[89] *See*, *e.g.*, U.S. Chamber Comments at 2; ACA Connects Comments at 12; NCTA Comments at 8-9.

[90] 47 C.F.R. § 16.3(b); *Prevention and Elimination of Digital Discrimination*, Report and Order and Further Notice of Proposed Rulemaking, GN Docket No. 22-69, FCC 23-100, 89 Fed. Reg. 6477 (Nov. 15, 2023), https://docs.fcc.gov/public/attachments/FCC-23-100A1.pdf.

Several commenters encourage the Commission to eliminate these rules, citing "vagueness" and "operational burdens" specifically as related to disparate impact.[91] As local government commenters explained in support of the rule ultimately adopted by the FCC, facially neutral or even unintentional practices could still produce discriminatory effects and "the devastating consequences are much the same" as intentional discrimination.[92]

The issue as to whether Section 60506 covers disparate impact policies is currently being litigated.[93] Local Government Commenters ask the Commission, at a minimum, to refrain from initiating any proceeding to repeal any of the 2023 Digital Discrimination rules, including the prohibition of policies and practices that result in disparate impacts, until the Eighth Circuit has issued its decision on the matter. If the rules are upheld, the Commission should heed the court's ruling and leave them in place.

D. The FCC should not weaken customer data security regulations.

The Commission's CPNI and data breach regulations are critical for safeguarding consumer privacy and security. CPNI rules restrict how providers can use sensitive customer data, increasing protection from unauthorized access, while data breach regulations require prompt notification to affected consumers and regulators in the event of a breach, enabling quick action to mitigate risks. A handful of commenters request that the Commission eliminate or reduce CPNI protections and customer thresholds that trigger data breach notifications.[94] Local Government

[91] *See*, *e.g.*, ACA Connects Comments at 12; NTCA Comments at 8-10; CCA Comments at 7.

[92] Comments of Texas Coalition of Cities For Utility Issues; City of Boston, Massachusetts, City of Portland, Oregon, GN Docket No. 22-69 (filed Feb 21, 2023).

[93] Brief for Respondents, *Minnesota Telecom Alliance v. FCC*, No. 24-1179 (8th Cir.), https://docs.fcc.gov/public/attachments/DOC-403491A1.pdf.

[94] *See*, *e.g.*, Comments of 21st Century Privacy Coalition, GN Docket No. 25-133 at 3-5 (filed Apr. 11, 2025); CTIA Comments at A-16; Comments of USTelecom-The Broadband Association,

Commenters caution the Commission from doing so. Weakening these regulations will erode consumer trust, diminish provider accountability, and create a more vulnerable digital environment where personal information is less secure.

If the Commission decides to initiate a proceeding to lower CPNI protections or the existing thresholds for breach notifications, Local Government Commenters oppose any effort to preempt state and local government authority to set stricter protections and thresholds as they may deem appropriate for their respective jurisdictions.

E. The FCC should not preempt state regulation of VoIP service providers.

The Cloud Communications Alliance requests that the Commission reaffirm federal preemption of state VoIP regulations that conflict with federal law by "deleting" those state regulations.[95] Local Government Commenters oppose this proposal. VoIP service use is widespread. Commission data shows as of 2023 that VOIP lines outnumber POTS lines 3 to 1.[96] States have played a historic role in consumer protection and quality of service rules. For example, the California Public Utilities Commission recently issued new state VoIP regulations.[97] State-level oversight respects the division of authority between intrastate and interstate telecommunications and helps address gaps in federal regulation related to jurisdiction-specific consumer protection needs, emergency 911 access needs, and outage/service disruption needs.

GN Docket No. 25-133 at 22-23 (filed Apr. 11, 2025) (USTA Comments); CCA Comments at 25; Digital Liberty Comments at 4; NTCA Comments at 20-22.

[95] Comments of Cloud Communications Alliance, GN Docket No. 25-133, ET Docket No. 15-80, PS Docket No. 04-35, PS Docket No. 13-75, CC Docket No. 96-45 at 10-11(filed Apr. 10, 2025)

[96] FCC Office of Economics and Analytics, *Voice Telephone Services: Status as of December 31, 2023*, at 2, Fig. 1 (Nov. 2024), https://docs.fcc.gov/public/attachments/DOC-407308A1.pdf.

[97] CPUC Decision No. 24-11-003, *Establishing a Regulatory Framework for Telephone Corporations Providing Interconnected Voice over Internet Protocol Service* (Nov. 15, 2024), https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M546/K367/546367929.PDF.

State and local governments should not be preempted from regulating VoIP service providers, as they are generally better suited to address the specific consumer- and service-related needs of their communities and the Commission has not always kept pace with these needs.

VI. THE E-RATE PROGRAM PROVIDES AN INVALUABLE SERVICE TO SCHOOLS AND LIBRARIES.

The E-Rate program has been instrumental in bridging the digital divide by expanding broadband access to over 130,000 schools and libraries across the United States.[98] Prior to the E-Rate program's inception, only 8 percent of classrooms in public schools had access to the internet.[99] Within the first eight years of the E-Rate program's existence, that percentage increased to 93 percent.[100] Between 2022 and 2024, the E-Rate program disbursed over $7 billion to approximately 106,000 schools and 12,597 libraries for broadband connectivity and internet access, benefitting over 54 million students.[101]

Local Government Commenters strongly urge the Commission to refrain from initiating proceedings that would negatively impact the viability of the E-Rate program. But other rule modifications proposed by the Los Angeles Unified School District—such as modernizing the definition of "basic firewalls," eliminating unfair discount discrepancies, evaluating Category Two program cap, streamlining competitive bidding rules, eliminating the ten-year documentation retention rules, and establishing a reasonable funding recovery timeframe—will bring efficiency

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[98] *2023 Annual Report*, Universal Service Administrative Co., 5, https://www.usac.org/wp-content/uploads/about/documents/annual-reports/2023/2023_USAC_Annual_Report.pdf.

[99] John Wells, Laurie Lewis, Bernard Greene, *Internet Access in U.S. Public Schools and Classrooms: 1994-2005*, Highlights. NCES 2007-020, National Center for Education Statistics (2006), https://nces.ed.gov/pubs2007/2007020.pdf.

[100] *Id.* at 4.

[101] FCC *The Universal Service Fund: How It Impacts the United States* (Aug. 8, 2024), https://docs.fcc.gov/public/attachments/DOC-404602A1.pdf.

and reduce burdens for schools and libraries around the country and are worth careful consideration pursuant to the Administrative Procedure Act.[102]

VII. THE COMMISSION SHOULD PRESERVE PUBLIC SAFETY REGULATIONS.

Chair Carr has pledged that public safety will be one of his top priorities at the FCC and has already initiated proposals to update the FCC's rules to ensure the resiliency, reliability, interoperability, and accessibility of NG911 and strengthen the 911 location accuracy rules.[103] Yet, several commenters seek to eliminate or reduce the Commission's emergency outage reporting and threshold requirements, including outage reporting with respect to 911, claiming that the rules "significantly and unjustifiably impede disaster response," impose costs on private parties not outweighed by the benefits, and are operational burdens.[104]

The Commission's emergency reporting and outage requirements are essential for maintaining reliable communications during crises and providing detailed data that allows the Commission, states, and local jurisdictions to effectively develop targeted, evidence-based emergency rules and policies. Local Government Commenters support the concerns of Sonoma County Emergency Management, which filed supporting the TRACED Act's robocall protections, Wireless Emergency Alerts (WEA), the Emergency Alert System (EAS), multilingual WEA

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[102] Comments of Los Angeles Unified School District, GN Docket No. 25-133, *et al.* at 1-2 (filed Apr. 11, 2025). See also Comments of the Schools, Health & Libraries Broadband Coalition, GN Docket No. 25-133, *et al.* (filed Apr. 11, 2025).

[103] Chair Brendan Carr, *Boosting GPS and 911 for the USA*, FCC BLOG (Mar, 5, 2025, 2:00 PM) https://www.fcc.gov/news-events/blog/2025/03/05/boosting-gps-and-911-usa.

[104] *See*, *e.g.*, CTIA Comments at A-6; INCOMPAS Comments at 17; USTA Comments at 14; Comments of Satellite Industry Association, GN Docket No. 25-133 at 4 (filed Apr. 11, 2025); NCTA Comments at 4, A-8-A-10; Taxpayers Protection Alliance Comments at 3 (reduce or eliminate burdensome outage reporting rules, 47 C.F.R. § 4.1-4.18; requirement for VoIP to provide 911/988 providers of outages within 30 minutes and exercise "special diligence" to gather 911/988 facility contact information).

requirements, amateur radio operations, and AM/FM radio systems as part of the essential emergency infrastructure.[105]

Public safety is a highly sensitive area. Local Government Commenters concur with the National Association of State 911 Administrators that any 911 deregulation efforts should proceed with caution because outage reporting, wireless location accuracy, security, and system reliability are critical and should be improved.[106] If any deregulatory proposals were to be considered, it is of particular importance that the Commission follow full and careful notice and comment rulemaking. Moreover, Local Government Commenters oppose any effort to preempt state and local government authority to set stricter protections and thresholds as they may deem appropriate for their respective jurisdictions.

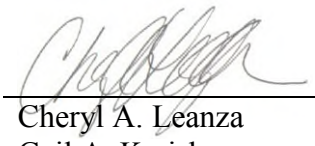
VIII. CONCLUSION

The Commission should proceed with care, proposing with specificity any potential changes raised for consideration in this docket, placing the protection of consumers and public safety at the center of its decision making, and respecting local jurisdictions as partners in the management of our communications infrastructure.

[105] Comments of County of Sonoma Emergency Management, GN 25-133 at 1-3 (filed Apr. 11, 2025).

[106] Comments of National Association of State 911 Administrators, GN 25-133 at 2-4 (filed Apr. 11, 2025).

Respectfully submitted,



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Counsel for
Local Government Commenters

April 28, 2025

EXHIBIT A

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.

STREAMLINING DEPLOYMENT OF SMALL CELL INFRASTRUCTURE BY IMPROVING WIRELESS FACILITIES SITING POLICIES; MOBILITIE, LLC PETITION FOR DECLARATORY RULING	WT Docket No. 16-421

THE ECONOMICS OF LOCAL GOVERNMENT RIGHT OF WAY FEES

DECLARATION OF

KEVIN E. CAHILL, PHD

March 8, 2017

THE ECONOMICS OF LOCAL GOVERNMENT RIGHT OF WAY FEES

I. INTRODUCTION

A. Author

1. My name is Kevin E. Cahill, PhD. I am a project director and senior economist at ECONorthwest, a public policy and economics consulting firm based in Portland, Oregon. I have published on a variety of topics related to applied microeconomics and have presented my research at academic conferences nationwide. I am also experienced in commercial litigation and antitrust matters, labor economics, and public policy and have testified numerous times in deposition and at trial. I earned my BA in mathematics and economics (with honors) from Rutgers College and MA and PhD in economics from Boston College. My professional and academic qualifications are described in my curriculum vitae, which is attached as Appendix A.

B. Purpose

2. My declaration in this matter addresses two topics: 1) the economic criteria that municipalities should apply when considering rights-of-way (ROW) charges, such as those at issue in the Mobilitie, Inc. ("Mobilitie") Petition;[1] and 2) the appropriate measures of economic cost for determining a fair, reasonable, and nondiscriminatory rate.

C. Summary of Opinions

3. Economic principles provide a clear justification for why municipalities should charge market-rate fees to access government-owned property such as rights-of-way.[2] First, market-rate fees ensure the efficient use of ROW—the allocation of this scarce resource that

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[1] Mobilitie, LLC. 2016. Petition for Declaratory Ruling. Before the Federal Communications Commission, In the Matter of Promoting Broadband for All American by Prohibiting Excessive Charges for Access to Public Rights of Way, WT Docket No. 16-421 (November 15).

[2] Mobiltie's petition, as I understand it, addresses two very different charges: regulatory fees, which are designed to capture the cost associated with regulating a particular voluntary activity in which a user engages, and market rents, which capture the costs associated with providing a benefit to a particular entity in return for a use of public properties. From an economics perspective the term "cost" as it pertains to access to ROW, and the "market rate" based on this cost, incorporates both those associated with regulatory fees (e.g., administrative costs and operations and management costs) and those associated with market rents (e.g., opportunity costs and negative externalities). As I note throughout this report, these costs should be fully considered in the price that municipalities charge for access to ROW in order for an efficient allocation of resources to take place. Further, while most of this report is focused on costs related to market rents, it bears emphasizing that, unless fees are set at a level that recovers all costs associated with a regulatory activity, that activity effectively is being subsidized by others and a marketplace benefit is being provided to the entity that is allowed to avoid these costs.

maximizes social welfare. Restricting fees below the market rate creates excess demand for ROW and leads to its overutilization. Second, the market rate should compensate the municipality not only for the administrative costs and operations and maintenance (O&M) costs associated with ROW access, but also for the fixed costs that the municipality incurred to create the ROW, the opportunity costs associated with occupying the ROW (e.g., increased costs in planning for future projects), and any negative externalities associated with placement of a facility in the rights of way (e.g., negative impacts on community aesthetics and property values). These components reflect the true cost to the municipality of granting access to its ROW.

4. Municipalities do not "profit" when users pay the full cost of accessing the ROW, nor is the socially-optimal level and rate of deployment of a new technology achieved when fees are restricted to just cover administrative costs and operations and maintenance costs. Quite the contrary. Such restrictions harm municipalities because resources are misallocated. The fact that some organizations might benefit from these restrictions—namely, by lowering their costs of production and supplying more of their product—does not imply that municipalities and its citizens and businesses also realize a net benefit (they do not).
5. Simply put, the efficient allocation of ROW is achieved when users pay the market price for accessing the ROW.

II. THE ECONOMIC PRINCIPLES OF ACCESSING ROW

6. Economics is the study of the efficient allocation of scarce resources. In an economic sense, a resource is scarce when demand or wants exceed the available supply. Very few resources would *not* be considered scarce—sand in the desert or seawater at the beach are two examples. Each household, city, state, and country has a limited supply of scarce resources (e.g., labor, land, knowledge, energy), and each entity decides how to allocate their resources. Municipalities, too, have scarce resources—land, infrastructure, vehicles, buildings—which they hold in trust for residents, businesses owners, and taxpayers.[3]

[3] Mankiw, G. 2015. *Principles of Microeconomics*. Stamford, CT: Cengage Learning; Samuelson, P. and W. Nordhaus. 2005. *Economics*. New York, NY: McGraw-Hill International Edition; Hall, R. and M. Lieberman. 1998. *Microeconomics: Principles and Applications*. Cincinnati, OH: South-Western College Publishing.

7. Economies allocate scarce resources via markets and prices. In general, producers want to sell their goods at the highest price possible and consumers want to buy their goods at the lowest price possible. A price must be acceptable to both producers *and* consumers for an exchange to occur because each party has the freedom not to participate in the exchange. Economists generally refer to the market-clearing or equilibrium price as one that satisfies two conditions: 1) the price enables producers to cover their costs and 2) the price satisfies consumers' willingness to pay given their preferences. A price below the market-clearing price will result in too many consumers willing to buy and too few producers willing to sell (excess demand) and a price above the market-clearing price will result in too few consumers willing to buy and too many producers willing to sell (excess supply). Price adjustments help ensure a match between supply and demand and an efficient allocation of scarce resources.[4]

A. Charging a fee to access ROW ensures the efficient allocation of a scarce resource

8. A municipal ROW—constrained by location and dimension—is a scarce economic resource. Because it is a scarce resource, charging a fee to access a municipal ROW makes good economic sense and is consistent with the trust responsibilities of municipal officials. Charging a market rate to access a municipal ROW is consistent with the economic principle of using prices to efficiently allocate scarce resources. The closer the charged rate is to the market price the closer the allocation of the ROW is to the efficient outcome.
9. Because a municipal ROW is a scarce resource choosing one use for the ROW means that the municipality foregoes other opportunities to use (or not use) the resource, so long as the user maintains its access to the ROW. The creation of a pedestrian-only mall prevents access to adjoining properties by vehicles, for example, and the placement of a pole may make use of a sidewalk more difficult for a pedestrian. Economists refer to the foregone use as an opportunity cost associated with the resource-allocation decision. Economists consider opportunity costs in resource allocation decisions because resources can be used in

[4] Mankiw, G. 2015. *Principles of Microeconomics, 7th Edition*. Stamford, CT: Cengage Learning; Samuelson, P. and W. Nordhaus. 2005. *Economics*. New York, NY: McGraw-Hill International Edition.

alternative ways and decisions made today can impact what choices are available in the future.[5]

10. Occupying space in the above- or below-ground portions of the ROW has opportunity costs. Access by others entities, including the locality, may become more expensive or more difficult, or in some cases, may be foreclosed. The three-dimensional space occupied by a given wire obviously cannot be occupied by another. Allowing one wireless provider to use a light pole may foreclose, or limit the use by others, unless the dimensions of the pole are substantially changed. Also, depending on the specifics of the use, the installation, the maintenance, and the replacement of any given facility in the ROW may create problems for and impose costs on the city, other users of the ROW, and on property owners adjacent to the ROW. For these reasons charging a fee to access ROW helps ensure that the ROW will be used in an efficient manner.

B. Below-market pricing results in excess demand

11. As noted above, if a price is set below the market-clearing price then there will be too many consumers willing to buy the product at that price and too few producers willing to sell the product at that price, resulting in an excess demand for the good or service. In the case of ROW, if a municipality is forced to sell access to its ROW at a below-market rate, then users will not fully consider the cost of accessing the ROW and will over utilize it. One form in which this overutilization could manifest itself is that existing ROW could become overcrowded, and be unable to accommodate new, innovative technologies. Another form is that a company like Mobilitie may abandon property for which it does pay rent in order to access property that it hopes to occupy at no charge, or at a heavily regulated charge.
12. Allocating the ROW by first-come, first-serve or on some other non-market price makes little economic sense, especially given the external costs imposed on third parties if a ROW is over-consumed by any user. The same result follows if one artificially limits a community to charging fees without regard to value. Charging a ROW fee that reflects the ROW as a

[5] Mankiw, G. 2015. *Principles of Microeconomics, 7th Edition*. Stamford, CT: Cengage Learning; Samuelson, P. and W. Nordhaus. 2005. *Economics*. New York, NY: McGraw-Hill International Edition; Nicholson, W. 1997. *Intermediate Microeconomics and Its Application*. Oak Brook, IL: The Dryden Press.

valuable asset or resource for which there are important and competing uses easily prevents this.

C. Above-market pricing is disciplined by municipal competition

13. Municipalities compete to attract business and jobs, retirees and their savings, and high-skilled workers. They use a variety of means to do this, such as by offering favorable tax policies and subsidies, providing municipal amenities, and investing in infrastructure.[6] Many cities have economic development departments whose purpose includes attracting businesses away from other jurisdictions to locate in their city and employ their residents. These activities are part of municipal managers' responsibilities to protect and support their community's quality of life and economic health and wellbeing.
14. Telecommunication services are an important component of cities' economic development plans.[7] The extent to which a community has high quality telecommunications services—including, in particular, high-quality broadband Internet access—can affect economic-development prospects and general quality of life. As such, some municipalities may choose to price access to ROW below the market rate in order to obtain these telecommunications services before other communities.
15. Critically, any given municipality is constrained by market forces if it attempts to charge an above-market price.[8] Consider the case in which a municipality attempts to extract excess revenues from interested users of a ROW with a fictitious opportunity cost argument. Some interested users of the ROW will no doubt opt not to use the ROW because of the higher price, leading to excess supply in the municipality's existing ROW. Meanwhile, its competitor municipalities have every incentive to take advantage of this misstep by pricing access to their own ROW such that no excess capacity exists. The result will be an enhanced availability of services in the competing municipalities. The enhanced services can then be

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[6] O'Sullivan, A. 2012. *Urban Economics*. New York, NY: McGraw-Hill Irwin.

