



1-1-2017

Dig Once and Work Together: A Common Sense Solution to America's Failing Broadband Network

Nicholas Kanakis

The University of Pacific, McGeorge School of Law

Follow this and additional works at: <https://scholarlycommons.pacific.edu/uoplawreview>



Part of the [Internet Law Commons](#)

Recommended Citation

Nicholas Kanakis, *Dig Once and Work Together: A Common Sense Solution to America's Failing Broadband Network*, 48 U. PAC. L. REV. 975 (2017).

Available at: <https://scholarlycommons.pacific.edu/uoplawreview/vol48/iss4/14>

This Comments is brought to you for free and open access by the Journals and Law Reviews at Scholarly Commons. It has been accepted for inclusion in The University of the Pacific Law Review by an authorized editor of Scholarly Commons. For more information, please contact mgibney@pacific.edu.

Dig Once and Work Together: A Common Sense Solution to America’s Failing Broadband Network

Nicholas Kanakis*

TABLE OF CONTENTS

I. INTRODUCTION.....	975
II. THE STATE OF BROADBAND AND THE CYCLICAL HISTORY OF FAILED FEDERAL REGULATION	978
A. <i>The FCC’s Authority under the Communications and Telecommunications Acts</i>	979
B. <i>The Communications Act of 1934 and the Telecommunications Act of 1996</i>	980
C. <i>The Open Internet Order</i>	982
D. <i>Municipal Broadband</i>	985
E. <i>The Dig Once Method</i>	986
III. THE SOLUTION VS. THE FAILURE	988
A. <i>The FCC’s Failure to Regulate through the Open Internet Rules</i>	988
B. <i>Reduction of Deployment Costs Through Dig Once</i>	990
1. <i>Minimizing Excavation Through State or Municipal Coordination</i>	991
2. <i>Google Fiber: A Successful Experiment</i>	997
IV. CONCLUSION	1000

I. INTRODUCTION

Broadband is reshaping our economy and recasting the patterns of our lives.¹ Every day, we rely on high-speed connectivity to do our jobs, access entertainment, keep up with the news, express our views, and stay in touch with

* J.D. Candidate, University of the Pacific, McGeorge School of Law, to be conferred May 2017; B.A. Business Administration, University of New Hampshire, 2013. I would like to thank Professor Michael P. Malloy as well as the Board of Editors of Volume 48 of *The University of the Pacific Law Review* for help, excellent suggestions, and enthusiasm towards my topic; all of my friends, especially Rich, Hoffman, and Soule, for keeping me sane throughout the writing process; and my parents, Mark and Debbie, for their endless support in everything I do.

1. FED. COMM. COMM’N, INQUIRY CONCERNING THE DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS CAPABILITY TO ALL AMERICANS IN A REASONABLE AND TIMELY FASHION, AND POSSIBLE STEPS TO ACCELERATE SUCH DEPLOYMENT PURSUANT TO SECTION 706 OF THE TELECOMMUNICATIONS ACT OF 1996, AS AMENDED BY THE BROADBAND DATA IMPROVEMENT ACT, 30 FCC Rcd. 1375, 4 (2015) (defining broadband as download speeds of at least 25 Mbps and upload speeds of at least 3 Mbps).

friends and family.² However, broadband is unavailable to many consumers due to either high prices or lack of service in their area.³ In order to improve and protect American consumers' access to broadband, the Federal Communications Commission (FCC) adopted Open Internet rules on February 26, 2015.⁴ The FCC relied on two main sources of authority as the legal foundation of the Open Internet Rules: Title II of the Communications Act⁵ and Section 706 of the Telecommunications Act of 1996.⁶ Despite having these two sources of authority, the FCC applied no additional provisions to enhance Internet access.⁷ Moreover, the FCC refrained from enforcing many provisions of Title II that it believed were not relevant to modern broadband service.⁸

The FCC established three bright line rules to protect consumers' access to broadband: (i) no blocking,⁹ (ii) no throttling,¹⁰ and (iii) no paid prioritization.¹¹ These rules only addressed part of the problem, however.¹² As of the 2013 census, only 63 percent of people in nonmetropolitan areas¹³ had access to Internet that met the FCC's definition of broadband.¹⁴ The current definition of broadband requires download speeds of 25 megabits per second.¹⁵ Additionally, less than half of households with an income of less than \$25,000 per year have an Internet connection.¹⁶

The National Broadband Plan states that at least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second, actual upload speeds of at least 50 megabits per second, and that

2. *Id.*

3. WORLD ECONOMIC FORUM, THE GLOBAL COMPETITIVENESS REPORT 514 (2013–2014), http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf.

4. OPEN INTERNET, FED. COMM. COMM'N, www.fcc.gov/openinternet (last visited Nov. 12, 2015) (on file with *The University of the Pacific Law Review*).

5. Communications Act of 1934 (codified as amended at 47 U.S.C., ch. 5); for background on the objectives of the act, see *In the Matter of Protecting and Promoting the Open Internet*, 30 FCC Rcd. 5601.

6. Telecommunications Act of 1996 § 706, 110 Stat 56 (1996); 30 FCC Rcd. 5601, 5603.

7. *Id.* at 5616.

8. *Id.*

9. *See* OPEN INTERNET, *supra* note 4 (stating that broadband providers may not block access to legal content, applications, services, or non-harmful devices).

10. *See id.* (stating that broadband providers may not impair or degrade lawful Internet traffic on the basis of content, applications, services, or non-harmful devices).

11. *See id.* (stating that broadband providers may not favor some lawful Internet traffic over other lawful traffic in exchange for consideration of any kind—in other words, no “fast lanes.” This rule also bans ISPs from prioritizing content and services of their affiliates).

12. THOM FILE & CAMILLE RYAN, COMPUTER AND INTERNET USE IN THE UNITED STATES: 2013, 3 (2014).

13. Nonmetropolitan areas are defined as “lowest population density public use micro data sample areas” and are geographic areas defined for statistical use that are built using census tracts and counties, nest within States, contain roughly 100,000 residents, and cover the entire United States.

14. FILE & RYAN, *supra* note 12, at 3.

15. FED. COMM. COMM'N, *supra* note 1, at 2.

16. FILE & RYAN, *supra* note 12, at 3.

every American should have affordable access to robust broadband service within the next decade.¹⁷ It is important to note that these speeds are significantly higher than the FCC's minimum requirement to be considered broadband.¹⁸ The current state of the industry makes it unlikely that the ambitious goals of the National Broadband Plan set forth in 2010 will be met.¹⁹

Consumers in the United States pay more than almost any other country for broadband service—while they pay an average of \$52.32 per month, they receive slower speeds in return, as the country ranks only 16th in peak average connection speeds worldwide.²⁰ Consequently, much of the population either is unable to afford broadband or is forced to overpay the sole provider in their area for substandard service.²¹ Without the FCC assuring access for competitors to existing infrastructure²² on reasonable terms and conditions for competitors, this practice of charging more while providing less will almost certainly continue unless cost saving measures are put into place.²³

One possible solution would be for local or regional governmental bodies to sponsor local broadband providers, like in the form of a public utility.²⁴ However, state legislatures have recently attempted to pass laws that would ban such municipal broadband providers.²⁵ Lobbyists for large private broadband providers have urged state governments to enact laws that would prohibit local governments from acting as broadband providers.²⁶ This prohibition would protect the current monopoly that broadband providers have on markets.²⁷ To address these issues, the FCC must both require municipal broadband provisions and enforce cost reduction measures in order to reduce the high barriers to entry

17. FED. COMM. COMM'N, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN XIV (2010) [hereinafter THE NATIONAL BROADBAND PLAN].

18. *Id.*

19. Sue Helper, *How Much Competition Exists Among ISPs*, UNITED STATES DEPARTMENT OF COMMERCE (2014), available at <http://www.esa.doc.gov/under-secretary-blog/how-much-competition-exists-among-isps> (on file with *The University of the Pacific Law Review*) (stating that, as a result of price, some consumers will opt for slower internet speeds to save money).

20. AKAMAÏ'S [STATE OF THE INTERNET] Q3 2015 REPORT, 55 (2015); *Price Rankings by Country of Internet*, NUMBEO, http://www.numbeo.com/cost-of-living/country_price_rankings?itemId=33 (last visited Nov. 14, 2015) (on file with *The University of the Pacific Law Review*). To calculate peak average speed, an average is taken of only the highest connection speed calculated from each unique IP address determined to be in a specific country or U.S. state.

21. THE NATIONAL BROADBAND PLAN, *supra* note 17, at 22; NUMBEO, *supra* note 20.

22. "Existing infrastructure" refers to networks of deployed telecommunications equipment and technologies necessary to provide high-speed Internet access and other advanced telecommunications services for private homes, businesses, commercial establishments, schools, and public institutions.

23. Helper, *supra* note 19.

24. In the Matter of City of Wilson, N.C. Petition for Preemption of N.C. Gen. Stat. Sec. 160A-340 ET SEQ., 30 F.C.C.R. 2408 at 2.

25. *Id.*

26. *Id.* at 16.

27. *Id.* at 2.

faced by broadband providers when entering into new markets.²⁸ By utilizing its authority under the Telecommunications Act, the FCC can implement and set the best practices for a national “Dig Once”²⁹ policy as well as encourage local governments to cooperate with private enterprises, bringing affordable broadband to all Americans.³⁰

Part II of this Comment examines the history of the FCC’s regulation of the telecommunications industry and the issues it encountered and continues to face today.³¹ It also discusses recent attempts to solve these problems and the obstacles facing these potential solutions.³² Part III of this Comment analyzes various successful endeavors by states, as well as private enterprises, in broadband deployment to rural and urban areas.³³ Part III specifically discusses state implementation of a Dig Once policy and the Google Fiber Project, proposing that the FCC should push states to adopt such policies by setting out the industry best practices learned from successful state and private projects.³⁴ Such action would allow the United States to meet the goals set by the National Broadband Plan in a timely manner.³⁵

II. THE STATE OF BROADBAND AND THE CYCLICAL HISTORY OF FAILED FEDERAL REGULATION

This Part discusses the various sources of law governing the conduct of Internet Service Providers.³⁶ Section A explains the FCC’s authority and the effect of the Communications Act of 1934 (1934 Act) and the Telecommunications Act of 1996.³⁷ Section B examines the 1934 Act and its effect on interstate commerce, as well as the Telecommunications Act of 1996 and its attempts to fill in the gaps left by the 1934 Act.³⁸ Section C provides a brief history of the Open Internet Order.³⁹ Section D gives an overview of the current state of municipal broadband and the issues potential broadband

28. H.R. 3805, 114th Cong. (2015–2016).

29. See *infra* Part III. The largest cost element for deploying broadband is typically burying the fiber optic cables and conduit. Dig Once aims to reduce this cost by coordinating highway construction projects with the installation of the infrastructure necessary to provide broadband.