[7] Lucky, R. and J. Eisenberg (eds.). 2006. *Renewing U.S. Telecommunications Research*. Committee on Telecommunications Research and Development, National Research Council. ISBN: 0-309-66396-2. http://www.nap.edu/catalog/11711.html; Salt Lake City. No date. *Economic Development – Research: Utilities and Telecommunication*. http://www.slcgov.com/economic-development/utilities-and-telecommunication.

[8] Price is just one factor. Market forces can also limit other outcomes, such as excessive regulation, that might be detrimental to a municipality's citizens and businesses.

touted by the competitor municipalities to lure away individuals and businesses from the municipality with excess capacity in its ROW.

16. Another form of competition exists *within* municipalities—leaders compete for the votes of their constituents. Unlike corporations, municipalities are not profit maximizers; rather, municipalities have an obligation to their citizens to promote economic development. If leaders within a municipality obstruct market forces and fail to establish market prices that invite technological innovation, citizens and businesses will no doubt be unsatisfied with such decisions and seek new leadership in subsequent elections. This threat of being voted out of office serves to discipline leaders within a municipality from demanding above-market prices.
17. Another disciplinary force is the option to use private property instead of a municipality's ROW. The right of way is, as I understand it, not necessarily the only property on which wireless facilities may be placed. While there may be different costs associated with placing facilities on private property (including costs of negotiation), the fact that there are alternatives to using the rights of way limits the pricing power of a municipality.
18. The key takeaway is that market forces—both across and within municipalities and between municipalities and private property owners—discipline those that seek to extract surplus revenues from ROW users. The argument that municipalities should be restricted from setting prices for fear that they will extract excess revenues from interested users is highly flawed because it ignores these disciplinary market forces.

III. QUANTIFYING FAIR, REASONABLE, AND NONDISCRIMINATORY PRICES

19. The previous section describes the economic principals of accessing ROW, and the importance of pricing in such a way that leads to the efficient allocation of this scarce resource. In this section, I describe the various components of such pricing. A key takeaway is that an artificial constraint that restricts municipalities to charging only the current out-of-pocket marginal cost of accessing the ROW will inevitably lead to an inefficient outcome that harms the municipality, its citizens, and its businesses.[9]

[9] For simplicity, I refer to administrative costs and operations and management costs as out-of-pocket marginal costs. Opportunity costs and those associated with negative externalities are technically marginal costs as well, in the sense that they increase incrementally with the introduction of a new user of a ROW.

A. Administrative and operations and maintenance (O&M) costs

20. In its Petition for Declaratory Ruling, Mobilitie states that, "The Commission should first declare that the phrase 'fair and reasonable compensation' means charges that enable a locality to recoup its reasonable costs to review and issue permits and manage its rights of way, and that additional charges are unlawful."[10]

21. Mobilitie is correct insofar as it acknowledges that municipalities should be able to charge for the (full) incremental administrative and operations and maintenance (O&M) costs that a municipality incurs when it grants access to ROW. As I note above, these sorts of costs are typically included in regulatory fees associated with issuing permits for activities inside or outside of the rights of way. These charges can include the cost of personnel time for permitting and maintenance of the ROW, the cost of any modifications to the ROW that are necessary and borne by the municipality, and any costs associated with regulation compliance with rules for use of the rights of way. These charges should also include any necessary engineering reviews, field inspections, utility adjustments, or site restoration tasks. Moreover, it is important to note that some of these costs are not one-time events. In these cases municipalities should be able to recover, over time, any costs related to access of ROW that are ongoing.

22. Economically speaking, however, these regulatory costs do not reflect what an economist would view as the full cost of use of the rights of way. Other components include fixed costs, opportunity costs, and negative externalities. Ignoring these components will lead to a below-market rate, excess demand, and an economically inefficient use of ROW (as well as a subsidy for users, such as Mobilitie).

B. The importance of including fixed costs

23. Mobilitie is incorrect in its assertion that pricing above current out-of-pocket marginal costs implies that municipalities are somehow profiting from the use of ROW. Specifically, Mobilitie states, "The Commission should declare, however, that additional charges that exceed these [marginal] costs are unlawful. Thus, a locality's one-time and recurring charges

[10] Mobilitie, LLC. 2016. Petition for Declaratory Ruling. Before the Federal Communications Commission, In the Matter of Promoting Broadband for All American by Prohibiting Excessive Charges for Access to Public Rights of Way, WT Docket No. 16-421 (November 15), p. 24.

and fees cannot be set at levels that are designed to raise revenues for the locality, because those charges would allow the locality to profit from its exclusive control of rights of way."[11,12]

24. Pricing above out-of-pocket marginal cost does not imply that municipalities earn "profits." The reason is that municipalities incur fixed costs and opportunity costs, and may experience impacts from negative externalities. First, municipalities have likely incurred at least some of the cost of establishing and maintaining the ROW up until the present time. Myrtle Beach, for example, has expended hundreds of millions to redevelop its beachfront, underground utilities and rebuild its roads.[13] It is economically nonsensical to imply that the municipality should be compelled to give away for free the fixed-cost value of establishing the ROW and maintaining it through the present time simply because the municipality incurred these costs in the past. Far from earning "profits," municipalities would be incurring a very tangible loss if they were not allowed to charge users for their fixed costs—or would be simply transferring costs which ought to be borne by those occupying the rights of way to others, such as taxpayers.
25. Municipalities can and have invested in infrastructure with the expectation that they would recoup at least some portion of such investment spending. For example, jurisdictions in Oregon charge a system development charge (SDC) for new residential and commercial development. The purpose of SDC is to recover the fixed costs of infrastructure capacity that serves new development. As new residential developments come on line they pay their portion of the fixed costs for infrastructure capacity needed to serve the new development.[14] Forcing municipalities to give away these assets for free makes little economic sense and could inhibit municipalities' investments in infrastructure going forward.

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[11] Mobilitie, LLC. 2016. Petition for Declaratory Ruling. Before the Federal Communications Commission, In the Matter of Promoting Broadband for All American by Prohibiting Excessive Charges for Access to Public Rights of Way, WT Docket No. 16-421 (November 15), p. 24.

[12] I note that the "exclusive control" of the rights of way is something of a misnomer. Property owners have exclusive control of their property but my understanding is that such exclusive control is rarely in and of itself viewed as a justification for regulating rates for access.

[13] MyrtleBeachOnline. 2016. "Myrtle Beach metro area again one of the fastest-growing in the country." March 24. http://www.myrtlebeachonline.com/news/local/article67886402.html.

[14] Galardi Consulting, Dr. A. Nelson, and Beery, Elsner and Hammond. 2007. *Promoting Vibrant Communities with System Development Charges*. Metro. July; Leung, M. 2015. *System Development Charges*. Portland Water Bureau. May 27.

26. Importantly, allowing municipalities to charge for their fixed costs does not imply that all municipalities will do so. The ROW is an asset to the municipality and some municipalities might decide to waive their fixed costs to compete with other municipalities to attract certain types of investment. This flexibility is a key feature of how municipalities compete, to the benefit of its citizens and businesses. This dimension of competition would be stifled if municipalities are not allowed to recoup their fixed costs.

C. The importance of including opportunity costs

27. As noted above, a municipality's ROW is a scarce resource in an economic sense. The potential for restricted availability and fewer options in the future is a cost to the municipality for granting access to the ROW today. As such, municipalities must be able to charge for their opportunity cost to achieve an efficient allocation of its ROW. Further, allowing a locality to recover its opportunity costs ensures that users pay the full cost associated with the use of the facility—or ensures that the municipality makes a conscious decision to subsidize certain behaviors. For example, a municipality might have a vested interest in encouraging the deployment of technologies to underserved areas and, to encourage such deployment, the municipality might set a discounted price, or even a zero price, for accessing its ROW in particular areas. Such decisions can be optimal depending on the objective function or strategy of the municipality. As with fixed costs, restricting municipalities from including opportunity costs, either in full or in part, constrains competition across municipalities and inevitably leads to inefficient outcomes.

D. The importance of taking negative externalities into account

28. Decision makers within municipalities must also consider any negative impacts that use of ROW might impose on the community. Such negative impacts are referred to in the economics literature as externalities—an impact, either positive or negative, to an outside party. In the case of access to ROW, a telecommunications company's cell tower might impose a negative externality in the community due to its unsightliness. Municipalities have attempted to mitigate such negative impacts on the community by requiring users to address the negative externalities they impose, for example, by requiring providers to make cell

towers look like trees.[15] In other cases, access to certain locations in or outside of the rights of way (for example, for locations in front of historic structures) may be subject to strict scrutiny.

29. Quantifying the impact of negative externalities on a given community can be complicated, and the challenges in doing so illustrate why it is important to let each municipality decide how to weigh the trade-offs associated with such negative impacts. Some communities might value the impact of a negative externality more so than others, just as some communities might value access to the latest telecommunications technology more than others. Competitive pricing allows municipalities to achieve an allocation of resources that takes these preferences into account. For example, if a locality charges a fee for use that is higher for those who place large facilities in the rights of way, and less for those who do not, the locality will encourage deployment of smaller facilities.
30. A key takeaway is that communities differ in how they view the impacts of negative externalities. Limiting municipalities' ability to set the prices they can charge (as well as limiting authority to mitigate impacts through land use regulation), therefore, will lead to a situation in which communities' preferences toward negative externalities are not taken into account, inevitably resulting in an economically inefficient outcome.

E. The importance of economic factors in assessing nondiscriminatory fees

31. In an economic sense, a fee is nondiscriminatory if entities pay similar fees for using a ROW in similar ways and under similar circumstances. Uses differ, and not all telecommunications providers use the ROW in the same way. For example, a wireline company may have hundreds or thousands of miles of fiber in a ROW. A wireless company, in contrast, may place only a few facilities in the ROW, but with more substantial negative externalities. One could reasonably distinguish among these types of providers for the purpose of arriving at compensation for access to the ROW.

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[15] Chicklas, D. 2014. "City code required cell phone tower to be disguised as tree." *Fox 17 West Michigan*. July 28. http://fox17online.com/2014/07/28/city-code-required-cell-phone-tower-to-be-disguised-as-tree/; Hecht, P. 2015. "Dressed up as trees, cellular towers stir depate." *The Sacramento Bee*. Dec. 5, http://www.sacbee.com/news/investigations/the-public-eye/article48213030.html.

32. In addition, economic conditions change over time. All else equal, providers that enter the market at different points in time face different economic conditions. In a competitive market, such providers would likely face different costs for the resources they use. Likewise, it would not necessarily be either discriminatory or non-neutral for the details of the ROW access charges between each of such providers and a city to differ.
33. It follows that there may be many different ways to capture fair market value for property and other resources used. For example, it is common in pricing to include a gross revenues based component. This is a common measure where a ROW grant gives someone a right to place facilities throughout the right of way (cable and telecommunications franchises, for example) but is also common in private markets (shopping centers, for example). Alternatively, an entity can price per site, price based on some measure of area (linear footage, square footage, or cubic footage), or price based on provision of non-monetary benefits that reduce costs to both parties (e.g., installation of excess conduit that reduces the need for future road cuts). Different pricing models may fit some policy goals better than others or some business plans better than others. Just as competition leads to marked-based prices and an efficient allocation of scarce resources, competition also leads to an optimal form in which payments are made.
34. Finally, other factors can affect ROW pricing in ways that are non-discriminatory in nature, such as opportunity costs and externalities. Regarding opportunity costs, it would be non-discriminatory from an economic perspective to charge higher ROW fees in highly congested portions of the ROW because congestion in ROW can limit future access for municipal services. Likewise, telecommunications companies may inflict negative externalities on communities by installing unsightly telecommunications equipment in historical districts or in neighborhoods with strict visual standards (e.g., signage limitations and requirements, limited or specified paint colors, period or culturally aesthetic architecture building codes). ROW fees that take these consequences into consideration would not be considered discriminatory in an economic sense.

IV. FACTORS SPECIFIC TO SMALL CELL DEPLOYMENT

35. Mobilitie notes that access to ROW for the purposes of 5G technology differs from prior cellular technology uses. The technology requires more densely distributed equipment and,

therefore, access to many more ROW points. Mobilitie then argues that these technical requirements somehow imply that the economics of access to ROW should be different. In fact, the economic principles of access to ROW hold no matter what the technology, including 5G and taking Mobilitie's technical arguments at face value.

36. One of the major differences between the anticipated roll out of small cell and DAS networks from current wireless technology is the number of antenna attachments and deployments that municipalities will process. Mobilitie's Petition for Declaratory Ruling, states that 200,000 cell towers currently exist in the United States. These towers were not all installed in one year, rather they accumulated over time. In contrast, it is anticipated that one million new small cell and DAS antenna could be deployed in the next five years.[16] On average, municipalities would have to process ROW antenna requests at an annual rate equivalent to all cell towers currently in operation, each year, for the next five years.
37. Mobilitie claims that, due to the large number of expected access requests, a more uniform system of gaining access to ROW might be required. It is beyond the scope of this report to consider the costs associated with imposing a "uniform" permitting scheme on localities across the nation, except to note that it would likely be quite significant, potentially involving changes in ordinances, software systems, forms and the like. But a critical piece of information left out of Mobilitie's argument is that municipalities have every incentive to work with telecommunications companies and advance 5G technology to the extent that such technology offers value to its constituents. If the value is as alluring as Mobilitie claims it to be, municipalities have every incentive to facilitate its adoption within the community. No declaratory ruling or mandated uniformity would be required.
38. Likewise, market-based pricing mechanisms are consistent with and not in conflict with rapid deployment. As a society, we do not want the most rapid deployment imaginable; we want the speed of deployment that is consistent with the most efficient use of available resources. This rate of deployment leads to intelligent choices among types of properties that may be used to deploy wireless facilities. The methodology Mobilitie proposes will predictably lead to inefficient deployment at substantial social cost.

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[16] Mobilitie, LLC. 2016. *Petition for Declaratory Ruling*. Before the Federal Communications Commission, In the Matter of Promoting Broadband for All Americans by Prohibiting Excessive Charges for Access to Public Rights of Way. Washington, DC. November 15.

39. Moreover, as a basic economic principle, firms will first deploy in the areas that are most profitable. The areas that are most profitable under a system with market-based prices will, when ROW are underpriced, likely remain among the most profitable areas (albeit *more* profitable due to lower costs). The systematic underpricing of access to ROW is unlikely to lead to increased deployment in underserved areas over existing profitable ones.

V. CONCLUSION

40. An efficient, market-based price to access ROW compensates a municipality for its administrative costs and operations and management costs, its fixed costs of establishing and developing the ROW, its opportunity cost of granting access to the user, and any negative externalities from the user. Restricting fees below the market rate, as proposed by Mobilitie, creates excess demand for the ROW, leading to an overutilization and suboptimal allocation of ROW.
41. Concerns about municipalities extracting rents from potential users of ROW are unwarranted because competitive forces within and across municipalities, and between municipalities and private property owners, discipline such behavior. Municipalities that attempt to extract higher-than-market rates will simply be undercut by other municipalities that do not, or sidestepped by private property owners, and risk falling behind technologically. Leaders who advocate for extracting higher-than-market rates will be forced to explain to voters why their municipality is falling behind technologically, and risk losing their positions. The result is that municipalities and their leaders cannot sustain above-market prices.
42. The most rapid rate of deployment imaginable for 5G technology is not the socially-optimal outcome; rather what is socially optimal is the speed of deployment that is consistent with the most efficient use of available resources. The efficient allocation of ROW is achieved when users pay the full cost of accessing the ROW. The closer the fee is to the market price the closer the allocation of ROW access is to the social optimum.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 8, 2017.

Kevin E. Cahill, PhD
Project Director
ECONorthwest

EXHIBIT B

Exhibit F

An Engineering Analysis of Public Rights-of-Way Processes in the Context of Wireline Network Design and Construction

July 13, 2011

Prepared by Columbia Telecommunications Corporation

Table of Contents

1 Introduction: Public rights-of-way processes represent a minor matter relative to the full effort required for broadband deployment

This report describes, from an engineering standpoint, the permitting process in the context of wireline broadband outside plant design and construction process. The observations in this report are based on Columbia Telecommunications Corporation (CTC) staff-members' decades of expert work building out and overseeing build-out of communications infrastructure across the United States.[1]

The report concludes that accommodating permitting and other local government requirements in public rights-of-way is a relatively small part of the cost and time required for design and construction of outside plant for a communications network. The National Broadband Plan asserts that "[t]he 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. Collectively, the expense of obtaining permits and leasing pole attachments and rights-of-way can amount to 20 percent of the cost of fiber optic deployment…" This statement – assuming it is accurate - conflates permitting and very different activities associated with obtaining access to utility poles and conduit. Fees charged by local governments in connection with the *deployment* of broadband are a very small portion of the cost of fiber deployment, and certainly nothing close to 20 percent of deployment costs.

As discussed in this paper, the outside plant design and construction process, broadly speaking, involves the work from the time a network engineer receives instructions to construct a particular type of line in a particular community through the time the line is actually built. This is, of course, only a part of the work involved in the overall design of a network. Generally speaking, outside plant design and construction occurs at a point when overall network design and marketing principles are already in place. The decision as to *what* and *whether* to build involves additional time and cost. And of course, with broadband systems, the physical plant "design and construction" are only part of effort required to provide services. The design, installation, and integration of electronics and software add significantly to cost, and affect whether, when and where a company will build a system, and how it will stage construction. In our experience, it is other factors, rather than details within the outside plant and construction process, that drive deployment, and the time required for deployment.

[1] CTC provides technology engineering and business planning consulting services for public sector and non-profit clients nationwide and abroad. Since 1983, CTC has assisted hundreds of public and non-profit entities to analyze technology needs and strategies, plan and design broadband systems, and work with the private sector to meet local broadband and technology needs. This report was prepared by CTC's Director of Engineering, Andrew Afflerbach, Ph.D., P.E., who has 15 years of experience designing and evaluating fiber network design, with the support of CTC's outside plant engineers, who, among them, hold more than 100 years of experience designing and building outside plant for both telephone and cable companies.

In our experience with the communications industry and engineering broadband networks, public rights-of-way acquisition costs represent – in those communities that assess them – a remarkably minor factor in the larger analysis of outside plant design and construction processes and expenses—a cost of a few percent of construction (and thus an even smaller percentage of the total cost associated with planning and implementing a communications network).

Labor and material capital costs for outside plant and construction range from $25,000 to $250,000 per mile, depending on the service area and the type of construction used. In our experience, build-out costs are primarily a function of local labor rates, materials pricing as of the date of construction/integration, the complexity of the terrain, real estate acquisition, whether the construction will be aerial or underground, and the make ready process. By comparison, local permitting fees are a small amount of these costs. Operational costs (depending on the nature of the services provided by the broadband facility) are dominated by programming, Internet backhaul, outside plant maintenance, customer service, and billing.