30. *Infra* Part IV.

31. *Infra* Part II.

32. *Infra* Part II.

33. *Infra* Part III.

34. *Infra* Part III.

35. THE NATIONAL BROADBAND PLAN, *supra* note 17.

36. *Infra* Part II.

37. *Infra* Part II.A.

38. *Infra* Part II.B.

39. *Infra* Part II.C.

providers face.⁴⁰ Finally, Section E outlines the Dig Once policy and the legislation attempting to enact it.⁴¹

A. The FCC's Authority under the Communications and Telecommunications Acts

The 1934 Act granted the FCC authority to regulate communications providers.⁴² The Telecommunications Act of 1996 amended the 1934 Act significantly.⁴³ The Telecommunications Act of 1996 aimed to remove barriers to entry into the telecommunications industry in order to increase competition in the industry.⁴⁴ Title I, which describes the general provisions, and Title II, common carrier regulation, are particularly relevant to the issues discussed in this Comment.⁴⁵

Title I lays out the general provisions of the 1934 Act.⁴⁶ Section 160(a) requires the FCC to forbear from applying any regulation or provision of Title I to a telecommunications carrier in any or some of its geographic markets if the FCC determines that enforcement is not necessary to: (1) ensure just and reasonable service, (2) protect consumers, and (3) comply with public interest.⁴⁷ Additionally, Title I allows the FCC to “perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this chapter, as may be necessary in the execution of its functions.”⁴⁸ Acting as a necessary and proper clause⁴⁹ in the administrative context, this provision enables the FCC to promulgate rules in support of the goals where it has express authority.⁵⁰

This ancillary authority⁵¹ is not absolute.⁵² The FCC must demonstrate that its rules are reasonably supplementary rather than merely a policy statement.⁵³ Using this authority as justification, the FCC adopted four principles, asserting that consumers are entitled: (1) “to access the lawful Internet content of their

40. *Infra* Part II.D.

41. *Infra* Part II.E.

42. Communications Act of 1934, 47 U.S.C. ch. 5.

43. Telecommunications Act of 1996, 110 Stat. 56.

44. *Id.*

45. 47 U.S.C. §§ 151, 201.

46. 47 U.S.C. § 151.

47. 47 U.S.C. § 160(a).

48. 47 U.S.C. § 154(i).

49. The analogy here is to the Necessary and Proper Clause of the U.S. Constitution. *Cf.* WILLIAM J. RICH, MODERN CONSTITUTIONAL LAW § 35:2 (3rd ed. 2015).

50. 47 U.S.C. § 154(i).

51. “Ancillary authority” here refers to the FCC’s authority to adopt regulations based on the provision of Title I of the Communications Act of 1934 that grants the agency general, rather than specific, authority.

52. *U.S. v. Southwestern Cable Co.*, 392 U.S. 157, 178 (1968).

53. *See FCC v. Midwest Video Corp.*, 440 U.S. 689, 708 (1979) (requiring that the rules be reasonably ancillary to the effective performance of the Commission’s responsibilities for the regulation of television broadcasting).

choice”; (2) “to run applications and use services of their choice, subject to the needs of law enforcement”; (3) “to connect their choice of legal devices that do not harm the network”; and (4) “to competition among network providers, application and service providers, and content providers.”⁵⁴

Title II was intended to regulate common carriers,⁵⁵ setting forth their duties, such as furnishing communication upon reasonable request.⁵⁶ Other provisions in Title II provide rates that common carriers may charge and bar unjust or unreasonable discriminatory practices.⁵⁷ Specifically, sections 251(b) and 251(c) of Title II were originally designed to reduce the barriers to entry of the telephone service industry.⁵⁸ Such barriers include obtaining regulatory approval to use public rights-of-way, buying existing infrastructure to connect subscribers to the service, and wiring homes.⁵⁹ These processes typically take years and are extremely expensive.⁶⁰ Congress originally included these sections to ease the burdens on new entrants to the market.⁶¹

B. *The Communications Act of 1934 and the Telecommunications Act of 1996*

President Franklin D. Roosevelt signed the Communications Act of 1934 into law with the purpose “to make available, so far as possible, to all the people of the United States . . . a rapid, efficient, nationwide, and worldwide wire and radio communication service with adequate facilities at reasonable charges.”⁶² The Act declared communications technology to be an interstate good and created the Federal Communications Commission.⁶³

The 1934 Act, however, had the unintended effect of creating natural monopolies,⁶⁴ the most prominent instance of which is AT&T.⁶⁵ From the 1930s

54. Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, 20 FCC Rcd. 14987, 14988 (2015).

55. 47 U.S.C. § 153(11) (defining common carrier as “any person engaged as a common carrier for hire, in interstate or foreign communication by wire or radio or interstate or foreign radio transmission of energy, except where reference is made to common carriers not subject to this chapter; but a person engaged in radio broadcasting shall not, insofar as such person is so engaged, be deemed a common carrier”).

56. 47 U.S.C. § 201(a).

57. 47 U.S.C. §§ 201(b), 202.

58. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, 11 FCC Rcd. 14171, 14177–78 (2015).

59. See 47 U.S.C. §§251(b)–(c) (protecting against these barriers).

60. See 11 FCC Rcd. 14171 at 14174–76 (describing the burdens facing new market entrants).

61. Implementation of the Local Competition Provisions, 11 FCC Rcd. 14171.

62. 47 U.S.C. § 151.

63. *About the FCC*, FEDERAL COMMUNICATIONS COMMISSION, <https://www.fcc.gov/guides/about-fcc> (last visited Mar. 3, 2016).

64. See Richard A. Posner, *Natural Monopoly and Its Regulation*, 21 STA. L. REV. 548, 548 (1969) (stating that “[i]f the entire demand within a relevant market can be satisfied at lowest cost by one firm rather than by two or more, the market is a natural monopoly, whatever the actual number of firms in it”).

65. *American Tel. and Tel. Co., v. United States*, 552 F. Supp. 131, 222 (D.D.C. 1982).

to the 1980s, AT&T and other telephone companies formed natural monopolies similar to traditional utility providers.⁶⁶ In order to combat these effects, the FCC designed the Telecommunications Act of 1996 (the 1996 Act) to ensure that any company that achieved a monopoly in a given region would not abuse its market power to the detriment of consumers.⁶⁷ The 1996 Act aimed “to provide a pro-competitive, deregulatory national policy framework designed to accelerate rapidly the private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition.”⁶⁸

After Congress approved the bill, President Bill Clinton signed the Telecommunications Act of 1996 into law.⁶⁹ The bill implemented necessary changes that accounted for the advent of the Internet and encouraged the deployment of advanced telecommunications capability nationwide on a reasonable and timely basis.⁷⁰

The drafters of the 1996 Act believed that the inclusion of provisions calling for interconnection⁷¹ and wholesale access to incumbent local exchange carriers’⁷² networks would further the Act’s goals by aiding new entrants into the market.⁷³ Interconnectedness is important because new entrants to the telecommunications market face high barriers to entry, including high threshold levels of investment, inefficient economies of scale, and externalities.⁷⁴ To provide market entrants wholesale access to the incumbents’ networks, the incumbent local exchange carriers must make certain elements of their network, at least those necessary to provide telecommunications services commensurate with those of the incumbents, available to entrants at cost-based wholesale rates.⁷⁵

66. “Traditional utility provider” refers to gas, electricity, and water providers; see Joseph D. Kearney, *From the Fall of the Bell System to the Telecommunications Act: Regulation of Telecommunications Under Judge Greene*, 50 HASTINGS L.J. 1395, 1404 (1999) (describing the evolution of AT&T’s regional Bell companies).

67. 47 U.S.C. § 201.

68. H.R. 104-458, 104th Cong. (1996).

69. *Id.*

70. *Broadband*, FEDERAL COMMUNICATIONS COMMISSION, <http://www.fcc.gov/broadband/> (last visited Nov. 12, 2015) (on file with *The University of the Pacific Law Review*).

71. Interconnection is the physical linking of a carrier’s network with equipment or facilities not belonging to that network. 47 U.S.C. § 252(d)(1).

72. See 47 C.F.R. § 51.5 (defining incumbent local exchange carrier as an entity that was providing local exchange telephone service in a particular area on February 8, 1996, the date on which the Telecommunications Act of 1996 was enacted into law).

73. 47 U.S.C. §§ 251(c)(3), 252(d)(1).

74. Eun-A Park, *Barriers to Entry Analysis of Broadband Multiple Platforms: Comparing the U.S. and South Korea* (Dec. 2007) (unpublished thesis, Pennsylvania State University) (on file with *The University of the Pacific Law Review*).

75. 47 U.S.C. §§ 251(c)(3), 252(d)(1).

C. The Open Internet Order

In 2010, the FCC issued the Open Internet Order.⁷⁶ Initially, broadband was classified as an information service regulated under Title I, instead of a telecommunications service under Title II.⁷⁷ The 2010 Open Internet Order's purpose was "to preserve the Internet as an open platform for innovation, investment, job creation, economic growth, competition, and free expression."⁷⁸ The no blocking rule,⁷⁹ transparency rule,⁸⁰ and no discrimination rule⁸¹ were all adopted to achieve that purpose.⁸² The 2010 Open Internet Order sparked immense judicial scrutiny, and in *Verizon v. FCC*, the D.C. Circuit ruled upon the issue.⁸³

Verizon v. FCC involved two appellants, Verizon and MetroPCS, both of whom opposed the 2010 Open Internet Order.⁸⁴ The appellants made three challenges to the order: (1) that the FCC's reinterpretation of section 706 as a grant of direct authority was unreasonable, (2) that the FCC did not provide a reasonable rationale for seeking to promote increased broadband service through the 2010 Open Internet Order, and (3) that the antiblockage, antidiscrimination, and transparency rules imposed common-carrier requirements on broadband providers.⁸⁵

The court first concluded that the FCC's reinterpretation of section 706 as a grant of direct authority was reasonable, vesting it with affirmative authority to enact measures that encourage deployment of broadband infrastructure.⁸⁶ The court then determined the FCC's rationale for attempting to promote broadband

76. Preserving the Open Internet Broadband Industry Practices, 25 FCC Rcd. 17905 (2010) (report and order), aff'd in part, vacated in part sub nom. *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014).

77. See *Verizon*, 740 F.3d at 631–632 (describing that an information service is only lightly regulated by the FCC, while a telecommunication service is subject to more strict regulations).

78. 25 FCC Rcd. 17905.

79. See *id.* at 17906 (describing that a person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, "shall not block lawful content, applications, services, or nonharmful devices," subject to reasonable network management).