Nor does the permitting process significantly delay deployment. While every project is different, for aerial construction, it is almost always the case that the majority of time in outside plant design and construction is in fact the make-ready process--coordinating with the pole owner and existing utilities to prepare utility poles for attachment, as described in Section 2.

Where local government rights-of-way permitting time is a significant part of the overall outside plant design and construction process in a typical mixed aerial/underground construction project, it will typically be where special reports, inspections, or approvals are required before a permit may issue—and most of these additional reports, inspections, or approvals are based on state and federal requirements. Special permits or other authorizations are required for crossing railroads, waterways or environmentally sensitive areas, or where federal funding mandates environmental assessments, for example. The time required to obtain the necessary approvals from federal environmental officials that are conditions to the issuance of a permit can double or triple total construction time for a particular project. However, it is very difficult to eliminate the requirement for additional time without harming property, creating significant risks to public safety, to the environment, or to other utilities and critical transportation systems.

To some degree, the impact on construction projects can be mitigated by proper planning, routing, and staging by the owner of the communications network. For example, in our experience, if the network deployers (or their contractors) make an effort to stage the filing of permit applications rather than filing hundreds at one time, the processing burden on the locality is spread over a reasonable period of time. In our experience, localities are very willing

to work with deployers to establish timetables and processes for reasonable submission – and reasonable review – of permit applications.

In many localities, local permitting processes and fees do not exist. Either as a matter of local or state policy, many localities—particularly those in rural areas—impose little or no process or fee on use of the public rights-of-way. In addition, in some areas, localities are not engaged in rights-of-way permitting. [2]

In our experience, it is in the most unserved and underserved rural areas where local fees are most minimal or non-existent; for example, traffic control in these areas requires less coordination. Thus, the absence of a process or fees does not, in our experience, encourage the deployment of services—providing further support for our conclusion that the consideration is simply not a relevant factor.

However, we have found that a well-managed process of local oversight of network construction often adds value and plays an essential, enabling role in key processes related to construction of broadband networks, including:

1. Reducing hits and cuts to other utilities located in the rights-of-way—for example, in Anne Arundel County and Howard County Maryland, the local governments intervened to improve quality control and remove contractors when Verizon Communications' construction of FiOS caused massive rights-of-way disruption and damage to existing cable and telecommunications utilities and made the project owners accountable for improving their practices and paying for their damages.

2. Enforcing codes which in turn make the finished construction safer and reduce its aesthetic impact—for example, many local governments monitor electrical and safety code in the rights-of-way and require entities in the rights-of-way to fix safety violations such as improper clearances, relocate enclosures in dangerous locations, and repairing damaged infrastructure.

3. Reducing disruption to roadways and economic activity through coordination of joint builds and enforcement of restoration requirements—for example, notifying service providers and coordinating the "open trench" installation of communications conduit in rights-of-way when road or utility construction is taking place.

4. Providing Geographic Information System (GIS) mapping. One of the significant contributions of many local jurisdictions is the availability of GIS base maps. If these are

[2] For example, in many parts of Virginia, rights-of-way including neighborhood streets are managed by the Virginia Department of Transportation; permitting is all done by the state. However, this is simply a consolidation of major and minor rights-of-way under one roof; a full permitting process still exists.

not available from the jurisdictions they must be purchased commercially or generated by the communications provider itself.

2 Understanding broadband network design processes and costs

Outside plant design and construction includes a number of elements. To illustrate the point, consider a five-mile extension of an existing network. For outside construction to proceed, there should be a project plan that encompasses:

- Field surveys
- Route design
- Make-ready
- Construction drawings
- Permitting and licensing (state and local, as well as special permits for river or rail crossing or environmentally sensitive areas)
- Plans for necessarily equipment, materials and labor, and for integrating the extension with the existing network.

To determine the appropriate routing for a project, engineers obtain GIS information from the relevant jurisdictions, if available and study the maps, including details of roadways, railroads, major highways, street centerlines, "hydro lines" (i.e., creeks, streams, rivers), and "hydro areas" (i.e., wetlands, bodies of water). GIS maps must also be developed, overlaying these features with proposed fiber routes, future fiber routes, future locations, and current locations.

The engineers then conduct a full walk-out of the route and complete site surveys of all proposed customer fiber locations. This is needed to complete the design and preliminarily assess permit needs and initiate the permitting process.

A significant portion of the time expended on a fiber design project must be dedicated to the measuring and drawing of aerial and underground routes and facilities (i.e., the creation of field notes) and the conversion of those field notes to a widely-used format such as AutoCAD or MicroStation.

During the route survey, the engineers must note existing pole lines and potential construction barriers, including obstructions, permitting concerns, and possible improvements. For aerial portions of the route, for example, this would include measurement of span distances and the aerial clearances of electric facilities, and recording details including:

- Pole numbers
- Electrical facilities
- Clearance over roads and bridges
- Span distances
- Guys and anchors

For underground portions of the route, engineers must measure the green space available within the rights-of-way for placement of conduit, and record details including:

- Storm drains
- Edge of pavement
- Water and sewer lines
- Street lights
- Required test pits
- Slack storage
- Splice cases
- Pedestals
- Vaults
- Required hardware

Project drawings would include additional details such as:

- Running line of fiber
- Road names
- Railroads and crossings
- Bridges
- Fixed markers/significant landmarks (e.g., fire hydrants, valves, poles)
- Environmental protected areas (e.g. wetlands, bodies of water)
- Flood plains
- Easements
- Rights-of-way
- Any applicable public utilities or assets
- Any applicable private utilities or assets
- Termination points
- Fiber entry and installation, as applicable

Engineers would then complete a base map, a strand map (for aerial portions, based on make-ready or "stick" drawings), and a design drawing with construction detail.

First, however, pole attachment licenses are needed for aerial routes from the pole owners. Make-ready work, the tasks associated with preparing utility poles for attachment, constitutes the single largest portion of the design effort. The pole attachment must be coordinated with all utilities and communications infrastructure owners that are attached to the existing poles. To secure these licenses, engineers will submit the appropriate pole attachment permits to the pole owners, typically commercial power and/or telecommunications companies. Engineers will determine who owns the pole, whether there is joint ownership, and what work the utility or communications company needs to complete to attach fiber to the poles. A single pole application can include from one to 200 poles. Engineers from all utility companies on the poles conduct a joint walkout and identify how to relocate utilities to accommodate the applicant.

The applicant company typically pays for the relocation. In addition to the cost, there is often considerable delay in this process, both in scheduling the walkout and in performing the relocation.

"Engineering work documents" (EWDs) are produced in the final stage of the design process. These documents include a bill of materials, proof of permit issuance, and all required engineered drawings and design specifications. Such EWDs are typically overseen by a licensed Professional Engineer. If the construction vendor were to subsequently create a redline (i.e., deviation from the original design and the "as built" design), the EWDs would have to be updated to reflect those changes. In the event obstructions are discovered during project implementation, additional changes must be made and drawn in CAD or MicroStation.

Rights-of-way and encroachment permits (issued by the county/city and/or the state authorities) are standard and are required for every route. Once the make-ready and EWDs are complete, the route is finalized and the permitting package is submitted. Again, a typical five-mile segment will require one additional day for preparation of the permitting package (beyond the work required for preparation of the EWDs). If the issuing entity identifies any concerns or mistakes in its initial review of a permit application, the reviewer will typically return the plans, send an e-mail about the issue, or call the engineer or project coordinator of the constructing applicant entity to discuss the concern. If an application or portion of an application is returned, the applicant entity must review any potential changes and then make corrections and send a revised application (if necessary), or simply e-mail or call the permit reviewer to provide the requested information.

In our experience, the total outside plant design and construction process for a five-mile segment, if properly staged and planned, can be completed in approximately 100 days.[3] This includes 65 days for make-ready activities with the pole owners and other utilities.

[3] Since design and construction of the various portions will take place in parallel, a large-scale project need not require many multiples of 100 days; this is simply the amount of time it takes a particular portion to go from beginning to end.

3 Understanding broadband network construction processes and costs

Outside plant design and construction is an expensive and multi-faceted process, of which obtaining rights-of-way permits is one relatively modest component. While actual costs may vary by project and geography, it is possible to make rough estimates for a "typical" project. A brief summary of these varied costs and some of the variables that determine their magnitude follows:

Labor

Labor represents the largest share of construction costs—approximately 50 to 80 percent. Materials costs (like the quantity of fiber strands and cables) are a secondary consideration.

All other expenses are dwarfed by labor costs. It is widely recognized that "[l]abor is the biggest expenditure in a FTTH network build-out"[4] or any wireline network build-out.

Of course, labor costs are highly variable. These costs tend to be highest in urban/suburban and affluent areas. Significantly, labor costs (and, therefore, broadband construction costs) are almost universally far lower in rural areas where broadband deployment is least robust.

Labor costs are frequently the single largest line item in a broadband construction project, and the scale of the costs – though always high – will vary geographically depending on local wage structures and union requirements, if any.

For instance, contract labor costs for a recent fiber deployment in rural Tennessee were priced at nearly $20,000 a mile. In our recent experience, in a major metropolitan area, the cost of labor would be far higher, closer to $100,000 per mile, depending on the type of construction (aerial/underground) and the amount of restoration required. This is due to the higher hourly cost of labor, the greater need for make-ready (in the case of aerial construction), the expertise needed for directional boring in heavily congested environments (in the case of underground construction), and the effort needed to restore paved and built-up areas.

Materials

The cost of materials at any one time can greatly influence deployment patterns as well as investment timing. Materials, both for outside plant and for network electronics, represent an enormous part of any build-out budget. With respect to outside plant, materials range from optical fiber to conduits to outside enclosures; on the electronics side, the materials will include the electronics to "light" and operate the fiber and provision services.

[4] Ashley Phillips, Nov. 2006, Broadband Properties, "Best Practices: Building a Fiber Network in a Rural Community," at 23 (http://www.broadbandproperties.com/2006issues/nov06issues/eatel_nov.pdf).

Material costs can dramatically impact investment decisions because they represent a constantly changing variable. Network electronics, like IT hardware, constantly decrease in price as the technologies are adopted and age—and simultaneously increase in capacity. They also require refreshment and replacement over time. Cable plant represents a somewhat more stable item with respect to price, though costs in this area also change over time and are subject to fluctuation; the recent earthquake in Japan, for example, took offline a number of fiber manufacturers, leading to a global shortage of fiber at a time of break-neck build-out in Asia (and BTOP/BIP-related build-out in the US), and thus driving up prices for the fiber still available.

Using the same rural Tennessee community described above, the outside plant material cost for a fiber-to-the-home deployment was priced at over $10,000 per mile. In metropolitan areas, the cost is similar.

Real estate acquisition

In some circumstances, construction must take place on private property. When this occurs, the broadband operator is forced either to purchase the property outright or obtain an easement from the property owner.

Mobilization of contractors

Considerable time and expense is required to initiate construction. Even with a completed design, the network builder must develop detailed specifications, find and maintain a pool of contractors, issue bid documents, review bids, select contractors, order materials, and oversee the contractors. The added expense of contractor management is usually borne by the entity managing the network build—and indirectly through costs reflected in the rates of the building contractor.

Aerial versus underground

A large-scale fiber network will typically include a mixture of aerial and underground construction, generally based on the prevailing type of utilities in the build area. While aerial construction may be cheaper, it is also more vulnerable to extreme weather, particularly in wooded areas and areas with frequent ice and high winds. These factors can increase long-term maintenance costs for aerial construction and may make underground construction a more attractive option in some areas.

Aerial construction is typically cheaper than underground. This is particularly true when existing utility poles are not crowded, and when the network builder has ownership of the utility poles (e.g., in the case of construction by power and utility companies). Actual costs vary dependent

upon equipment, the particular contractor, and design specifications. In the best case, aerial construction can be completed for $25,000 per mile including labor and materials. This cost will increase, however, when poles are crowded or when a third-party utility pole owner charges high rates for access. Under such scenarios, costs for aerial construction can reach $100,000 or more per mile (which might prompt consideration of alternative routes or underground construction).

As in all broadband projects, labor represents the largest component of aerial-construction expenses (up to 80 percent). Labor is needed to install the supporting strand, lash fiber optic cable to the strand, splice the fiber optic cable, place the distribution center, and activate testing of the plant. These costs may increase to reflect additional make-ready work, which must be performed to relocate existing aerial attachments (i.e., other fiber, telephone, and cable) or to extend or replace utility poles to ensure compliance with code requirements for minimum clearance. Incremental aerial construction material costs include the fiber cable, splice enclosures, fiber taps for individual subscriber drop connections, strand, and attachment hardware.

Underground construction costs likewise vary significantly depending upon the construction methodology and ground surface. While material costs for underground construction are comparable or only marginally more expensive than aerial construction, labor costs are significantly higher with this approach. In areas where restoration is not important and long continuous runs are possible (e.g., unimproved rural areas on the side of interstate roads), "plowing" the fiber into the ground is a relatively inexpensive option. This approach can cost as little as $70,000 per mile. In more developed areas, however, directional boring is likely necessary. This approach is less destructive to the rights-of-way and requires less restoration, but is substantially more expensive. In fact, costs for boring range from $90,000 to $400,000 per mile. Boring also limits the amount of cable and conduit that can be built.

Terrain and topography

The U.S. Government Accountability Office's (GAO) seminal paper on broadband deployment identifies a correlation between terrain and broadband deployment decisions. Constructing infrastructure is more expensive in mountainous and forested areas, owing to the difficulty in placing poles or underground utilities in rocky areas and the difficulty in accessing the areas. Broadband is relatively easier and thus more economical in flat, open terrain. Mountainous or rolling terrain and forests can also present a deployment obstacle for broadband technologies that require an unobstructed pathway to transmit radio signals from towers or antennas.[5] Geography and terrain "are almost certainly working through service provision cost," reporting

[5] US GAO-06-426 at 19.

that "an increase in vertical rise or ruggedness is associated with a decline in broadband deployment."[6]

Make ready

As discussed above, before aerial pole construction can begin, the existing utilities frequently must be moved on the poles, and poles may need to be modified. The utility make-ready may be performed by the existing utilities, by the pole owner, or by the jurisdiction's construction contractor, as decided by all parties as part of a walk-out survey. The make-ready work to be performed by the utilities includes raising, lowering, guying, and re-tensioning of existing aerial cables.

In the event that network construction is aerial, there is an absolute requirement to prepare the poles for new facilities, a multi-party process that may require extensive reengineering of pole facilities and pole replacement. In urban and suburban areas in particular, crowded poles turn make ready into a time-consuming and costly matter for an entity seeking to attach for the first time.

Ability to use existing infrastructure

Costs may be reduced where existing cable infrastructure and pathways are available. Some communications providers have excess fiber strands. Fiber count in cables ranges from 6 to 24 near residences and individual businesses, to more than 1,000 on backbone routes. The cost of a 6-count fiber cable is $2,000 per mile, while an 864-count cable is $50,000 per mile, implying a marginal cost of approximately $50 per fiber per mile. Actual costs for fiber purchase or lease are typically far higher, however, as prices reflect market costs and depend on fiber availability in the project corridor.

Utility pole attachments can be loaded with multiple fiber cables in a process called overlash. Overlashing enables a network provider to attach to utility poles without taking up more space. Overlashing requires the permission of the entity being attached and is limited to the loading capacity of the attachment. Where overlashing is available, make-ready costs can be eliminated and construction costs can be reduced to approximately $13,000 to $20,000 per mile.

[6] Kenneth Flamm, "Diagnosing the Disconnected: Where and Why Is Broadband Unavailable in the U.S.?" preliminary paper presented to the 2006 Telecommunications Policy Research Conference, August 2006, at 19 ("MODIS land cover types 3 and 6 seem to encourage broadband availability relative to a built-up urban land cover baseline. MODIS land cover type 15 seems to reduce broadband deployment"). Dr. Flamm found that hilliness might be "more advantageous than flat or smoothly rising or falling terrain."

Some entities (utilities, service providers, governments) have conduit available for purchase, lease, or trade. Pulling cables through available conduit costs $20,000 to $50,000 per mile, instead of $90,000 to $400,000 for new construction.

Redundancy and survivability

The specific requirements of the network (e.g., public safety grade, mission criticality, cost of outages) will determine the physical and electronic architecture of the network. For availability above 99 percent (i.e., fewer than eight hours of downtime per year), a building will generally need two redundant physical paths from the network to its location, along with an electronic infrastructure to accommodate failure of a fiber route or an electronic component, and backup power of sufficient duration. The network will also need to provide a 24-hour network operations center, a fiber repair crew, intrusion detection, and backup management and recovery facilities. Of course, there is a cost associated with these reliability features.

Ideally, physical redundancy needs will be reflected in the initial project design. In a network designed with redundancy in mind, each portion of the network is constructed as part of a ring, allowing for economical yet reliable construction. Conversely, construction costs are dramatically increased (typically doubling), when redundancy is prioritized after initial construction. In such cases, a custom cable pathway is often required.

State and Local Government Rights-of-Way Permitting

The costs and techniques used to perform and charge for rights-of-way permitting vary but the fees almost always make up a very small part of the project budget -- at most a few percentage points on the projects on which we've worked.[7] And, as discussed earlier, some authorities do not charge fees, waive fees under certain circumstances, or assess a bulk fee for a project.

[7] Fees may be higher or lower as a percentage of total costs depending in part on the nature of the work that is performed and its impact, and the manner in which particular local fee structures operate. To illustrate one example, one suburban Maryland community charges permitting fees to cover its costs for oversight and coordination of the rights-of-way. The fees are $0.50 per foot for underground directional boring construction, $2.00 for street crossings, and $0.20 per foot for aerial pole attachment, and $300 per application. The point here is that the fees are generally a small part of total outside plant and construction cost.

4 The National Broadband Plan overstates the expense of public rights-of-way access by conflating it with processes for accessing private property

The National Broadband Plan asserts that "[t]he 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. 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."[8] This statement's imprecision creates misleading impressions by combining several different processes and expenses and providing the "collective" 20 percent figure. It is essential to differentiate local government rights-of-way processes and costs from the other efforts and costs that are incurred in securing access to facilities in the rights-of-way—and that are entirely unrelated to the cost of securing access to public property and entirely outside the control of local authorities.

In fact, as shown above, rights-of-way processes and fees associated with deployment – outside plant and construction - represent a relatively small component of this suite of expenses.

Indeed, the National Broadband Plan itself acknowledges the relatively large effort and costs associated with pole attachments and make ready. The Plan notes that rental rates for pole attachments are large and variable, ranging from $4.54 per month per household passed to $12.96 in rural areas. This expense is substantially larger in rural areas "where there often are more poles per mile than households."[9] The Plan likewise notes that make ready represents a sizable expense, highlighting comments by FiberNet, which reports that the make ready process for a project in West Virginia averaged $4,200 per mile and took 182 days to complete.[10] The Plan does not provide comparable data on rights-of-way processes and fees.[11]

By combining these expenses into a single measure, the Plan makes itself vulnerable to misunderstanding. For instance, a recent Politico article declares, "In its National Broadband

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[8] Connecting America: The National Broadband Plan, at 109 (available online at http://download.broadband.gov/plan/national-broadband-plan.pdf) Citing: Omnibus Broadband Initiative, The Broadband Availability Gap (forthcoming); *See* Letter from Thomas Jones, Counsel to FiberNet, to Marlene H. Dortch, Sec., 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, 09-136 (Oct. 28, 2009) at 1-2 (estimating costs ranging from $3,000-$42,000 per mile) (other citations omitted).