80. See *id.* (providing that a person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not impair or degrade lawful Internet traffic on the basis of Internet content, application, or service, or use of a non-harmful device, subject to reasonable network management).

81. See *id.* (describing that a person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not engage in paid prioritization. "Paid prioritization" refers to the management of a broadband provider's network to directly or indirectly favor some traffic over other traffic, including through use of techniques such as traffic shaping, prioritization, resource reservation, or other forms of preferential traffic management, either in exchange for consideration from a third party, or to benefit an affiliated entity).

82. *Id.*

83. *Verizon*, 740 F.3d at 628.

84. *Id.* at 627.

85. *Id.* at 634.

86. *Id.* at 637.

services through the Open Internet Order by claiming it caused a virtuous cycle⁸⁷ of innovation was valid.⁸⁸ The FCC claimed that the cycle occurs as follows: openness leads to investment and development by edge providers⁸⁹ in new content and applications over the Internet; which causes increased end user demand for broadband; which leads to increased investment in broadband network infrastructure and technology.⁹⁰ Despite the fact that the court accepted section 706 as a grant of direct authority and found this virtuous cycle to be reasonable, it struck down the antiblocking and antidiscrimination rules.⁹¹

The court reasoned that those rules would subject broadband providers to common-carriage requirements.⁹² This would be contrary to the FCC's decision to classify broadband access as a pure information service, which exempted broadband providers from Title II's common-carrier obligations.⁹³ Because of this contradiction, the court struck down the antiblocking and antidiscrimination rules.⁹⁴ However, because the court found that the transparency rule operated separately and did not impose common carrier regulations, it could be severed from the other two rules and remain in effect.⁹⁵

The majority opinion in *Verizon* left the FCC with an opportunity to regulate broadband under section 706 as long as it did not impose common-carrier requirements on broadband providers.⁹⁶ The court also suggested an alternative to the antidiscrimination rule, through which the FCC could prohibit certain types of broadband provider conduct as long it could articulate a workable standard that barred only conduct that could be reasonably understood to harm Internet openness, while allowing individualized broadband provider practices.⁹⁷ Additionally, in regards to the antiblocking rule, common-carrier obligations might not be created if arrangements between broadband providers and edge providers allowed individualized bargaining at the lowest level of service needed to access other Internet subscribers.⁹⁸

87. See 25 FCC Rcd. 17905 at 17910–11 (stating that virtuous cycle of innovation refers to the idea that “new uses of the network—including new content, applications, services, and devices—lead to increased end-user demand for broadband, which drives network improvements, which in turn lead to further innovative network uses”).

88. *Verizon*, 740 F.3d at 644–45.

89. “Edge providers” refers to services such as Google, Facebook, YouTube, Spotify, and Netflix.

90. *Verizon*, 740 F.3d at 634.

91. *Id.* at 658.

92. *Id.* at 657–59.

93. 47 U.S.C. § 153(51).

94. *Verizon*, 740 F.3d at 659.

95. *Id.*

96. *Id.* at 655.

97. *Id.* at 658.

98. *Id.*

The 2015 Open Internet Order both refined and added to the rules established by the 2010 Open Internet Order.⁹⁹ It promulgated three bright-line rules, added a catch-all provision, and made enhancements to 2010 Open Internet Order's transparency rule.¹⁰⁰

The bright line rules established by the 2015 Open Internet Order are an antiblocking rule, a no throttling rule, and a no paid prioritization rule.¹⁰¹ The antiblocking rule states: "A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management."¹⁰² The no throttling rule provides: "A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not impair or degrade lawful Internet traffic on the basis of Internet content, application, or service, or use of a non-harmful device, subject to reasonable network management."¹⁰³ The no paid prioritization rule prohibits broadband providers from accepting payment to manage its network in a way that benefits particular content, applications, services, or devices.¹⁰⁴

The catch-all provision prevents broadband providers from unreasonably interfering with or disadvantaging end users and edge providers.¹⁰⁵ The rule states:

Any person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not unreasonably interfere with or unreasonably disadvantage (i) end users' ability to select, access, and use broadband Internet access service or the lawful Internet content, applications, services, or devices of their choice, or (ii) edge providers' ability to make lawful content, applications, services, or devices available to end users. Reasonable network management shall not be considered a violation of this rule.¹⁰⁶

Thus, the catch-all prevents broadband providers from serving as gatekeepers to the Internet and ensures that providers are unable to limit or control what information is available to view and use on their network.¹⁰⁷

Finally, the 2015 Open Internet Order requires additional transparency from broadband providers.¹⁰⁸ While the 2010 Open Internet Order hinted that broadband providers should disclose their network management practices, performance characteristics, and commercial terms, the FCC received constant

99. Protecting and Promoting the Open Internet, 30 FCC Rcd. 5601 at 5607, 5609 (2015).

100. *Id.* at 5607.

101. *Id.*

102. *Id.*

103. *Id.*

104. *Id.*

105. *Id.* at 5609.

106. *Id.*

107. *Id.*

108. *Id.*

complaints from users and edge providers concerning the accuracy and availability of the disclosures regarding broadband speeds and billing.¹⁰⁹ Thus, despite the *Verizon* court's holding that the transparency rule would remain in effect, the 2015 Open Internet Order was necessary to implement the transparency rule's purpose.¹¹⁰

D. Municipal Broadband

In promulgating the Open Internet Order, the FCC intended to increase access to broadband in rural areas, where it is expensive to deploy, while lowering costs in areas where it already exists by increasing competition.¹¹¹ Many communities wanted to build their own broadband systems but were obstructed by state laws written by and for the influential provider industry that either barred such systems or imposed onerous conditions on them.¹¹² The FCC has been able to thwart some of the state imposed barriers to municipal broadband,¹¹³ but the existing companies continue to add complications.¹¹⁴

Another hurdle to overcome in establishing a municipal broadband provider is gaining access to public rights-of-way.¹¹⁵ Public rights-of-way are strips of land intended for public travel.¹¹⁶ Sections of these public rights-of-way are frequently used as the infrastructure for utility companies.¹¹⁷ Currently, state law controls local governments' property interests in public rights-of-way by imposing specific pricing for access.¹¹⁸

As it stands, state governments use a franchise method—requiring that broadband providers obtain franchise or license to construct facilities within the municipality's rights-of-way—to grant the use of public land to private

109. *Id.*

110. *Verizon v. FCC*, 740 F.3d 623, 659 (D.C. Cir. 2014); 30 FCC Rcd. 5601 at 5670.

111. *Verizon*, 740 F.3d at 659; 30 FCC Rcd. 5601 at 5670.

112. In the Matter of City of Wilson, N.C. Petition for Preemption of N.C. Gen. Stat. Sec. 160A-340 ET SEQ., 30 F.C.C.R. 2408 at 74, 86.

113. *See id.* at 37 (finding that section 706 gives the Commission authority to preempt any state laws that target providers that are political subdivisions of the state).

114. *See id.* at 15 (allowing municipally provided service to correct market failures in markets where there is little to no existing competition).

115. A right-of-way is a property interest owned by the state or locality, and ISPs obtain an easement to use that interest through fees paid for access; THE NATIONAL BROADBAND PLAN, *supra* note 17.

116. Paul Devaney, AM. PUB. WORKS ASS'N, RIGHTS-OF-WAY MANAGEMENT §1.3.2 (2001), available at http://www.apwa.net/Documents/ResourceCenter/Rights-of-Way_Mgt.pdf (on file with *The University of the Pacific Law Review*).

117. *Id.* Infrastructure refers to networks of deployed telecommunications equipment and technologies necessary to provide high-speed Internet access and other advanced telecommunications services for private homes, businesses, commercial establishments, schools, and public institutions.

118. *Mayor of Baltimore v. United States*, 147 F.2d 786, 788 (4th Cir. 1945).

companies, often creating a natural monopoly in the process.¹¹⁹ Gaining access to these rights-of-way is paramount to supplying broadband for smaller or new broadband providers.¹²⁰ Broadband providers' heavy lobbying in areas where they currently operate a franchise has led to frustration and difficulties for would-be municipal broadband providers.¹²¹

Nearly insurmountable initial costs, which vary with the nature of the area (rural or urban) as well as demand, also restrict both municipalities' and private entrants' ability to deploy broadband infrastructure.¹²² Deploying just one mile of fiber can bear costs in excess of \$100,000.¹²³ The bulk of the cost comes from the process of burying the fiber underground.¹²⁴ Laying down the last mile of fiber can amount to approximately 75 percent of the total cost of deployment due to the amount of time and labor involved.¹²⁵

E. The Dig Once Method

In May of 2009, California U.S. Representative Anna G. Eshoo introduced the Broadband Conduit Deployment Act, which sought to implement a Dig Once policy.¹²⁶ Dig Once is defined as, "Policies and/or practices that minimize the number and scale of excavations when installing telecommunications infrastructure in highway rights-of-way."¹²⁷ The Dig Once method involves coordinating highway construction projects with the installation of broadband facilities.¹²⁸ The idea is that that digging once may save costs resulting from repeated excavation in areas where the entire right-of-way is paved or developed.¹²⁹ Dig Once would have helped to satisfy the recommendations of the National Broadband Plan; unfortunately, it did not succeed.¹³⁰ When reintroduced

119. NEIL LEHTO, FIRST AMENDMENT AND RIGHT OF WAY ISSUES IN CABLE TELEVISION, IN PROTECTING FREE SPEECH AND EXPRESSION: FIRST AMENDMENT AND LAND USE LAW 173-75 (Daniel R. Mandelker & Rebecca L. Rubin eds., 2002).

120. See THE NATIONAL BROADBAND PLAN, *supra* note 17, at 109. (explaining the need for access to rights of ways).

121. See *id.* at 47 (describing the hodgepodge of existing regulation which hints at the impact of the lobbying efforts of current market leaders).

122. *Id.* at 109, 114.

123. *Id.* at 114.

124. *Id.*

125. Alcatel-Lucent, *Deploying Fiber-to-the-Most-Economic Point* 6 (2007), available at http://www.alcatel.lu/wps/DocumentStreamerServlet?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=Other/23168_DeployFiber_wp.pdf (on file with *The University of the Pacific Law Review*).

126. H.R. 2428, 111th Cong. (2009).

127. POLICY BRIEF, FEDERAL HIGHWAY ADMINISTRATION, OFFICE OF TRANSPORTATION STUDIES (Oct. 2013), available at https://www.fhwa.dot.gov/policy/otps/policy_brief_dig_once.pdf [hereinafter FHWA] (on file with *The University of the Pacific Law Review*).