[9] Connecting America: The National Broadband Plan, at 110.

[10] Connecting America: The National Broadband Plan, at 111.

[11] *See* Connecting America: The National Broadband Plan, at 113 (asserting that broadband service providers claim that rights-of-way fees "increase the cost and slow the pace of broadband network deployment" and highlighting the variability of rights-of-way fees across jurisdictions, but providing no fee data).

Plan, the commission estimates that *pole attachments* amount to 20 percent of the total cost of deploying fiber-optic cable."[12] This misstatement has likewise been reiterated by various bloggers, who state that, "The FCC estimates that that pole attachment fees are about 20 percent of the total cost of deploying fiber optic cable needed for broadband networks."[13] And the 20 percent figure has taken on a life of its own—even without attribution to the Plan. For example, some sources claim that rights-of-way access alone constitutes 20 percent of construction costs: "The expense of construction and rights-of-way permits for laying fiber often amounts to 20 percent of the cost of building fiber routes for networks."[14] And yet, as shown above, in some places there is no fee at all (and yet no build-out) and in other areas, the fee is dramatically lower.

To be sure, many localities charge ongoing fees for use or occupancy of the rights-of-way. But these costs are part of the ongoing expenses of system operation, not part of the *deployment* costs.

[12] Brooks Boliek, April 7, 2011, Politico, "FCC aims to lower power-pole fees" (available online at http://www.politico.com/news/stories/0411/52665.html#ixzz1Oe1vMPjz).

[13] Fiber to the Whatever, "FCC believes lower pole fees will lead to wider broadband deployments," April 7, 2011 (emphasis added) (available at http://fibertothewhatever.com/wp/news/fcc-believes-lower-pole-fees-will-lead-to-wider-broadband-deployments); *see also* FierceTelecom, Ethernut, "FCC believes lower pole fees will lead to wider broadband deployments," April 9, 2011(available at http://www.ethernut.net/tag/utilities/)

[14] http://riaco-op.net/493652-Optical-Wireless-Solutions-Based-on-Free-Space-Optical-FSO.html, April 9, 2011.

5 Deployment decisions flow from analysis of a wide range of construction and operating costs, of which public rights-of-way access is a relatively minor matter

A commercial broadband deployment decision comes down to a complex comparison of known costs versus expected revenue, a classic return on investment calculation. While it is difficult to isolate the factors that lead to so complex an investment,[15] it is hardly insightful to note that private broadband investment dollars flow to those areas where potential return on investment is highest and the business case for investment is strongest. This ROI analysis is based on a cost versus revenue ratio that calculates where the investor's dollars are best spent.

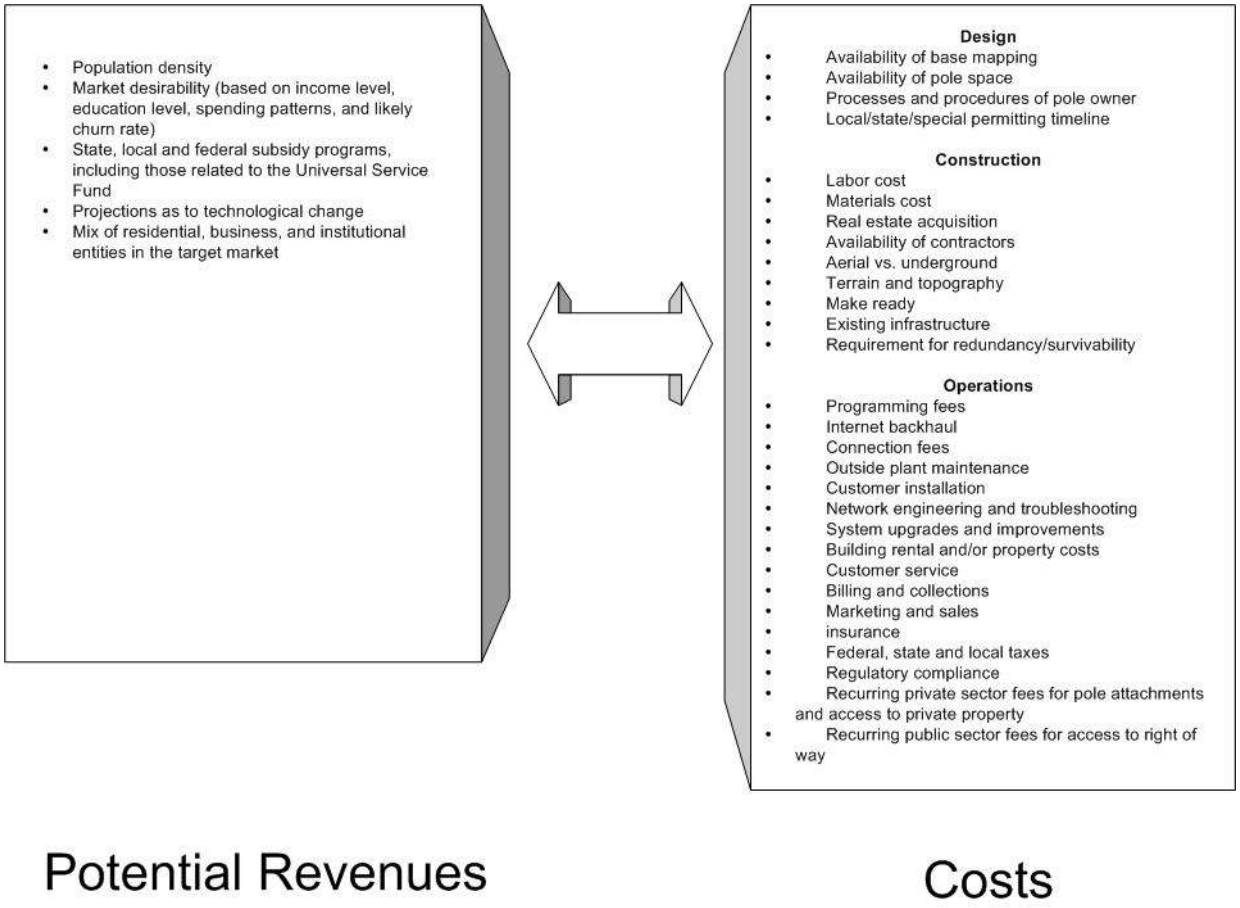
In our experience observing the various sectors of the communications industry, as well as working on public and non-profit broadband projects in the United States and abroad, there exist a wide range of substantial cost and revenue factors that determine investment patterns with respect to construction or upgrade of communications infrastructure. In simplified form, that list can include (on the cost side):

- A full range of costs of design, including those described in Section 2
- A full range of costs of construction, including those described in Section 3
- A full range of costs of operations

These are summarized in Figure 1.

[15] Analogous to rights-of-way fees in this regard is the relatively small tax levied by some states on Internet access. Economists at the University of Tennessee found "no empirical evidence that Internet access rates are lower in states that have levied a tax on Internet access, all else equal." Nor did they find a difference in broadband deployment between those states. Donald Bruce, John Deskins, and William F. Fox, "Has Internet Access Taxation Affected Internet Use?" *Public Finance Review,* volume 32, No. 2, 2004.

Figure 1 – Return on Investment Is Modeled Based on Potential Revenues and Costs



Based on our experience observing broadband communications build-out patterns since the advent of the broadband cable platform in the 1970s, changes to either permitting fees or to ongoing fees for access to rights-of-way access are unlikely to change the ratio enough to encourage investment where it is otherwise unfavorable. This is especially true in a rural area such that it would become more desirable for investment relative to more densely populated areas where per premises build-out costs are lower and per capita revenue projections are higher.

In our experience, the fundamental dynamic of broadband build-out is that wireline build-out is capital intensive and investment dollars flow to areas where projected returns are greatest because demand is highest and most concentrated. Rights-of-way fees do not change that fundamental dynamic. In fact, it is our observation that carrier deployment investment decisions are made centrally and that the carriers' operating entities in various localities and regions are competing with each other for investment dollar allocations. As a result, even where the economics of rural build-out could be marginally improved (though elimination or

reduction of a cost of doing business), investment patterns do not change because the fundamental economics do not change. We have never observed a build-out scenario where reduced marginal costs such as rights-of-way diverted to a rural or underserved area funds that were allocated for build-out in more populous areas.

This observation is supported by independently-evaluated data. The U.S. Government Accountability Office attributes broadband deployment decisions to a diverse collection of factors relating to "both the cost to deploy and operate a broadband network and the expected demand for broadband service."[16] Indeed, a company "will deploy broadband service in an area only if the company believes that such a deployment will be profitable."[17]

As the Center on Budget and Policy Priorities has explained in the context of a related proceeding:

> Where to make broadband available, and when, are fundamental strategic decisions for telephone, cable TV, and wireless access providers that affect billions of dollars in annual investment spending. These decisions are largely being driven by the income levels of potential customers. They are also strongly influenced by the enormous cost differences incurred in deploying Internet access infrastructure to sparsely populated rural areas, as compared to crowded urban neighborhoods dominated by multifamily buildings or suburban subdivisions in which single-family homes predominate. There is no evidence at all to suggest that these decisions have been influenced to the slightest degree by the presence or absence of existing state and local access taxes.[18]

Indeed, according to GAO, "the decision to deploy broadband service is a function of:

- The population in the area
- The population density in the area
- The percentage of the population residing in an urban area
- The per capita income in the area
- The educational attainment of the population in the area
- The population teleworking in the area
- The age of the population in the area
- The distance to a metropolitan area with a population of 250,000 or more

[16] US GAO, GAO-06-426, May 2006, Telecommunications: Broadband Deployment Is Extensive throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas," at 4 (http://www.gao.gov/new.items/d06426.pdf).

[17] Ibid., 46.

[18] Michael Mazerov, "The Internet Tax Freedom Act and the Digital Divide," Center on Budget and Policy Priorities, Sept. 26, 2007, at 6 (http://www.cbpp.org/files/9-11-07sfp.pdf) (while this paper assesses the impact of taxation for Internet services, we contend that rights-of-way access fees represent a similar modest cost relative to the cited factors influencing deployment).

- Whether the state in which the area is located imposed a tax on Internet access"[19]

Frankly, in our experience, there is almost nothing that any local government can do to encourage carrier build-out of advanced networks where the carrier does not already have a compelling business interest and business plan to achieve the same goal. In fact, we have, with and on behalf of many of our local government clients, approached carriers to request enhanced build-out and to inquire as to how the locality can facilitate and enable such build-out (the effort to request and sometimes plead for carrier investment is almost a universal first step before any locality investigates potential public broadband projects). In both rural and urban areas, the responses have uniformly been negative—even where localities commit to eliminating regulation and fees, we have not seen carriers commit to new investment. In addition, we hear carriers frequently inform the locality that existing facilities adequately meet consumer and business needs, and that no additional investment is necessary.

[19] Ibid, 46-47.

6 Conclusion

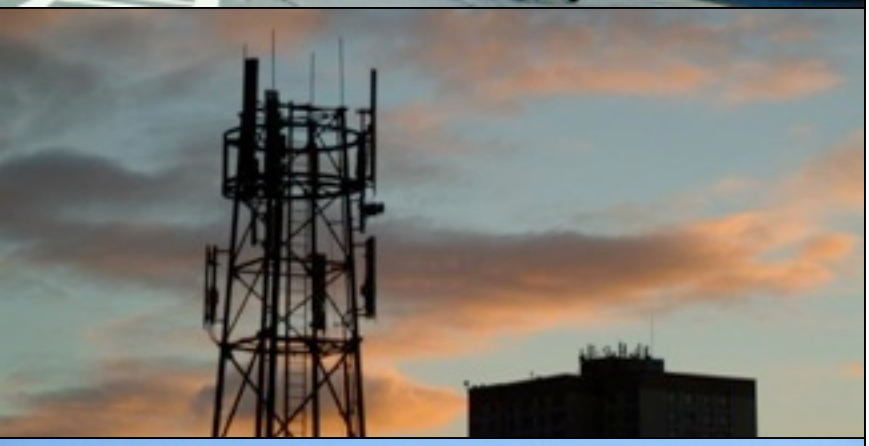
Local permitting processes and fees have very small impact on the broadband design and deployment process, in the experience of CTC engineers and analysts, participating in and observing wireline broadband deployment across the United States over two decades. In fact, the permitting process and local government coordination can help and facilitate deployment. When it is done effectively, it protects the integrity of existing infrastructure and provides opportunities for joint trench construction and other economies of scale.

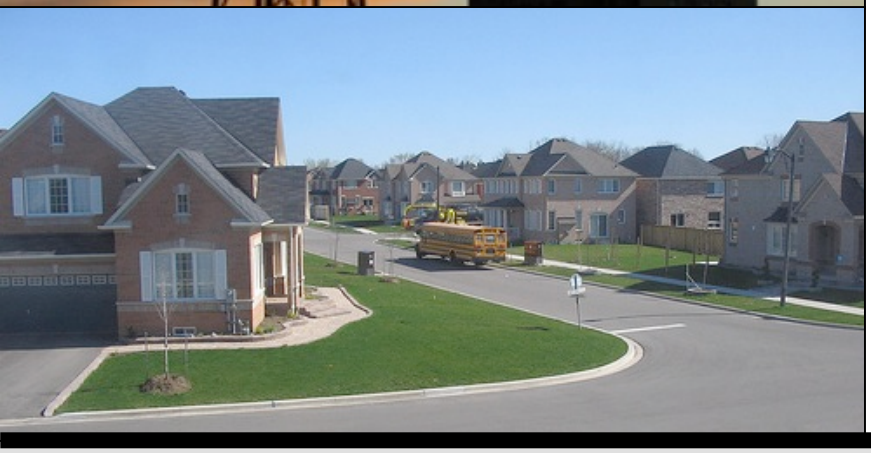
The optimal way to facilitate and smooth the permitting process is for carriers to work with localities to prepare for, anticipate, and stage the permitting process. Carriers can help themselves through reasonable collaborative practices such as joint advance planning of the application process, reasonable staging of application filing (rather than filing large numbers all at once and expecting government staff to process them overnight), and filing of complete and accurate applications.

It is our experience that localities are highly motivated to facilitate and incentivize broadband build-out, and that they are willing to use the permitting and other processes to enable and smooth the deployment process as much as possible. Broadband acceleration can best be achieved if carriers undertake a similarly collaborative, constructive engagement with localities.

EXHIBIT C

Effect on Broadband Deployment of Local Government Right of Way Fees and Practices





By,

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July 18, 2011

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ECONorthwest specializes in economics, planning, and finance. Founded in 1974, we're one of the oldest independent economic consulting firms in the Pacific Northwest. ECONorthwest has extensive experience applying rigorous analytical methods to examine the benefits, costs, and other economic effects of environmental and natural resource topics for a diverse array of public and private clients throughout the United States and across the globe.

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I. PURPOSE

In this report, we[1] comment on economic issues of right-of-way (ROW) use raised by the Federal Communications Commission's (FCC) *Notice of Inquiry* (NOI) in the matter of, "Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting." Specifically, we consider whether (a) there is evidence that ROW fees charged by local governments are affecting broadband (BB) adoption or deployment; (b) whether there is reason to believe that fees charged in some locations are likely to impact deployment or adoption in other locations; (c) whether there are bases for setting reasonable market-based fees; and (d) whether there is a reason to be concerned that the fees may reflect monopoly power. These issues are raised by several of the information requests in the NOI[2]:

> *To what extent and in what circumstances are rights of way or wireless facilities siting charges reasonable?*
>
> *What are appropriate criteria for determining the reasonableness of such charges?*
>
> *Are permitting or application fees unreasonable to the extent they exceed amounts that would recover administrative and other specifically identifiable costs?*
>
> *Are "market based" rates for use of public rights of way or publicly-owned wireless facilities sites reasonable?*
>
> *Are market-based rates substantially higher than cost-based rates?*

[1] Bryce Ward Ph.D., directed this analysis. See Appendix A for his vita. ECONorthwest staff, Ed MacMullan, Paul Thoma, and Philip Taylor, worked under Dr. Ward's direction.

[2] FCC. 2011. Notice of Inquiry In the Matter of Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting. WC Docket No. 11-59. April 7. Page 8.

II. SUMMARY OF CONCLUSIONS

Our analysis of the available data on ROW fees and BB deployment found that ROW fees have no measurable effect on deployment. Areas where local governments' authority to levy fees is strictly limited have the same levels of BB deployment and adoption as areas where local governments have relatively wider latitude to recover fair rents for use of the ROW.

Other factors likely explain the differences in deployment and adoption observed across the country. For instance, the relatively small percentage of communities un-served by BB account for a small percentage of the U.S. population. These communities lack BB services because of their isolated location, far from centers of population and commerce. These communities typically have few residences and businesses dispersed across large geographic areas. The costs of installing BB infrastructure and providing service greatly exceed the revenues that providers can earn on these services. The FCC calculates this gap at over $23 billion. Our analysis shows that limiting or abolishing ROW fees and subsidizing BB in currently un-served areas would likely have no measurable effect on BB penetration into most of these areas. The ROW-savings would be, at most, a small fraction of the required investment.

The literature on BB adoption identifies cost of service as one of the many factors that can influence adoption. The relationship between cost and adoption, however, is complex because of the many factors included in the cost of using or accessing BB service. Even if lower ROW fees were passed onto consumers as lower prices, this would not address many of the relevant costs factors that inhibit BB adoption—such as requiring deposits or long-term contracts, costs of computers and software, price increases after introductory offers expire, and the cost of purchasing BB bundled with other, unwanted services. A large gap exists between what current non-users say they would be willing to pay for BB services, and the maximum cost savings they could expect if providers passed on ROW-fee savings. Limiting or abolishing ROW fees would likely have little effect on BB adoption.

It is even more unlikely that limiting or abolishing ROW fees would have an impact on adoption given that BB providers advertise their, often national, prices excluding taxes, fees, installation costs and other costs. Unless lowering ROW fees in the places they are currently allowed led to changes in the nationally advertised prices, potential new customers would be unlikely to know the extent to which ROW-fee savings would impact the price they pay for BB services.

One argument by private BB providers for limiting or abolishing the ROW fees that they pay local jurisdictions is that the providers would use some of the savings to subsidize BB services in currently un-served or under-served higher cost areas. Even if one assumed that ROW fees drove BB deployment, such voluntary cross subsidization makes no economic sense for profit making firms. Firms allocate capital to investment that will generate the highest returns. It makes no business sense for private communications companies to take savings from not paying ROW fees and using that savings to fund less-profitable operations. More likely the firms would pocket the

savings and increase their profits. But, because fees are unlikely to drive deployment, even if we assume that BB providers did distribute ROW-fee savings from one market to another, it would likely have no measurable effect on BB penetration or adoption.

Allowing state and local governments to charge market value for use of public ROW is consistent with the economic principle of using prices to allocate scarce resources. From an economic perspective, a locality's ROW is a scarce resource just as lands—public or private—outside a ROW are scarce. Charging a fee for ROW access helps ensure that the ROW will be used efficiently, that is, that the ROW will not be misused or wasted. Furthermore, the closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.