128. *Id.*

129. *Id.*

130. THE NATIONAL BROADBAND PLAN, *supra* note 17.

in 2011, the proposed bill called for amendment of the general highways provision of the United States Code,¹³¹ and mandated that the Departments of Transportation (DOT) would require states to lay down infrastructure for broadband in conjunction with highway construction projects.¹³²

The Broadband Conduit Deployment Act would have allowed the DOT to exercise its discretion in order to decide the necessary amount of broadband conduits, ensuring that multiple providers could be accommodated.¹³³ The DOT would have had to consider any existing conduits and potential demand of the area when making its decision.¹³⁴ Additionally, it would have enabled the DOT to engage in rulemaking regarding the standards for compliance as well as provide states with a waiver.¹³⁵ The DOT would have been required to work with the FCC to establish demand and determine any existing broadband lines.¹³⁶

President Barack Obama issued two executive orders, the Federal Permitting Order of 2012 and the Broadband Infrastructure Order of 2016, which together led the Government Accountability Office (GAO) to conduct a study on the effects of the legislation.¹³⁷ The Federal Permitting Order called for a more efficient and effective federal permitting and review process.¹³⁸ The Order outlines the necessity of timelines and schedules for completion of reviews as well as early and active consultation with stakeholders in order to avoid conflicts or duplication of effort between federal agencies.¹³⁹ This order also created a steering committee made up of members of the FCC, the DOT, and other agencies.¹⁴⁰ The duties of the committee include developing a permitting and review performance plan and implementing best practices for federal, state, local, and tribal government coordination.¹⁴¹

The Broadband Infrastructure Order directed the DOT to work with state and local governments to develop and implement best practices on issues such as creating Dig Once requirements.¹⁴² This order designed Dig Once requirements to reduce the number and scale of repeated excavations for the installation and maintenance of broadband facilities in rights-of-way.¹⁴³

131. *See generally* 23 U.S.C. §§ 301–29 (2006) (the sections proposed to be amended).

132. H.R. 2428 at § 330(b).

133. *Id.*

134. *Id.*

135. *Id.*

136. *Id.*

137. Accelerating Broadband Infrastructure Deployment, 77 Fed. Reg. 36,903 (June 14, 2016); Improving Performance of Federal Permitting and Review of Infrastructure Projects, 77 Fed. Reg. 18,887 (Mar. 22, 2012).

138. 77 Fed. Reg. at 18,887.

139. *Id.* at 18,889.

140. *Id.* at 18,888.

141. *Id.* at 18,888–89.

142. *Id.*

143. *Id.*

Shortly after these orders were issued, the GAO released its findings regarding a national Dig Once policy.¹⁴⁴ It found that a mandatory Dig Once policy may result in negative consequences, such as reduced funding availability for highway projects, unused conduit, higher administrative costs for state DOTs and local governments as a result of maintenance and leasing programs, and conflicts with state deployment policies.¹⁴⁵ However, the findings also described significant potential benefits, such as less frequent highway construction, decreased installation costs, greater access and reliability of networks, and shorter times required to deploy fiber.¹⁴⁶ Consequently, these conflicting findings led to a temporary halt to congressional consideration of the Broadband Conduit Deployment Act.¹⁴⁷ The Act has been reintroduced to the House of Representatives as the Broadband Conduit Deployment Act of 2015 and has since been referred to the both the Subcommittee on Highways and Transit and the Hose Committee on Transportation and Infrastructure, but no further action has occurred.¹⁴⁸

III. THE SOLUTION VS. THE FAILURE

This Section discusses the FCC's decisions, their likely effect, and other possible solutions.¹⁴⁹ Part A confronts the FCC's decision to refrain from implementing over 700 provisions of the 1996 Act.¹⁵⁰ Part B discusses a possible alternative solution through previous state efforts, as well as proposals that could reduce deployment costs.¹⁵¹ Part C discusses a successful effort between state governments and a new broadband provider.¹⁵²

A. *The FCC's Failure to Regulate through the Open Internet Rules*

If the FCC fails to discourage the recent attempts to ban municipal broadband, the current monopolistic trends prominent in the industry will persist, and the United States will continue to fall behind in broadband access and affordability.¹⁵³ By forbearing from including sections 251(b) and 251(c) of the Telecommunications Act when applying the Open Internet Order, the FCC is

144. U.S. GOV'T ACCOUNTABILITY OFFICE, BROADBAND CONDUIT REPORT: GAO 12-687R 2 (2012), <http://www.gao.gov/assets/600/591928.pdf> [hereinafter BROADBAND CONDUIT REPORT].

145. *Id.* at 4, 6–7.

146. *Id.* at 4, 5–6.

147. *Id.*

148. H.R. 3805, 114th Cong. (2015–2016).

149. *Supra* Parts III.A–C.

150. *Supra* Part III.A.

151. *Supra* Part III.B.

152. *Supra* Part III.C.