Reasonable charges for ROW can be established through any number of well-recognized mechanisms, including but not limited to contract negotiations. Local jurisdictions have little incentive to act as monopolists when negotiating or setting ROW fees. Local governments have different goals, responsibilities, and functions than do corporate entities. Localities hold resources—including ROW resources—in trust for their citizens and businesses. The local interest in promoting economic growth and development for residents and businesses disciplines ROW pricing. Also, local governments compete vigorously with one another to attract and encourage deployment of advanced and reliable utilities. Thus, local jurisdictions have a strong incentive not to overprice ROW access: a community that discouraged ROW deployment runs the risk of losing businesses and residents to neighboring communities.

While we find no evidence that a public policy that actually limited existing ROW fees would produce meaningful benefits in increased BB deployment or adoption, such a policy would reduce local revenues. Jurisdictions may be required to recover the lost revenues by raising taxes or fees charged to others. Another response could be to cut services. A locality may be forced to reduce the planning and management actions that help maintain efficient ROW uses. This would allow ROW users to externalize their own costs onto other ROW users. Also, the lack of efficient allocation of ROW resources could drive additional ROW costs onto taxpayers, and adversely affect residents, businesses, and ROW users. In addition, there would be a cost to regulation and compliance that could itself be substantial, and that would add to the negative impact of reducing ROW fees.

Given the absence of obvious, measurable benefits to BB deployment or adoption from regulating ROW fees, together with the prospect of harm to BB consumers, residents, businesses, telecom providers and other ROW users, and additional direct and indirect regulatory costs, it is difficult to find an economic justification for regulating local rights of way charges or practices.

III. No Evidence that ROW Fees Affect BB Deployment or Adoption

Underlying the premise behind FCC's inquiry into ROW fees is the assumption that reducing ROW fees will reduce the operating expenses of BB providers, which will ultimately yield increased BB deployment and adoption. This assumption may have a facial appeal to some. The available facts, however, describe a much more complex relationship between ROW fees and BB deployment and adoption. Our review of the available data does not find evidence to support the hypothesis that abolishing ROW fess would increase BB deployment or adoption. Such an action, however, would likely generate significant costs for a jurisdiction's residents, businesses, telecoms and other ROW users.

A. Do ROW Fees Affect BB Deployment?

Based on our analysis of the available data, we do not find evidence that ROW fees have a measurable impact on BB deployment. If ROW charges reduce BB deployment, areas with ROW charges should have less BB than areas without ROW charges. Our analysis does not find such a relationship. Areas with ROW charges have the same BB deployment rates as areas without ROW charges.

Our results agree with results from the only previous empirical study we found of ROW fees, ROW practices and BB deployment, a study prepared by Dr. Alan Pearce. Dr. Pearce compared competition in communities that charged fees for use of ROW by telecommunications companies, and that regulated use of the rights of way, and those that charged no fees, and had fewer right of way regulations. Dr. Pearce found that charges and regulatory practices did not deter competition, which necessarily means that the practices did not deter deployment of telecommunications facilities. Indeed, he concluded that by adopting a sound approach to pricing public property (charging market value for its use) and by regulating the use of that property to ensure that it functioned properly, localities created an environment which made the market more attractive to providers. This study was submitted to the FCC in response to the National Broadband Plan.[3]

Following Pearce, we conduct an analysis that compares BB deployment in areas with ROW charges to similar areas without ROW charges. To complete this analysis, we use data on BB deployment from the National Broadband Map,[4] data on ROW charges collected from a variety of sources, and data on other local characteristics (mostly from the Census). Specifically, we conducted a regression analysis that regressed the share of state population with access to various measures of broadband[5] on a categorical variable

[3] http://fjallfoss.fcc.gov/ecfs/document/view?id=7020247000

[4] US Dept of Commerce, National Telecommunication and Information Administration, State Broadband Initiative (June 30, 2010)

[5] We focus on the share with access to BB providers who offer download speeds greater than 3Mpbs and upload speeds greater than 0.768Mpbs, download speeds greater than 50Mpbs, upload speeds greater than 10Mpbs, and the share who have access to 3 or more BB providers. The data for the share with access to

that describes allowed ROW charges,[6] and local characteristics that might affect BB deployment or adoption (e.g., population, population density, share living in urban areas, median household income, share with a college degree, etc.).[7]

In this report, we focus on state-level differences in allowed ROW charges; however, we also conducted analyses that examined differences in actual fees and taxes across municipalities using data on 119 Oregon municipalities and the 59 cities examined in Tuerck et al (2007) that yield results similar to what we found in our state level analysis.[8]

ROW fees vary widely across both states and BB platforms. The Communications Act allows state and local governments to charge cable providers 5% of gross revenues in return for the grant of a cable franchise, which authorizes the holder to provide cable service via facilities in the rights of way.[9] Many local jurisdictions charge cable providers a franchise fee equal to 5% of gross revenues. However, some states limit franchise fees to amounts less than 5% (e.g., Rhode Island limits cable fees to 3% and Kentucky provides for a 2.4% tax on video services and localities must forego cable franchise fees to obtain the tax collection[10]).

Section 253(a) of the Communications Act provides that "no State or local statute or regulation…may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service," but it goes on to state that "[n]othing in this section affects the authority of a State or local government to… require fair and reasonable compensation from telecommunications providers, on a

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>3Mpbs down and >0.768up and 3 or more providers were obtained from http://www.broadbandmap.gov/analyze. To analyze the data for higher speeds, we downloaded the raw data files for each state and calculate our own shares. We did not have access to the 2009 Geolytics population estimates for the 2000 census blocks used to create the estimates on the website. Instead, we used population estimates from the 2000 census to calculate our estimates. We assume that if any part of the block has access to a certain provider, then the entire population in the block has access.

[6] Obtaining data on the variation in ROW fees was difficult. Ideally, we would obtain a complete description of ROW charges (and other telecommunications taxes) for a large sample of jurisdictions. In the absence of that data we relied on (a) description of allowed state ROW charges from the "50-State Survey of Rights-of-Way Statutes" completed by NTIA (www.ntia.doc.gov/ntiahome/**staterow**/**row**table.pdf) , (b) description of each state's average state and local telecommunications taxes assembled by the Council on State Taxation (Telecommunications Tax Task Force of the Council on State Taxation (2005) "2004 State Study and Report on Telecommunications Taxation," Washington, DC.), (c) surveys or studies of municipal taxes or fees produced by various state governments or municipal organizations[6], and (d) local ordinances; and (e) information collected through various studies (like the Pearce study) and studies by utility commissions. Given our imperfect ability to classify states into ROW fee categories, we conducted a number of analyses that assigned states' with ambiguous ROW statutes to different categories. None of these alternative classifications affect our conclusions.

[7]Studies that describe similar analyses include: Kolko, J. (2010) "Does Broadband Boost Local Economic Development," Public Policy Institute of California., Burton, M.L. and M.J. Hicks (2005) "The Residential and Commercial Benefits on Rural Broadband: Evidence from Central Appalachia," Hu, W. and J.E.Prieger (2007) "The Timing of Broadband Provision: The Role of Competition and Demographics," AEI-Brookings Joint Center for Regulatory Studies *Working Paper 07-06.*

[8] League of Oregon Cities (2008) "Franchise Fee Survey," Summer 2008; Tuerck, D,, P. Bachman, S.Titch, and J.Rutledge (2007) "Taxes and Fees on Telecommunication Services" The Heartland Institute, May 2007.

[9] 47 U.S.C. Sec. 542

[10] 47 U.S.C. Sec. 542, R.I.Gen Laws § 39-19, KY. Rev. Stat. Ann. § 136.616(2)(a)

competitively neutral and nondiscriminatory basis, for use of public rights-of-way on a nondiscriminatory basis…" Relative to fees on cable services, fees vary more widely across states. Some states do not limit municipal fees as long as they meet the "fair and reasonable" criteria (e.g., Maryland and New York). Other states provide for gross-revenues based fees (e.g., Rhode Island law permits fees up to 3% and Oregon law permits fees of up to 7% of gross revenues on incumbent local exchange revenues[11]). Still other states do not allow a rental fee at all, but allow local governments to charge fees to recover specified costs (e.g., Alaska, California[12]) or costs of providing services. (e.g., New Jersey[13]).

To investigate the potential effects of ROW fees on BB deployment, we first compared BB deployment in states that allow telecommunications ROW charges that are not tied to a cost calculation (the "Fair and Reasonable Charge" states) to deployment in states that limit ROW charges to telecommunications companies to some defined portion of costs, (the "Cost" states) for four categories of BB deployment. Specifically, we examined the share of each state's population that lived in an area with more than three BB providers, the share that lived in an area with greater than 3Mpbs download speeds and greater than 0.768Mpbs upload speeds, the share living in areas with greater than 50Mpbs download speed, and the share living in areas with greater than 10Mpbs upload speeds. We observe no statistically significant difference in deployment between the "Fair and Reasonable Charge" states and the "cost" states, and the largest differences we do observe (for more advanced speeds) suggest greater deployment in ROW fee states. We summarize these results in Table 1.

[11] Idaho Code § 50-329A, Or. Rev. Stat. § 221.515

[12] Alaska Stat. § 42.05.251, California Government Code § 50030

[13] N.J.S.A. §54:30A-124

Table 1. Differences in broadband deployment for states that allow ROW rent and states that limit ROW fees to costs

	Share with download speed >3Mpbs and upload speed >0.7Mpbs	Share with 3+ providers (any technology)	Share with max download speed >50 Mpbs	Share with max upload speed >10 Mpbs
"Fair and Reasonable" states	0.96 (0.01)	0.93 (0.02)	0.35 (0.08)	0.39 (0.09)
"Cost" states	0.94 (0.02)	0.94 (0.03)	0.21 (0.07)	0.28 (0.07)
Difference	0.02 (0.03)	-0.02 (0.03)	0.14 (0.11)	0.11 (0.12)
Difference, controlling for state characteristics	0.01 (0.03)	-0.02 (0.03)	0.22 (0.11)	0.14 (0.13)

Source: ECONorthwest

It is possible that the states that allow larger ROW fees differ from those that limit fees to costs, and that these differences obscure the relationship between ROW fees and BB deployment. To address this possibility, we compared BB deployment in states with ROW fees to otherwise similar states without them. For instance, we compared a state like Oregon, where many localities charge gross-revenues based fees to both cable and telecommunications companies, to a similar state like Colorado, which limits localities to charging telecommunications companies a fee to recover costs incurred in processing ROW permits.[14] Comparing these two states, we found the same results. Ninety-eight percent of Oregonians have access to broadband with greater than 3 Mpbs down and 0.768 Mpbs up, and ninety-nine percent of Coloradoans do. One-hundred percent of Oregonians have access to greater than 3 providers, and ninety-eight percent of Coloradoans do. However, with respect to advanced metrics, Oregon outpaces Colorado by a wide margin. Sixty-eight percent of Oregonians have access to BB with download speeds greater than 50Mpbs, but less than 2 percent of Coloradoans do.

In the final row of Table 1, we present the results of a statistical analysis that controlled for factors other than ROW charges that could affect BB deployment. Specifically, we controlled for factors that may affect supply of (e.g., population density or the share of the population living in rural areas) and demand for (e.g., median household income, share of population with a college degree, share non-white, share older than 60, etc.) BB

[14] Colorado and Oregon have relatively similar demographics. If anything, based on demographic characteristics, we expect Colorado to have greater levels of BB deployment and adoption. Colorado has higher median income, greater population density, a higher share of its population with college degrees (which all typically correlate with greater BB deployment and adoption).

services.[15] Even after controlling for these other factors, we observe no difference in BB deployment between areas with more liberal ROW charges and areas where charges to telecommunications companies are limited to actual costs, and more liberal states appear to have higher shares of their state's population living in areas with access to higher speed BB service (although these differences are not statistically significant).

We are aware that some states, (e.g., Florida) have replaced franchise fees with a statewide tax and that other states allow localities to level other local taxes on telecommunications revenues (e.g., utility taxes). As such, the share of telecom revenue collected by localities via taxes or fees may not differ across states. This is one potential reason why we did not observe a relationship between ROW fees and deployment. We conducted additional analyses that used differences in tax rates across places and found results similar to those described above – states with higher effective state and local taxes on telecommunication have access to BB at least as good (and in some cases better) than states with lower effective taxes on telecommunication.

While there are some weaknesses in the underlying data on which the analysis relies, at the very least one would have expected to see some consistent indication of a relationship between ROW charges and deployment or adoption if there was one.[16] Based our analysis, however, we find no support for the conclusion that reductions in ROW fees will meaningfully increase BB deployment. Before the FCC takes any action based on the presumption that reducing ROW fees will increase BB deployment, they should attempt more rigorous study of this issue.

The finding that ROW fees do not depress BB deployment may surprise some. Adopting simple economic intuition, some expect that reducing ROW charges will make BB deployment cheaper (or more profitable) and therefore encourage BB deployment. The actual economics, though, are more complicated. It is not difficult to imagine a number of plausible explanations for why ROW fees do not adversely affect BB deployment. For instance, it is possible that providers pass most of the cost of the fee onto consumers in the form of higher prices (and thus fees only marginally affect provider profits).[17]

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[15] Specifically we control for ln(population density), ln(population), ln(median HH income), share of population with college degrees, share older than age 60, share white, and share living in urban areas. We include all 50 states (and DC). States we cannot classify as "fair and reasonable" or "cost" states, we include as "other." To correct for potentially heteroskedastic errors, we use robust standard errors.

[16] Our analysis is an initial analysis and not a definitive analysis in light of the absence of ideal, exogenous data on ROW charges (as described in footnote six), and better data on BB deployment and adoption.

[17] We do not know the extent to which this occurs. Assessing the incidence of ROW charges in current telecommunications markets is difficult. In general, how much of a tax/fee is paid by different groups depends on their relative responsiveness to price changes – with the general rule that the most price insensitive groups pay most of the tax. For instance, 20 years ago, Hausman (2000) pointed out demand for basic wireline telephone service was not very sensitive to price (i.e., demand was inelastic), thus consumers paid nearly all of the taxes and fees imposed on wireline telephone service. A little over 10 years ago, demand for BB was fairly sensitive to price, as such, Goolsbee (2006) found that consumers likely paid between 50-60% of any tax on BB (with producers paying the rest). Dutz et al (2009), though, argue that in recent years demand for BB has become less sensitive. As such, simple economic theory would argue that consumers now pay an even greater share of ROW fees (and other telecommunications taxes); however, Christensen et al (2001) point out this potential increase in the share paid by consumers may be muted by

It is also possible that the gap between profitable and unprofitable investments dwarfs any change in profits from lower ROW fees. For instance, many analysts have concluded that communities that currently lack access to BB services lack those services because the costs of installing and providing services in these locations significantly exceed the revenues providers can earn on the services.[18] This has little to do with the ROW fees that local jurisdictions charge in areas where providers supply BB services.

Recent FCC analyses, which rely on improved data collection efforts, describe in detail the locations and characteristics of communities that do not have BB services, and the barriers to BB penetration into these communities.[19] The common characteristics among these communities include:

- Rural, isolated locations, far from centers of population and commerce.
- Relatively few residents, households, and businesses disbursed across large geographic areas.
- Mostly low-income, low-education households.
- A large percentage of residents uninterested in using the internet.

States with low shares of their populations who can access higher speed technologies tend to have similar characteristics.

The un-served communities account for a small percentage of the total U.S. population. FCC's *National Broadband Plan*, released in March 2010, reports an un-served population of approximately 14 million residents, or 4.5 percent of the U.S. population.[20] FCC's

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changing technology and the ability to switch among cable, wireline, and wireless services. Hausman, J. (2000) "Efficiency effects on the US economy from wireless taxation." *National Tax Journal* 53(2):733-742.; Goolsbee, A. (2006) "The Value of Broadband and the Deadweight Loss of Taxing New Technology," *The B.E. Journal of Economic Analysis & Policy* 0(1).; Dutz, M., J.Orzag, and R. Willig (2009) "The Substantial Consumer Benefits of Broadband Connectivity for US Households" CompassLexicon, July 2009.; Christensen, K., R.J. Cline, and T.S.Neubig (2001) "Total Corporate Taxation: Hidden, Above-the-Line, Non-Income Taxes" *State Tax Notes* (November 12, 2001), p.529-30.

[18] FCC. 2011. *Seventh BB Progress Report and Order on Reconsideration*. In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion. GN Docket No. 10-159. May 20; FCC. *The Broadband Availability Gap OBI Technical Paper No. 1*. April; FCC. 2010. *Connecting America: The National Broadband Plan*. March; FCC. 2011. *Bringing Broadband to Rural America: Update To Report On A Rural Broadband Strategy*. GN Docket No. 11-16. June 17; Schadelbauer, R. 2011.*The BB Adoption Summit All Aboard? Tackling Broadband Adoption. National Telecommunications Cooperative Association*. April 6; Rosen, J. 2011. "Universal Service Fund Reform: Expanding Broadband Internet Access in the United States," *Issues In Technology Innovation*. No. 8, April. Center for Technology Innovation at Brookings; Carlson, E. No date. *Broadband Adoption Barriers and Impacts*. A literature review; Smith, A. 2010. *Home Broadband 2010*. Pew Internet & American Life Project. August 11.

[19] FCC 2010, *Seventh BB Progress Report*; FCC 2010, *The Broadband Availability Gap*; FCC 2011, *The National BB Plan*; FCC 2011, *Bringing Broadband to Rural America*.

[20] FCC 2010, *The National Broadband Plan*, p. 136.

more recent *Seventh Broadband Progress* report from May 2011, puts the figure at 26.2 million, or 8.4 percent of U.S. population.[21]

The FCC report, *The Broadband Availability Gap*, describes the details of these financial barriers and the amounts of subsidy necessary for private provider to serve these communities. [22]

- The total economic subsidy to connect and supply BB services is $23.5 billion.
- Subsidizing all or part of the initial connection—the capital expenditures for the infrastructure—would allow private BB providers to serve approximately 46 percent of the un-served households. These providers would earn enough revenue to cover their costs so long as they do not pay the capital costs of installation.
- Servicing the remaining 54 percent of un-served households will require a one-time subsidy to install the infrastructure, and ongoing subsidies to cover the service costs.
- Serving the 250,000 households that require the greatest subsidy would cost approximately $14 billion of the total $23.5 billion to connect all 14 million un-served households. That $14 billion would be spent on just two-tenths of one percent of all U.S. households. *The average cost per household is approximately $56,000*.

The financial barriers limiting BB penetration into currently un-served areas are unrelated to ROW fees charged by local jurisdiction. Limiting or abolishing these fees will likely have no impact on increasing BB supply in these areas.

To further illustrate how unlikely ROW fees are to explain the lack of BB penetration in areas that currently lack it, consider the following back-of-the-envelope calculation based on the investment gap values mentioned above.

For an area to lack BB, the expected profits from serving an area must fall short of the amount needed to justify the investments required to serve it. For ROW fees to cause BB to not be available in an area, the expected change in profits from eliminating the ROW fee must be sufficient to change the necessary investments from unprofitable to profitable.

Consider, for instance, Josephine County in Oregon. According to the Investment Gap study, this county faces an investment gap of $28.8 million (or $7,106 per household). This is roughly the average per household gap for all counties.

If we assume that the average household pays $50 per month for BB, including a 5% franchise fee, then eliminating the franchise fee, at most, can increase provider profits by

[21] FCC 2011, *Seventh Broadband Progress Report*, p. 15.

[22] FCC 2010, *The National Broadband Plan*, p. 136-138.

$30 per household per year.[23] Thus, to assume that ROW fees prevent BB investments in Josephine County, we must believe that $30 per household per year—or $120,300 if every un-served household were expected to adopt BB if it were available—is the difference between a profitable and unprofitable $28.8 million investment. This is highly unlikely given the size of the required investment.

The FCC has better ways of increasing BB deployment in currently un-served areas—proven, effective public policies that work. The Universal Service Fund (USF) successfully extended and supports phone service throughout the U.S., including to the most remote and expensive service areas. The FCC originally designed and implemented the USF for the dominant technology at the time, landline phone service. The FCC proposes modifying and updating the USF to address barriers to BB penetration. The Connect America Fund (CAF) would modify the USF to include one-time and reoccurring subsidies that extend BB infrastructure and services to un-served areas. The Mobility Fund (MF) would provide one-time subsidies to extend wireless infrastructure.

Obvious parallels exist between the USF that subsidizes phone services in uneconomical markets and supplying BB and wireless services to many of these same communities. The point is not that the programs are perfect.[24] It is that from an economic standpoint these programs could be effective in encouraging BB deployment and adoption if properly adjusted and combined.[25]

B. Do ROW Fees Affect BB Adoption?

The literature on BB adoption identifies cost of service as one of the many factors that can influence adoption. The relationship between cost and adoption, however, is complex because of the many factors included in the cost of using or accessing BB service. Our own research, and results reported in the literature, indicates that to have more than a negligible impact on BB adoption, the total cost of BB services would have to drop by an amount much larger than could be achieved by limiting or abolishing ROW fees. A related point is that, to the extent that consumers purchase BB based on advertised monthly prices, which do not include taxes and fees, reducing ROW fees will have no impact on purchase decisions (unless the reduction in fees reduces the list price). For these and other reasons described below, limiting or abolishing ROW fees would likely have no impact, or at most a negligible effec on BB adoption.

A calculation of the difference between what non-adopters say they would be willing to pay for BB services, and the costs of BB services, shows just how far BB costs would have to drop to have any impact on increasing adoption. This drop is significantly more than could be achieved by passing on any ROW-fee saving.

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[23] This assumes that providers pay the entire ROW fee, consumers pay nothing. As we note above, consumers likely pay part—perhaps a large part—of telecom ROW fees.

[24] Rosen 2011.

[25] FCC. 2011. *Fifteenth Report in the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*. WT Docket No. 10-133.

Research on non-adopters conducted for the FCC indicates that the average monthly cost of BB service is $41. Yet, the most that non-adopters say they would be willing to pay for BB is $25 per month.[26] This $16 per month gap is many times the likely savings that telecoms could realize by not paying ROW fees. Assuming not paying ROW fees reduces the total cost of providing BB services by 5%, the telecom would save $2.05 per customer. Assuming the telecom passes the full amount of that savings on to their customers—which is unlikely for reasons mentioned elsewhere in this report—this still leaves a gap of $13.95 per month.

Our analysis of the statistical relationship between ROW fees and BB adoption found that adoption in states that allow ROW fees does not differ from adoption in states that limit ROW charges. Using a statistical analysis similar to the one we used to examine the relationship between ROW fees and deployment, described in Section III.A. above, we found a tiny negative relationship between ROW fees and adoption (states that limit ROW fees to actual costs have adoption rates that average 0.1 percentage point higher then states that do not limit ROW fees).[27] This relationship, however, was not statistically significant, which as we described above means the data indicate no relationship between state and local ROW fees and BB adoption.

The literature on the factors that influence or hinder BB adoption support our results. Cost of BB services was more of a factor inhibiting BB adoption years ago than it is today. Now, barriers other than cost are more important.[28] Recent research conducted for the FCC on BB use and adoption found that 35 percent of the U.S. population do not use BB at home.[29] The main reasons given for not adopting are as follows:

- 15 percent cite monthly bill
- 19 percent cite hardware costs, installation fees, or aversion to required long-term contracts
- 41 percent cite lack of digital literacy or lack of interest in using the Internet

Other researchers found a lack of interest in the internet as a significant barrier to adoption. A recent survey conducted by the Pew Internet & American Life Project found that approximately 21 percent of Americans do not use the Internet at all—at home or elsewhere. Of this population, only 10 percent said they would like to start using the Internet in the future. Thus, 90 percent of current non-users have no interest in using the

[26] Horrigan 2010.

[27] Our data on adoption rates come from: Section 8.3 of Exploring the Digital Nation: Home Broadband Internet Adoption in the United States, Prepared by Economics and Statistics Administration and National Telecommunications and Information Administration in the U.S. Department of Commerce, November 2010.

[28] Hauge, J. and J. Prieger. 2009. *Demand-Side Programs to Stimulate Adoption of Broadband: What Works?* October 14.

[29] Horrigan, J. 2010. *Broadband Adoption and Use in America OBI Working Paper Series No. 1*. Federal Communications Commission. February.

Internet even if they could. At the moment, this population appears content to remain non-users.[30]

Other cost-related barriers to BB adoption reported in the literature include:[31]

- requiring a deposit for new or low-income customers
- software costs, especially virus-protection programs
- computer maintenance costs
- price increases after introductory offers expire
- bundling of BB with other, unwanted services

Studies of BB adoption by residents of low-income households found that the decision to purchase BB services is a marginal decision. This population considers expenses for rent, food, utilities, and cell phone service necessities and more important than BB services. BB services are dropped or "unadopted" when the purchaser's available resources drop (because of job loss, health care costs and so on) or when prices increase unexpectedly so the service costs more than can be afforded (when introductory rates expire, for example) .[32] For this reason, researchers concluded that BB assistance programs should take the long view.

> "It is important to keep in mind that the [BB] adoption decision is not a one-time act of a customer choosing to purchase broadband Internet access, but rather an ongoing choice to keep using broadband month after month. It is therefore imperative that any support programs designed to make broadband affordable to those of limited means living in areas where the cost to serve is particularly high be both ongoing and sustainable."[33]

According to recent reports, consumers are adopting Internet-capable smartphones at a rate faster than almost any high-tech product in history. Most users who access the Internet exclusively using their smartphone are young minorities from low-income households. This group finds accessing the internet via smartphones a preferred alternative to purchasing more expensive computers and paying monthly DSL or cable bills.[34]

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[30] PEW Internet. 2010. *Home Broadband 2010.* PEW Internet & American Life Project. August 11; Schadelbauer, R. 2011. "All Aboard? Tackling Broadband Adoption," *The Broadband Adoption Summit.* National Telecommunications Cooperative Association. Washington, D.C. April 6. Page 14.

[31] Horrigan 2010; Dailey, D. et al. 2010. *Broadband Adoption in Low-Income Communities*. A Social Science Research Council Report. March; Schadelbauer, R. 2011. *The Broadband Summit, All Aboard? Tackling Broadband Adoption.* National Telecommunications Cooperative Association. April 6.

[32] Dailey et al. 2010.

[33] Schadelbauer 2011, p. 22.

[34] Kang, C. 2011. "As smartphones proliferate, some users are cutting the computer cord," The Washington Post and Bloomberg Business. July 11. http://www.washingtonpost.com/business/economy/a-smartphones-proliferate-some-users-are-cutting-the-computer-cord/2011/07/11/gIQA6ASi9H_story.html

The proceeding discussion described the complex relationship between BB cost and adoption. Of those who do not use BB at home, only 15 percent cite cost of monthly service as the reason. Cost, however, includes many factors that telecoms could not influence even if they paid lower ROW, and other factors (like deposits) that they could influence even without regulation of local fees and charges. Regulating ROW fees would do nothing to address the major barriers to BB adoption of lack of interest and low levels of digital literacy.

Another important reason why passing ROW-fee savings on to customers would likely have no measurable effect on BB adoption is the fact that BB providers do not include tax and fee information when quoting the price of their services. Our review of web sites of major BB providers[35] found that all of the providers list the monthly price of BB service *excluding taxes, fees, installation costs and other charges*. Thus, current non-adopters searching provider web sites would have no way taking ROW charges into account in deciding whether to purchase services. After initial adoption, the literature suggest that factors other than ROW fees—including the expiration of low introductory prices and the subscriber's financial situation—affect "un-adoption."

[35] Quest, www.qwest.com/residental/internet/broadbandlanding/; Verizon, www22.verizon.com/Residential/HighSpeedInternet/Plans/Plans.htm; Time Warner Cable, order.timewarnercable.com/OfferList.aspx ; AT&T, www.att.com/dsl/shop/plansShared.jsp?WT.SRCH=1; Comcast, www.comcast.com/shop/buyflow2/products.cspx?inflow=1.

IV. ROW Fees Charged in One Area Do Not Affect BB Deployment or Adoption in Other Areas

One argument by private BB providers for limiting or abolishing the ROW fees that they pay local jurisdictions is that the providers would use some of the savings to subsidize BB services in currently un-served or under-served higher cost areas. Such voluntary cross subsidization makes no economic sense for profit making firms. The prime directive for all private firms, including telecommunication firms, is generating the greatest returns to shareholders. Taking revenues earned on high-profit services—services provided in urban and suburban areas where they pay ROW fees—and voluntarily investing these revenues in low- or no-profit services cannot be justified from a profit or return-on-investment grounds. This is the financial equivalent of throwing money away.

Private telecommunications firms do have a history of voluntarily cross subsidizing among markets, but only to *increase* profits, not decrease them. For example, a firm operating in both a regulated and unregulated market has an incentive to shift costs from the unregulated to the regulated market. A related example is using the best and most advanced technology in the competitive market with a large user base, and using older, less efficient technology in the regulated, smaller market, for the same profit-maximizing reason.

The analytical assumptions underlying FCC's analysis of the BB availability gap describe the expected, profit-maximizing behavior of a telecommunication firm entering a BB market. The major analytical assumptions include:[36]

- Only profitable business cases will induce investments. Private capital will only fund investments in BB systems that return a profit.
- Investment decisions are made on the incremental value they generate. While firms strive to maximize the return on all their operations, investment decisions are evaluated based on the incremental value they provide.
- Markets currently un-served have their own unique or specific diseconomies of scale that affect the profitability—or lack thereof—of entering these markets. Entering these markets requires careful analysis of market details. A one-size-fits-all subsidy program will not work in these markets.

Previous Sections of this report summarize the mammoth financial challenges of bridging the BB gap for communities currently un-served or under-served. Researchers report that surmounting the barriers that limit BB penetration in these communities—including the costs of supplying these communities with BB services and the socioeconomic constraints of lower income, lower educational attainment and little interest in using BB services—requires more than a simplistic subsidy program. In an analogous study of cross-subsidies for telephone service, one researcher concluded,

[36] FCC 2010, *The Broadband Availability Gap*, p. 1-2.

"Reducing, or increasing, local telephone rates by a few dollars per month will do little to address fundamental problems of inequitable income distribution."

…

"Sector-specific regulators have no expertise at running poverty alleviation schemes and should not be doing so under the guise of setting rates."[37]

We have not seen any information that supports the notion of voluntary cross subsidization by private telecom firms from a profitable to less or unprofitable market, and the consensus economic literature refutes the assumption that a rational firm would ever do so. Firms allocate capital to investments that will generate the highest returns. It makes no business sense for private telecoms to take savings from not paying ROW fees and to use this savings to fund less-profitable operations.

The FCC can look to the experience of local jurisdictions that include build-out requirements as a provision for ROW access for evidence that BB providers are unlikely to voluntarily cross subsidize from profitable to unprofitable markets. Jurisdictions include build-out provisions to ensure that BB providers provide access to *all* neighborhoods in a community as a requirement to connect any. This ensures complete coverage for the community. Without this provision, BB providers would limit services to the most profitable areas.

To the extent that regulating ROW fees increases provider profits, they may return these profits to shareholders, invest in profitable BB markets, invest in other markets, or some combination of these three.[38] It is highly unlikely, however, that they would voluntarily invest in currently un-served or underserved areas because to do so would be unprofitable.

As our analysis described in Section III shows, passing on any ROW-fee savings to potential customers would likely have no measurable impact on BB deployment or adoption. These results also apply when considering the impact of regulating the fees and right-of-way practices in a one market on services in other markets. Even assuming ROW-fee savings were shifted from one market to another, there would be no measurable impact on BB deployment or adoption for the reasons mentioned in the preceding Sections.

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[37] Levin, S. and S. Schmidt. No Date. *Telecommunications After Competition: Challenges, Institutions, Regulation*. Pages22-23.

[38] To argue that any investments would be made with any increased profits from reduced ROW fees, one must also assume that providers would not have found some other way to finance these investments. That is, one must assume that these investments would not have been made but for a change in profits from reduced ROW fees.

V. SETTING REASONABLE, MARKET-BASED ROW FEES

The FCC's NOI asks several questions that suggest economically sound pricing mechanisms are inappropriate for pricing access for ROW use. In particular, the NOI asks:

> *Are "market based" rates for use of public rights of way or publicly-owned wireless facilities sites reasonable?*

In this section we describe fundamental economic concepts regarding using price signals and methods for setting prices that result in economically efficient and reasonable ROW fees, and conclude that "market-based" rates—by which we mean rates that property reflect the value of the asset—are reasonable.

A. Compensation for Use of Public Resources

Allowing state and local governments to charge for use of public ROW and other public property is consistent with the economic principle of using prices to allocate scarce resources. From an economic perspective, a locality's ROW is a scarce resource just as lands—public or private—outside a ROW are scarce. In contrast to "free resources," scarce resources do not "exist in such large quantities that they need not be rationed among those wishing to use them."[39]

Economic scarcity, though, encompasses more than a constraint on physical capacity. A resource can be scarce in an economic sense even if it can accommodate all users at a given moment in an engineering sense. For example, if the use of a resource by one party imposes costs on other parties, then it is scarce in an economic sense. This conclusion holds whether the affected party is a local government, another user of the ROW (a utility, a commuter, a truck driver, or anyone else) or a resident (a home owner whose property is affected by utility facilities in or under the street).

It is because a locality's ROW is scarce that charging for its use makes good economic sense. Economic texts describe a relationship between economic scarcity and economic cost, or opportunity cost:

"Just as scarcity implies the need for choice, so choice implies the existence of cost. … A decision to have more of one thing requires a decision to have less of something else. It is this fact that makes the first decision costly."[40]

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[39] Samuelson, Paul A. and William D. Nordhaus. 2001. *Economics*, 17th Edition. New York: McGraw-Hill. Page 765. For other authors expressing the same concept, see Hall, Robert E. and Marc Lieberman. 1998. *Microeconomics: Principles and Applications*. Cincinnati, OH: South-Western College Publishing. Page 483; O'Sullivan, Arthur and Steven M. Sheffrin. 2001. *Microeconomics: Principles and Tools*, 2nd Edition. Upper Saddle River, N.J.: Prentice Hall. Page 2: Parkin, Michael. 1998. *Microeconomics*, 4th Edition. Reading, MA: Addison-Wesley. Page 42; Tregarthen, Timothy and Libby Rittenberg. 2000. *Microeconomics*, 2nd Edition. New York: Worth Publishers. Pages 3-4.

[40] Lipsey, R., et al. 1990. *Microeconomics*, 9th Edition. New York: Harper & Row. Page 4. For other authors expressing the same concept, see Nicholson, Walter. 2000. *Intermediate Microeconomics*, 8th Edition. Fort Worth, TX: The Dryden Press. Page 17; O'Sullivan, Arthur and Steven M. Sheffrin. 2001. Cited previously.

"It [opportunity cost] concerns the true economic costs or consequence of making decisions in a world where goods are scarce."[41]

The history of cities throughout the world offers compelling illustrations of economic scarcity, opportunity costs, and efficiency in the development of ROW.[42] Examples of cities in which we have observed such scarcity and opportunity costs first hand include New York, Chicago, San Francisco, Portland (Oregon), Tucson, Huntsville, New Orleans, and Seattle. This nearly universal pattern of municipal management of ROW has not arisen by chance or whim. It reflects real and substantial economic forces that create the so-called "joint-allocation problem," namely, allocating a single, scarce and therefore valuable resource among a number of competing demands.

Occupying space in the above- or below-ground portions of the ROW precludes a local government or others from using that same space now and in the future. That is, the three-dimensional space occupied by a given conduit or wire obviously cannot be occupied by another. Besides the physical space occupied by a conduit or pipe, many cities require minimum setbacks or clearances around utilities placed in the ROW. Also, depending on the specifics of the use, the installation, the maintenance, and the replacement of any given facility in the ROW may create problems for and impose costs on the locality and on other users of the ROW.

As applied to a locality's ROW, today's scarcity and the resulting opportunity costs will persist tomorrow. That is, today's scarcity manifests itself in those many locations in which the use of the ROW for one service inhibits the use of the ROW or other properties for other services by the same or other users. That scarcity and the associated negative spillover effects will persist into the future. Such negative effects may include increased excavation or construction costs, increased costs associated with design and planning, costs associated with loss-of-service attributed to construction accidents or

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Page 24; Parkin, Michael. 1993. *Macroeconomics*, 2nd Edition. Reading, MA; Addison-Wesley, Page 10; Tregarthen, Timothy and Libby Rittenberg. 2000. Cited previously. Page 5

[41] Samuelson, Paul A. and William D. Nordhaus. 1992. *Economics*, 14th Edition. New York: McGraw-Hill. Page 131. For other authors expressing the same concept, see Hall, Robert E. and Marc Lieberman. 1998. Cited previously. Page 18; McConnell, Campbell R. and Stanley L. Brue. 1996. *Economic*s, 13th Edition. New York: McGraw-Hill, Inc. Page 26; Parkin, Michael. 1998. Cited previously. Page 42; Tregarthen, Timothy and Libby Rittenberg. 2000. Cited previously. Page 5.

[42] For various historical descriptions of the development of streets and rights of way, see Abbott, Carl. 1983. *Portland: Planning, Politics, and Growth in a Twentieth-Century City*. Lincoln, NE: University of Nebraska Press; Baldwin, Peter C. 1999. *Domesticating the Street: The Reform of Public Space in Hartford, 1850-1930*. Columbus, OH: Ohio State University Press. Pages 201-203, 207-208; Barrett, Paul. 1983. *The Automobile and Urban Transit: The Formation of Public Policy in Chicago, 1900-1930*. Philadelphia, PA: Temple University Press. Pages 13-14, 49-50; Bridenbaugh, Carl. 1938. *Cities in the Wilderness: The First Century of Urban Life in America 1625-1742*. New York: Alfred A Knopf. Pages 153-154, 159, 317; Hood, Clifton. 1993. *722 Miles: The Building of the Subways and How They Transformed New York*. New York: Simon & Schuster. Page 84; Pierce, Bessie Louise. 1937. *A History of Chicago: Volume I*. New York: University of Chicago Press. Pages 96, 336: Pierce, Bessie Louise. 1937. *A History of Chicago: Volume II*. New York: University of Chicago Press. Page 325; Quaife, Milo M. 1923. *Chicago's Highways Old and New: From Indian Trail to Motor Road*. Chicago, IL: D.F. Keller & Co. Pages 53-54, 60: Thwing, Anne Haven. 1920. *The Crooked and Narrow Streets of Boston: 1630-1822*. Boston: New England Historic Genealogical Society. Electronic Version; Whitehill, Walter Muir. 1968. *Boston: A Topographical History, 2nd Edition*. Cambridge, MA: The Belknap Press of Harvard University Press. Page 8.

other damage to services in the ROW, increased travel time for vehicular traffic on the ROW, and lost revenues for businesses whose customers are inconvenienced by ROW construction.

Expressed on a cost basis, ROW fees should compensate a local government not only for the opportunity costs of occupying space in the ROW, but also for the other costs the locality incurs related to the ROW. To the extent that a ROW fee does not capture the full range of costs that the locality incurs related to the ROW, the resulting cost will subsidize the ROW user. That is, the user will not pay the full cost of establishing, occupying and managing the ROW. A subsidy to the ROW user also results in uncompensated costs to the locality.

These costs include, at a minimum: the fixed costs of establishing and developing the ROW, the costs over the long term of managing the community-wide ROW, the daily or periodic short-term O&M costs, and related administrative costs. Measuring each of these costs for a given ROW transactions would be complex, time consuming and inefficient. There are other, less expensive ways to determine a fair and reasonable price, and those methods, which we describe in the next section, are commonly used by private entities and by federal, state, and local governments.

Like other real-estate assets within a local government's boundary, a locality's ROW yields value to the users of the ROW. In an economy based on competition, producers and owners of goods and services with economic value typically do not give them away free. In economic markets, prices serve as signals that help society put its resources to efficient use.[43] Not charging for use of the local government's ROW would treat it as if it were a free good with no economic value. "A true 'free good' is one which is not scarce … Examples of free goods are rare and perhaps becoming rarer still—sunshine in the Sahara Desert provides one example."[44]

Charging fees less than the value granted to the user for ROW access sends the signal that the resource is worth less than its true value. This will lead both to inefficient use of the ROW and to a subsidy to the user.

Allocating the ROW by first-come, first-serve or on some other non-market price makes no economic sense, especially given the external costs imposed on third parties if a ROW is over-consumed by any individual enterprise. The same result follows if one artificially limits a community to charging fees without regard to value. This is easily prevented by charging a ROW fee that reflects the ROW as a valuable asset or resource for which there are important and competing uses. Free and unrestricted–or underpriced—access to a locality's ROW allows a provider to avoid making choices that are important to make. For example, if a provider has a choice of proceeding down Route A and Route B, and

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[43] See, for example, Byrns, Ralph T. and Gerald W. Stone, Jr. 1992. *Economics*, 5th Edition. New York: HarperCollins. Page 71; Nicholson, Walter. 1998. *Microeconomic Theory*, 7th Edition. Fort Worth, TX: Dryden Press. Pages 514-515; Pindyck, Robert S. and Daniel L. Rubinfeld. 2000. *Microeconomics*, 5th Edition. Upper Saddle River, N.J.: Prentice Hall. Page 590; Samuelson, Paul A. and William D. Nordhaus. 2001. Cited previously. Pages 27, 291.

[44] Pearce, David W. (ed). 1997. *The MIT Dictionary of Modern Economics*, 4th Edition. Cambridge: The MIT Press, Page 163.

Route A passes through environmentally sensitive areas, one would want the provider to pay the cost of the environmental review and to pay all mitigation costs. This encourages a rational choice as to whether to proceed down one route or the other. Without proper price signals, providers can be expected to engage in behavior that will shift or increase costs to others and interfere with a balanced and economically use of this valuable and scarce asset.

Charging a fee helps ensure that the ROW will be used efficiently, that is, that the ROW will not be misused or wasted. Furthermore, the closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.

B. Calculating a Reasonable Price for Occupying Space in a Jurisdiction's ROW

Appraisal literature describes a number of methods for calculating the value of ROW access, and setting fair prices for its use. We describe four methods.[45] The central point here is not that these methods are the only methods, or that a price is unreasonable unless it passes muster under one of these four tests. Rather, it is that there are a number of well-recognized ways of efficiently pricing ROW use that do not require significant regulatory intervention or require one to conduct a detailed cost/allocation analysis.

1. Land-based appraisals: Analysts calculate the value of a ROW based on the value of land adjacent to the ROW. This is sometimes referred to as the "across-the-fence" (ATF) method. A variation on the ATF method acknowledges that because a ROW provides a continuous corridor, a ROW has a higher value to users than the disparate, unassembled adjacent parcels. This corridor value can exceed the ATF value by a factor of six or more.

2. The willing-buyer-and-willing-seller method: Analysts seek to replicate market negotiations over the value of the use of the ROW. The seller considers his or her costs, including the value he or she could earn from other uses of the land. The buyer considers the income-generating potential of the ROW and the costs of alternative routes.

3. Income-based methods of valuation: Analysts take as given that a variety of assets contribute to a firm's income or value. A ROW may be one of many income-generating assets from which a firm would expect to earn a reasonable return. The analysts base the market value of the use of the ROW on the return the asset generates for the firm.

4. The comparable-transactions method: Analysts base the value users of ROW attach to the transaction by looking at ales or rental agreements for similar ROW.

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[45] National Oceanic and Atmospheric Administration (NOAA). 2002. *Final Report: Fair Market Value Analysis for A Fiber Optic Cable Permit in National Marine Sanctuaries*. NOAA, National Ocean Service, National Marine Sanctuary Program. August. Pages 7-13.

Information on most ROW transactions between private entities remains confidential. More publicly available information exists on ROW agreements between municipalities and private firms that want access to municipal ROW. The study of comparable transactions is an established practice for valuing ROW.[46] The degree of similarity between the comparable transactions and the ROW at issue helps specify the high and low measures of value.[47] While there are certainly not the same numbers of ROW comparables as for home sales, there are a significant number of comparables.

One of the problems with regulating ROW prices is that the regulation may foreclose innovative approaches to pricing ROW access that benefits both parties. For example, a BB provider who is installing fiber may be willing to trade fiber for access to the ROW in cases where the land owners value use of fiber greater than the revenue earned on the ROW fee, and the costs to the BB provider of the fiber are less than the ROW fee. Similarly, a BB provider may prefer a gross-revenues based fee because the fees by definition become due as the provider generates cash flow. The ability of localities to negotiate and develop different approaches to pricing over time can be important in ensuring that the ROW is efficiently and effectively used.

Regarding the FCC's question, "Are 'market based' rates for use of public rights of way or publicly-owned wireless facilities sites reasonable?", yes they are. Charging such rates does not create a barriers to deployment, but do encourage efficient use of the ROW.

[46] See, for example, Fitzgerald, Shawana. 2005. *Review of Fiber Optic Right of Way Pricing*. Prepared for the City of Portland. August 31. Page 6; NOAA. 2002. Cited previously; U.S. Department of Justice. 2001. *Uniform Appraisal Standards for Federal Land Acquisitions*. http://www.usdoj.gov/enrd/land-ack/yb2001.pdf

[47] Ring. A. 1970. *The Valuation of Real Estate*. Prentice Hall. In, Quan, D. and J. Quigley. 1989. "Inferring an Investment Return Series for Real Estate from Observations on Sales." *Journal of the American Real Estate and Urban Economics Association*, 17(2); and U.S. Department of Justice. 2001. Cited previously.

VI. NO EVIDENCE THAT ROW FEES REFLECT MARKET POWER

The FCC seeks information on the likelihood that local jurisdictions will exercise monopoly power and overcharge ROW users. Municipalities have strong incentives not to behave in such a manner.

Municipal entities have different goals, responsibilities, and functions than do corporate entities. Municipalities hold resources—including ROW resources—in trust for its citizens and businesses. For example, municipalities manage ROWs not to maximize profits or fiscal surpluses, but to promote economic development. The locality's interest in promoting economic development for residents and businesses disciplines its pricing of ROW access. To the extent that the electorate feels that elected officials have mismanaged the ROW access or other resources, or placed unreasonable restrictions on the use of private land, it can recall or not reelect these officials.

Moreover, the proposition that a local government would exercise monopoly power and charge supra-competitive rates to access its ROWs—even if it had such monopoly power—is a flawed economic-development strategy. Municipalities compete vigorously with one another to attract and encourage deployment of advanced and reliable utilities, that will in turn, attract and support new industrial, commercial and residential development. This is a strong incentive not to overprice access ROWs.

The fact that BB providers have incurred "sunk cost," as described by the FCC in the NOI, does not give local jurisdictions incentives to behave as a private firm might when it comes time to reauthorize a ROW agreement with the provider. In contract negotiations between two private, for-profit entities, each party has strong incentives to get the best deal they can. This includes using leverage one party may have over the other. The FCC's "sunk cost" argument assumes that because the BB provider incurred expenses installing infrastructure in the ROW, the local jurisdiction can use this as leverage against the provider during reauthorizing discussions. Localities have no such leverage, and the provider is not a helpless victim of sunk costs. In response to a demand for unreasonable ROW fees, a provider can state and publicize its position, that any increase in ROW fees will be passed through to subscribers. If the BB provider had to increase its prices to a level that disadvantaged the community in BB prices as compared to its competing localities, the local officials would disadvantage themselves in attracting businesses and jobs.

For these reasons and others, local jurisdictions have incentives to charge fair and reasonable ROW fees, even assuming that they have substantial market power as compared to providers.

VII. Responses by Local Jurisdictions to Reducing or Abolishing ROW Fees

In Sections III and IV we describe the likely outcomes of public policies that limit or abolish the ROW fees that local jurisdictions currently charge. We do not observe evidence that such an action would likely produce meaningful benefits in the form of increased BB penetration or adoption. Such a policy would, moreover, generate costs. There is, first, the cost of regulation itself. As suggested above, allowing for flexibility in price-setting allows communities and providers to agree on fees that can be easily calculated and enforced, and that can respond to market changes. Second, there is the cost caused if the federal government requires localities to provide access to property at less than market value – that is, if a subsidy is required. These costs—lost revenues to the local government and increased costs associated with responding to the federal regulation—could negatively affect telecom firms and consumers, residents and businesses, and the flow of services provided by jurisdictions.

There are only a few ways a locality can respond to increased costs and reduced revenues.

Jurisdictions could replace the lost revenue through new fees or taxes. Such a response could ultimately harm BB users. For example, if telecoms do not pass the savings from not paying ROW fees on to consumers, the consumers will see no change in their direct BB costs. If, however, the population of payees of the new replacement fee include BB customers, their total costs will increase by an amount in proportion to their portion of the new fee. Thus, BB consumers are worse off under this scenario.

If jurisdictions cannot replace the lost revenue or cover the increased costs through new fees or taxes, then the locality must cut services. For example, based on our experience we know that some jurisdictions use ROW fees to support efficient planning for and management of activities in the ROW. These efforts by the jurisdiction help avoid traffic and pedestrian disruption from construction activities in the ROW, or damaging infrastructure that occupies the ROW. ROW funds also support mapping the ROW that identifies congested areas. Reducing ROW revenues or adding regulatory costs could force jurisdictions to abandon ROW planning and management activities. Results could be business disruptions due to uncoordinated or mismanaged construction in the ROW. The resulting unnecessary or extended traffic delays could affect traffic-related costs for residents and businesses. Accidents in the ROW that interrupt infrastructure services could also negatively affect companies that occupy space in the ROW.

From an economic standpoint, the question is really not whether someone will pay for the rights-of-way, but who will pay: the providers who are using the asset, or the taxpayers. The latter will occur if the FCC takes any action which prevents localities from recovering less than the value of the right-of-way.

Given the prospect of no measurable benefits to BB penetration or adoption from limiting or abolishing ROW fees, but the prospect of harm to BB consumers, residents, businesses, telecom providers and other users of the ROW, it is difficult to find an economic justification for regulating local rights of way charges or practices.

APPENDIX A: VITAE

Bryce Ward, Senior Economist

Years of Experience: 10 years

Firm: ECONorthwest

Education: Ph.D Economics, Harvard University
B.A. Economics and History, University of Oregon

Bryce Ward joined ECONorthwest in 2005. His areas of expertise include econometric analysis and applied microeconomics -- including urban and regional economics, labor economics, public finance, and environmental and natural resource economics. Dr. Ward has applied his expertise to a variety of projects involving litigation support and policy analysis. He has provided oral and written testimony in over a dozen court, legislative, or administrative proceedings.

Right-of-Way

- Provided oral and written testimony regarding economic issues related to municipal right-of-way fees in New Orleans.
- Provided written testimony to the FCC regarding the economic aspects of allowing local governments to charge telecommunications providers for access to government-owned or managed property
- Addressed the economic issues of telecommunications firms' challenge, under the Telecommunications Act of 1996, to the City of Portland's franchise-fee agreements for use of the municipal right-of-way

Anti-Trust/Competition

- Testified regarding the economic aspects of alleged anticompetitive behavior in a market for outpatient diagnostic imaging services
- Analyzed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots
- Analyzed the market for MRI services in the Boise and Portland and assessed alleged anticompetitive behavior in this market
- Provided written testimony regarding the presence of competition in a market for private prisons and the likelihood of substantial competitive harm to private prison operators from a Freedom of Information Act (FOIA) request

Real Estate

- For attorneys representing the proposed class of plaintiffs, provided oral and written testimony on the economic aspects and harm, if any, to plaintiffs, from an alleged scheme that inflated the appraised market value of real estate

- For attorneys representing the proposed class of plaintiffs, provided written testimony on the economic aspects and harm, if any, to plaintiffs, from an alleged scheme that inflated mortgage costs without proper disclosure

- Described the impact of a pipeline rupture and related oil spill on residential property values

- Analyzed the effect of Portland's Intertwine (a network of open spaces) on property values in the Portland, OR Metro area using a hedonic regression analysis and data from county assessors' records

- Analyzed the effect of Seattle's Natural Drainage (low impact development) Projects on neighboring property values (4505) using a hedonic regression analysis and data from county assessors' records

- Analysis of the Effect of Regulations on Housing Prices in Greater Boston

- Assisted Harvard Professor Edward L. Glaeser in preparing a report for Harvard's Rappaport Institute for Greater Boston and the Pioneer Public Policy Institute that estimated the effect of local regulations on housing supply and housing prices

- Analysis of Neighborhood Price Dynamics

- Assisted Harvard Professor Edward L. Glaeser on a paper detailing the sources of housing-price cycles at the neighborhood level

Labor

- Organized data and conducted statistical analysis to evaluate claims of discrimination in employer discrimination lawsuits

- Calculated economic damages and testified in wrongful termination lawsuits

- Developed an analytical framework, gathered data, and conducted analyses of current market conditions for workers in comparable jobs and comparable communities as precursor to public-interest arbitrations involving transit districts

- Described the potential impact of the financial crisis, recession, and potential deflation on public interest arbitration

- Testified about the reasons and methods for adjusting wages for changes in the cost of living based on the Consumer Price Index (CPI) and the long-term consequences of not adjusting wages during periods of deflation

- Developed a short-term economic outlook for a regional economy in preparation to labor bargaining

- Analyzed historical wage and benefit growth for sheriff deputies relative to other public and private sector employees in preparation for labor bargaining

- Provided written testimony on the economic effects associated with increasing fees for Columbia River Bar Pilots
- Analyzed firm losses resulting from former employees' breaches of restrictive employment-contract covenants regarding future employment with a competitor
- Analysis of the Long-Term Labor Market and Family Outcomes of Harvard Undergraduates
- Calculated potential economic costs associated with proposed change in Oregon's meal and rest break rule

Environment/Natural Resources

- Described the impact of a change in harvest allocations on the economic health and stability of the commercial Dungeness crab industry in Puget Sound (WA)
- Calculated natural resource damages associated with a Superfund site using a Habitat Equivalency Analysis (HEA)
- Calculated lost profits to an oyster farm from chemical contamination
- Described potential economic damages suffered by municipalities as a result of oil spills
- Evaluated the potential economic effects of the U.S. Department of Agriculture and California Department of Food and Agriculture's proposed eradication of the Light Brown Apple Moth
- Calculated profit disgorgement based on emission violations
- Evaluated a contingent valuation study of a proposed wind farm
- Reviewed and evaluated the economic components of a feasibility study and preferred clean-up remedy for a contaminated site
- Evaluated the U.S. Environmental Protection Agency's draft report on groundwater and soil remediation scenarios for a creosote-contaminated Superfund site
- Assisted in an analysis that compared and contrasted benefits and costs, stemming from the use in California of MTBE-oxygenated gasoline with those stemming from the use of ethanol-oxygenated gasoline to determine if refiners could have used ethanol to meet federal reformulated gasoline mandates instead of MTBE during the 1990s

Personal Injury/Wrongful Death

- Calculated economic damages in wrongful death lawsuits
- Calculated lost wages and presented expert testimony in personal injury cases

Public Policy

- Evaluated the effects of tax differences between Oregon and Washington on migration patterns in the Portland metro area
- Described the likely impact of a proposed tax increase on state taxable income and economic growth
- Evaluated the effect of enterprise zone tax incentives on economic development using a regression analysis of longitudinal establishment-level data
- Developed a model and analyzed data to estimate gross revenues for video, voice, and data services at the city level for the League of Oregon Cities
- Described the growth in the market for third-party certified forest products and discussed the reasons why firms choose to pursue certification.
- Reviewed and evaluated current research on the impact of increased hospital supply on local health care markets
- Provided data collection services to determine garbage and yard debris can weights and set-out rates for Eugene residents

Education

- Designed and implemented a randomized evaluation that employed longitudinal student and school data to demonstrate the effects of Safe and Civil Schools' positive behavior support programs on elementary schools in the Fresno Unified School District
- Developed a method for using longitudinal student data to calculate and report student achievement growth (aka a school value-added-model (VAM)) as part of a school accountability program in Seattle, Washington
- Evaluated the effectiveness of the South Shore School (a public-private partnership school in Seattle, Washington) using a quasi-experimental regression analysis and longitudinal student data
- Evaluated the effectiveness of ASPIRE (a program to increased college enrollment among Oregon high school students) using a regression analysis and longitudinal student data that matched student K-12 records with college enrollment data
- Developed a district report card system for several Oregon school districts
- Evaluated the effectiveness of Pre-K and K programs in Bremerton, Washington using a regression analysis on longitudinal student data
- Testified before Oregon legislature regarding methods for funding school transportation systems

- Developed regression models to calculate funding levels for student transportation in Washington school districts and developed linear programming tools to evaluate the efficiency of district transportation spending

- Analyzed and presented results of a survey regarding methods for improving efficiency in Oregon schools

- Reviewed literature on motivations for and effects of mergers between institutions of higher education

- Reviewed and evaluated current research on using student test scores to assess school performance for Seattle Public Schools

- Described the Hispanic-White and Black-White achievement gaps in Oregon schools

- Estimated the economic effects of achievement gaps on Oregon's economy

- Reviewed and evaluated current research on the effectiveness of the Safe and Civil Schools program, and worked with clients to develop and implement additional program evaluation

Other

- Testified before the Oregon legislature regarding proposed legislation before the Oregon House that amends ORCP 32 by repealing subsection K and, therefore allowing recovery of UTPA statutory damages (currently $200) in class actions

- Calculated non-economic damages to a father denied access to his child for 17 years

- Calculated reimbursements to families who adopted foster children as part of a class action settlement

- Calculated damages suffered by an auto dealership and service department stemming from the violation of non-solicitation and non-compete clauses in an asset purchase agreement

- Reviewed and conducted analyses in order to determine specialty forest product harvesters are compelled to sell to a shed the brush they picked under the permit that shed issued them

- Analyzed the impacts of Measure 37 (property rights limitation) on the State of Oregon

- Provided testimony on the consequences to the healthcare markets in Portland of allowing a new hospital

- Estimated share of LCD TVs, LCD computer monitors, and notebook computer monitors were purchased by Oregon consumers and state and local governments as part of a price fixing lawsuit

Publications

"The Causes and Consequences of Land Use Regulation: Evidence from Greater Boston" *Journal of Urban Economics* 65(3): 265-278 Glaeser, E., and B Ward.

"The Effect of Low Impact Development on Property Values" *Proceedings of the Water Environment Federation, Sustainability 2008* , pp. 318-323 Ward, B., E. MacMullan, and S. Reich.

"Myths and Realities of American Political Geography." *Journal of Economic Perspectives*. Glaeser, E., and B. Ward. Spring 2006.

Regulation and the Rise of Housing Prices in Greater Boston. Glaeser, E., J. Schuetz, and B. Ward. Cambridge, MA: Rappaport Institute for Greater Boston, Harvard University, and Pioneer Institute for Public Policy Research. 2006.

"Distance and Social Capital: Can Isolation Be Good?," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006.

"Does Reunion Attendance Affect Alumni Contributions?: Evidence from the Harvard College Classes of 1990-1999," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006.

"Economic Bridges Falling Down." *Eugene Weekly*. Ward, B. and E. Whitelaw. October 8, 2008.

"The Economy: Now What? The Economists: Ward and Whitelaw" *Oregonian*, Ward B. and E. Whitelaw. September 20, 2008.

"Dream On." *Oregon Quarterly*. Ward, B. and E. Whitelaw. Winter 2007.

"Still the Land of Opportunity?" *Oregonian*. Tapogna, T., B. Ward, and E. Whitelaw. March 2006.

"The Price Is (Not) Right." Commonwealth: Growth and Development Extra. Glaeser, E., J. Schuetz, and B. Ward. January 2006.

Recent Speeches and Presentations

"Benefits and Costs of Seismic Mitigation" CREW Benefit-Cost Analysis Forum, January 2011.

"Does Low-Impact Development Affect Property Values?: Evidence from Seattle's Natural Drainage System Projects." Water Environment Foundation Sustainability 2008 Conference., June 2008.

"Compensation for ROW Access Under the Telecommunications Act of 1996: Fiscal Issues Related to Communications Services." NATOA 27th Annual Conference. Sponsored by the National Association of Telecommunications Officers and Advisors. Portland, Oregon. October 2007.

"Outside the Light: The real factors driving Eugene/Springfield's Economy." Eugene-Springfield Leadership Program. Sponsored by the Eugene Area Chamber of Commerce. Eugene, Oregon. October 2006.

"Deregulating the Housing Market." Preserving the American Dream Conference. Sponsored by the American Dream Coalition. Atlanta, Georgia. September 2006.

Teaching

Visiting Adjunct Instructor, Portland State University; Courses: Global Environmental Economics, Spring 2010.

Visiting Assistant Professor, Lewis and Clark College; Courses: Intermediate Microeconomic Theory, Econometrics, Public Economics, Environmental and Natural Resource Economics, Spring 2008 & Fall 2009.

Visiting Adjunct Instructor, University of Oregon; Courses: Labor Economics, Spring 2009.

Tutorial Leader, Harvard College; Courses: Everybody's Doin' It: Social Interactions and Economics, 2002-2006, Senior Thesis Tutorial: Labor, 2004-05.

Teaching Fellow, Harvard University; Courses: Intermediate Microeconomic Theory, Intermediate Macroeconomic Theory, Microeconomics: A Policy Tool for Educators, 2001-2003.

Teaching Assistant, University of Oregon; Courses: Principals of Microeconomics, Urban Economics, Economy of the Pacific Northwest, 1998-1999.

Edward MacMullan, Senior Economist

Years of Experience: 22 years

Firm: ECONorthwest

Education: M.S. Agricultural Economics and International Agricultural Development, University of California at Davis
B.S. Soil Science, Oregon State University

Edward MacMullan has been a senior economist with ECONorthwest since 1990. His areas of experience include assessing the economic effects of public policies, especially those that affect natural-resource management, and economic aspects of antitrust, intellectual property, right-of-way, telecommunication and healthcare topics. Before joining ECONorthwest he studied as a Fulbright Scholar at the Energy Studies Unit of the University of Strathclyde where he assessed the socioeconomic impacts of energy development projects in the highlands and islands of Scotland.

Right-of-Way Studies

- Conducted a valuation of a right-of-way occupied by a discharge pipeline from the Georgia Pacific facility in Toledo for the City of Newport.
- Submitted an affidavit in support of the fee that the City charges to access the municipal right-of-way.
- Analyzed the economic issues of telecommunications firms' challenge, under the Telecommunications Act of 1996, regarding Portland's franchise-fee agreements for right-of-way use, City of Portland.
- Evaluated the fees that a city in California charged a telecommunications company to access the city-owned right-of-way, private client.
- Reviewed economic issues specific to the Telecommunications Act of 1996 regarding the fees charged to telecommunications firms for right-of-way, City of Huntsville, Alabama.
- Evaluated right-of-way fees that were challenged by a telecommunications company under the Telecommunications Act of 1996, City of Tucson, Arizona.
- Provided economic analysis regarding the economic value of municipal rights-of-way and use of the rights-of-way by a telecommunications company, City of Portland, Oregon.
- Analyzed the economic damages from trespass outside a right-of-way in a New Mexico Pueblo during the construction of a petroleum production pipeline, Kelly, Haglund, Garnsey & Kahn.

Antitrust Economics

- Assessed potential anti-trust behavior in the market for acute care and tertiary medical services.
- Assessed economic aspects of alleged patent infringement of computer toolbar technology.

- For the plaintiffs, assessed economic damages to patent holders of alleged patent infringement in the power equipment market.
- Addressed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots.
- Studied the market for MRI services in the Boise area and assessed alleged anticompetitive behavior in this market.
- Analyzed claims of misappropriation of trade secrets, intentional interference with economic relations, and breach of contract, Schwabe, Williamson & Wyatt.
- Analyzed the market for diagnostic-imaging services in the Portland metropolitan area, Haglund, Kirtley, Kelley & Horngren.
- Calculated the economic impacts of alleged price fixing in the market for agricultural commodities, Tonkon, Torp, Galen, Marmaduke & Booth.
- Provided economic consultation in preparation for litigation regarding workers' compensation insurance, private client.
- Assessed the economic consequences of price discrimination and other antitrust behavior in the wholesale market for petroleum products in Cordova, Alaska, Condon Shoup.

Microeconomic Analysis

- For attorneys representing plaintiffs in a class action lawsuit, performed an analysis of the economic aspects of alleged violations by mortgage brokers of consumer truth-in-lending practices.
- For attorneys representing plaintiffs in a class action lawsuit, assessed the economic aspects of alleged inflated home appraisals.
- Determined the appropriate sample size required to confirm key characteristics about a phone pole population.
- Conducted an economic evaluation of a property at issue in a claim against a state.
- Provided economic analysis regarding litigation over a city's method of collecting user fees for stormwater services.
- Evaluated the financial feasibility of a proposed destination resort in Central Oregon on the Gould and Cline Buttes.
- Calculated the plaintiff's lost profits and reasonable royalty in a patent infringement case, Schwabe, Williamson & Wyatt.
- Studied the factors that determine the market price for grass seed grown in Oregon, private client.
- Determined a royalty rate as compensation for economic damages in a breach of contract lawsuit, Schwabe, Williamson & Wyatt.
- Provided economic analysis of a patent infringement claim regarding suspension systems for bicycles, Schwabe, Williamson & Wyatt.
- Analyzed the national market for cookware items and the financial performance of firms that participate in the market, Schwabe, Williamson & Wyatt.

- Evaluated the market for professional manuals used by attorneys and legal assistants in Oregon, private client.
- Calculated the economic impacts associated with a proposed petroleum-products pipeline across Texas, George & Donaldson.
- Assessed the economic effects associated with a proposed petroleum-products pipeline in Washington state, Schwabe, Williamson & Wyatt.
- Determined the economic consequences of a breach of contract associated with a computer software program, Moore & Orr.
- Calculated uncompensated expenses and lost profits associated with a contract dispute between a manufacturer of video lottery terminals and the Oregon State Lottery, Davis Wright Tremaine.
- Analyzed lost profits from various patent infringement cases, Kolisch, Hartwell, Dickinson, McCormack, & Heuser.

Economic and Socioeconomic Impact Analysis

- Reviewed the market for workers' compensation insurance in Oregon.
- Assessed the financial implications of switching from franchise fees to a gross-revenue tax on telecom services provided in the municipalities.
- Conducted an economic benefit-cost comparison of a conventional roof and a greenroof on a commercial building, for the City of Portland.
- Assessed the impacts of greenstreets in the Puget Sound on property values for adjacent properties.
- Analyzed the operations and financial performance of a timber company's cogeneration facilities and determined the profits earned by the company as a result of unfair competition stemming from violations of air-quality regulations.
- Described the economic aspects of zoning incentives to protect natural resources, City of Corvallis, Oregon.
- Conducted a market analysis for industrial products in regional and world markets, private client.
- Evaluated the socioeconomic impacts of hospitals on rural economies, Mercy Medical Center.
- Conducted a cost-benefit analysis of energy efficiency and renewable energy resources, Alaska Coalition.
- Calculated the economic impacts of restricting snowmobiles from several national parks, The Wilderness Society.
- Analyzed the potential economic impacts of designating a national monument on land currently managed by the Siskiyou National Forest and Bureau of Land Management, Siskiyou Educational Project.
- Reviewed an economic impact assessment of a submarine cable and terminus at San Luis Obispo, California, North State Resources.

- Assessed the socioeconomic impacts of the proposed Pelican Butte ski area, Winema National Forest.
- Evaluated the economic consequences of new restrictions on Alaska's fishing industry, Earth Justice.
- Analyzed the Interior Columbia River Basin Ecosystem Management Project to ensure it internalized the externalities of resource-extraction industries on federal lands in eastern Washington, eastern Oregon, and Idaho, W. Alton Jones Foundation.

Economics of Health Care

- Evaluated how the approval of a hospital's Certificate-of-Need application would influence market concentration, Thorp Purdy Jewett Urness & Wilkinson.
- Studied economic aspects of defining a hospital's service area as it applied to Oregon's Certificate-of-Need requirement for new or relocated hospitals, Thorp Purdy Jewett Urness & Wilkinson.
- Identified the relevant markets for hospital services and evaluated the extent to which hospitals exercised market power over insurance firms and competing hospitals, Schwabe, Williamson & Wyatt.
- Studied the market for home intravenous care in preparation for a possible antitrust lawsuit, Watkinson Laird Rubenstein Lashway & Baldwin.
- Provided economic consultation on the market for healthcare services in Southern Oregon, Schwabe, Williamson & Wyatt.
- Evaluated damage claims, researched prices for hospital services, and provided advice on the distinction between fixed and variable costs, Schwabe, Williamson & Wyatt.
- Calculated lifetime medical expenses and lost wages as part of various personal injury and wrongful death lawsuits, private clients.
- Assessed the economic impacts of a breach of contract associated with a medical diagnostic technique, Stoel Rives.
- Quantified the net present value of lifetime medical services associated with a medical malpractice suit, private client.
- Evaluated the growth and discount rates of life care plans, Calkins & Calkins.

Public Policy and Government Regulations

- Calculated the economic damages to a seafood-related business as a result of a license dispute with the State of Washington, private client.
- Studied the economic performance of the ski industry in the Lake Tahoe area, the market conditions that affect this sector of the region's economy, and the economic factors associated with avoiding and complying with regional water quality regulations and county permitting processes, California Attorney General's Office.
- Provided economic analysis regarding a contract dispute between the City of Eugene, Oregon and a tenant leasing city-owned property, Harrang Long.

- Calculated tobacco company profits associated with the consumption of cigarettes by under-age smokers, Attorneys General of Washington, Arizona, and Connecticut.

Labor and Welfare Economics

- Calculated the economic loss resulting from the employment termination of a 56-year-old male, private client.
- Quantified the economic loss to a regional bank associated with breach of contract by former employees, Arnold Gallagher Saydack Percell.
- Provided economic analysis for wage arbitration with municipal employees, City of Coos Bay, Oregon.

Analysis of Economic Damages to Natural Resources

- Assessed a construction company's ability to pay civil penalties associated with alleged violations of air-quality regulations.
- Described the economic value of water resources in California.
- Assessed the economic impacts on an oyster grower of the oil spilled from the grounding of the New Carissa, Davis Wright Tremaine.
- Conducted an economic analysis of the damages stemming from the Wheeler Point fire in central Oregon, Kafoury & McDougal.
- Calculated the economic impacts of the Exxon Valdez oil spill on Alaskan salmon fishermen, municipal governments, area businesses, and cannery workers, Stoll, Stoll, Berne, Lokting, Shlachter.
- Evaluated damage claims by area businesses and property owners affected by a pesticide spill in the Sacramento River, Lieff, Cabraser & Heimann.
- Assessed the economic consequences of a chemical spill on the municipality of Superior, Wisconsin, private client.
- Determined the economic impacts on area businesses of an oil spill off Huntington Beach, California, Law Offices of Gretchen Nelson.
- Evaluated the demand for recreational fishing in the Flathead Lake area of Montana, Montana Attorney General's Office.

Water Resources

- Developed an economic model to determine the economic benefits of riparian-restoration projects for Clean Water Services.
- Co-instructed a seminar at Portland State, "USP 505 Evaluating Low Impact Development (LID)," that focuses in part on the economic costs and benefits of managing stormwater by LID and conventional controls.
- Calculated the value of ecosystem services that could be degraded by stormwater runoff from expanded urban and commercial developments in the East Butte area of Portland for the City of Portland.

- Assisted the City of Portland staff in developing an approach to study the economic benefits and costs of alternative stormwater-management techniques in support of the City's Watershed Plan.
- Conducted a review of the literature on the economics of Low Impact Development for Waterkeeper Alliance.
- Analyzed the range of economic costs and benefits of projects and policy options affecting water quality and quantity in a Portland, Oregon watershed that drains to the Willamette River, City of Portland.
- Described the economic tradeoffs of allowing, limiting, or prohibiting development in significant riparian areas and wildlife habitat in the Portland metropolitan area, Metro.
- Developed a handbook on the economic factors associated with relicensing a hydroelectric dam, Hydropower Reform Coalition.
- Developed an economic model to determine the net economic benefits of riparian-restoration projects in Oregon, Clean Water Services.
- Reviewed the U.S. Army Corps of Engineers' Final Environmental Impact Statement on deepening the shipping channel in the Columbia and Willamette Rivers, private client.
- Studied the economic issues associated with water management services and the economic implications associated with the federal Endangered Species Act and Clean Water Act, Clean Water Services.
- Evaluated the economic impacts of bypassing four federal dams on the Lower Snake River and developed a plan to mitigate the negative consequences of the bypass, Trout Unlimited and Earthjustice.
- Determined the direct and indirect economic impacts of economic development projects in the Columbia River Gorge funded by the National Scenic Area Act, Columbia River Gorge Commission.
- Evaluated the potential impacts of a proposed gold mine in Montana's Blackfoot River watershed on employment and quality of life, Blackfoot Legacy.
- Assessed the economic consequences of modifying hydroelectric dams to protect and enhance riparian habitat, private client.
- Prepared a response to the Draft Environmental Impact Statement for the Columbia River System Operation Review, Confederated Tribes of the Umatilla Indian Reservation.
- Assessed the economic consequences of alternative strategies for managing the Columbia River and its tributaries, Northwest Water Law and Policy Project.

Endangered Fish and Wildlife

- Described the economic effects of designating critical habitat for two endangered species of fish in the Klamath Basin of Oregon and California, U.S. Fish and Wildlife Service.
- Critiqued a draft report on the potential economic consequences of designating critical habitat for the Steller's and spectacled eiders, private client.
- Evaluated the potential economic impacts of restricting Alaska's groundfishery in critical habitat for the endangered Steller sea lion, private client.

- Analyzed the economic consequences of designating critical habitat in California, Oregon, and Washington for the marbled murrelet, U.S. Fish and Wildlife Service.
- Assessed the economic effects of an injunction to protect salmon habitat on the Wallowa-Whitman and Umatilla National Forests, private client.

Forest Resources

- Prepared a critique of the U.S. Forest Service's estimated demand for timber from the Tongass National Forest, Alaska Rainforest Campaign.
- Analyzed the economic consequences on southeast Alaska's economy of reduced timber harvest in the Tongass National Forest, Sierra Club Legal Defense Fund and the Alaska Rainforest Campaign.
- Studied the relationships between forested ecosystems and regional economies in Oregon, Alaska, North Carolina, New Hampshire, New Mexico, and Wisconsin, National Science Foundation.
- Evaluated the opportunities and threats facing timber-dependent communities affected by logging restrictions on federal land in Washington state, Washington Community Development Department.

Recent Presentations

- "Low-Impact Development Economics." October 22, 2008. NEMO University-6.
- "The Economics of Low-Impact Development." NY/NJ Baykeeper 2008 Low Impact Development Conference. January 23, 2008. New York City, New York.
- "Assessing Low-Impact Development Using a Benefit-Cost Approach." California Stormwater Quality Association (CASQA) 3rd Annual Stormwater Conference. September 11, 2007. Costa Mesa, California.
- "Valuing Ecosystem Services in Portland, Oregon: A Case Study." Emerging Issues Along Urban/Rural Interfaces II Conference. April 9-12, 2007. Atlanta, Georgia.
- "Assessing Low Impact Developments Using a Benefit-Cost Approach." 2nd National Low Impact Development Conference. March 12-14, 2007. Wilmington, North Carolina.

Publications

"Low-Impact Stormwater Controls Can Increase the Bottom Line." *Home Building News.* August 2008.

The Economics of Low-Impact Development: A Literature Review. Waterkeeper Alliance. With S. Reich. November 2007.

"Cities Challenged in Their Economic Interpretation of the Telecommunications Act of 1996." *Municipal Lawyer*. With E. Whitelaw and A. Pearce. September/October 2006.

"A Framework for Estimating the Costs and Benefits of Dam Removal." *BioScience* 52 (8). With E. Whitelaw. August 2002.

The Economic Benefits of Renewable Energy and Cost-Effective Energy Efficiency. Alaska Coalition. With E. Niemi and A. Fifield. September 2001.

An Economic Strategy for the Lower Snake River. Trout Unlimited. With E. Whitelaw. November 1999.

The Potential Economic Consequences of Designating Critical Habitat for the Marbled Murrelet: Final Report. U.S. Fish and Wildlife Service, Portland Field Office. With E. Niemi, E. Whitelaw, and D. Taylor. 1996.

The Potential Economic Consequences of Critical Habitat Designation for the Lost River Sucker and the Shortnose Sucker: Final Report. U.S. Fish and Wildlife Service, Portland Field Office. With E. Niemi and E. Whitelaw. August 1995.

Economic Consequences of Management Strategies for the Columbia and Snake Rivers. Confederated Tribes of the Umatilla Indian Reservation. With E. Niemi and E. Whitelaw. July 1995.

Economic Consequences of an Injunction to Protect Salmon Habitat on the Wallowa-Whitman and Umatilla National Forests: Preliminary Report. With E. Niemi and E. Whitelaw. 1995.

The Columbia River and the Economy of the Pacific Northwest. With E. Niemi, E. Whitelaw, and A. Gorr. May 1995.

The Potential Economic Consequences of a Reduction in Timber Supply from the Tongass National Forest. With E. Whitelaw. December 1994.