153. *Supra* Part III C.

failing to regulate what the Act was originally designed to prevent—the barriers to entry of the telephone service industry.¹⁵⁴ These processes take years and are highly expensive.¹⁵⁵ As a result, the FCC is missing an opportunity to enforce its own regulations that would provide broadband access to a wide range of underserved consumers.¹⁵⁶ Additionally, the forbearance leaves small broadband providers open to frivolous lawsuits from larger incumbents designed to put them out of business.¹⁵⁷ These issues make it difficult to find investors willing to fund an entrant into the broadband market.¹⁵⁸ With the FCC legally classifying broadband service providers as telecommunications providers, they logically should be held to the same competitive standards as other companies to which Title II previously applied.¹⁵⁹ The result of this forbearance is the current state of the telecommunications industry, where a lack of competition due to high barriers to entry leads to high prices and reluctance to expand to low population density areas.¹⁶⁰

As it stands today, the service area of two companies providing high-speed broadband will rarely overlap.¹⁶¹ Currently, only 37 percent of Americans have multiple options for high-speed broadband providers.¹⁶² Municipal broadband in combination with the Dig Once approach could provide a solution to this problem as it would introduce competition into the market as well as lower the initial costs of entry.¹⁶³ However, many states still have statutory provisions that restrict municipal ownership of telecommunications services.¹⁶⁴

In Arkansas, for example, the Arkansas Telecommunications Reform Act of 1997 provides that, “a government entity may not provide, directly or indirectly, basic local exchange, voice, data, broadband, video, or wireless

154. 47 U.S.C. §§ 251(b)–(c).

155. FHWA, *supra* note 127.

156. *See, e.g.*, Press Release, *Board of Supervisors President David Chiu Calls for “Dig Once” to Help Improve Internet Connectivity and Close Digital Divide in San Francisco* (Oct. 20, 2014) (on file with *The University of the Pacific Law Review*) (suggesting that the free broadband access is important for all parts of the community for education and the economy).

157. Park, *supra* note 74, at 46.

158. *Id.* at 179.

159. *Id.* (if there are less difficulties finding the investors willing to fund entrants into the broadband network market, the competitive standards would be the same across the board).

160. Helper, *supra* note 19.

161. *Id.*

162. *Id.*

163. BROADBAND CONDUIT REPORT, *supra* note 144, at 5–6.

164. *See, e.g.*, ALA. CODE § 11-50B-3 (2016); ARK. CODE ANN. § 23-17-409 (West 2016); COLO. REV. STAT. ANN. § 29-27-103 (West 2016); FLA. STAT. ANN. § 350.81 (West 2016); LA. REV. STAT. ANN. §§ 45:844.47 (2016); MICH. COMP. LAWS ANN. § 484.2252 (West 2016); NEB. REV. STAT. ANN. § 86-594 (West 2016); NEV. REV. STAT. ANN. §§ 268.086, 710.147 (West 2015); N.C. GEN. STAT. ANN. § 160A-340.1 (West 2016); 66 PA. STAT. ANN. AND CONS. STAT. ANN. § 3014 (West 2016); S.C. CODE ANN. § 58-9-2620 (2016); TENN. CODE ANN. § 7-52-601 (West 2016); TEX. UTIL. CODE ANN. § 54.202 (West 2015); VA. CODE ANN. §§ 15.2-2108.6, 56-265.4:1 (West 2016); WASH. REV. CODE ANN. § 54.16.330 (West 2016); WIS. STAT. ANN. § 66.0422 (West 2015).

telecommunication service.”¹⁶⁵ This prevents cities from entering the market and providing their own service despite the fact that many cities are being exploited or underserved by incumbent providers.¹⁶⁶ As shown in the following Section, municipalities can function as highly competitive entrants with the help of a Dig Once policy as well as their superior ability to finance network construction via issuing bonds and operating without profit for a time.¹⁶⁷

The Broadband Conduit Deployment Act of 2015 would help to alleviate the burden states like Arkansas place on deploying broadband, but unfortunately almost no action has been taken on the bill since its introduction.¹⁶⁸ The Broadband Conduit Deployment Act of 2015 would specifically require states to evaluate the need for broadband conduit to be installed at the same time as a federally funded highway construction project.¹⁶⁹ If the evaluation shows the need to install the pipes in that area in the next 15 years, it would have to be installed at the same time as the highway construction.¹⁷⁰ Even if the statute still forbids the state from supplying the service, the conduit and infrastructure will be in place for either an existing or new carrier to affordably enter the market.¹⁷¹ It is likely, however, that once states are required to enact a Dig Once policy, such statutes forbidding the state from deploying broadband will fail or face amendments in order to capitalize on the newly laid infrastructure.¹⁷²

B. Reduction of Deployment Costs Through Dig Once

The high initial costs required to lay the cable infrastructure for broadband is the primary reason that low population density areas are often neglected by Internet Service Providers.¹⁷³ The National Broadband Plan recognizes this and

165. ARK. CODE ANN. § 23-17-409.

166. *Id.*

167. *Infra* Part III.

168. H.R. 3805, 114th Cong. (2015–2016).

169. *Id.*

170. *Id.*

171. FHWA, *supra* note 127.

172. *See, e.g.*, ALA. CODE § 11-50B-3 (2016); ARK. CODE ANN. § 23-17-409 (West 2016); COLO. REV. STAT. ANN. § 29-27-103 (West 2016); FLA. STAT. ANN. § 350.81 (West 2016); LA. REV. STAT. ANN. §§ 45:844.47 (2016); MICH. COMP. LAWS ANN. § 484.2252 (West 2016); NEB. REV. STAT. ANN. § 86-594 (West 2016); NEV. REV. STAT. ANN. §§ 268.086, 710.147 (West 2015); N.C. GEN. STAT. ANN. § 160A-340.1 (West 2016); 66 PA. STAT. ANN. AND CONS. STAT. ANN. § 3014 (West 2016); S.C. CODE ANN. § 58-9-2620 (2016); TENN. CODE ANN. § 7-52-601 (West 2016); TEX. UTIL. CODE ANN. § 54.202 (West 2015); VA. CODE ANN. §§ 15.2-2108.6, 56-265.4:1 (West 2016); WASH. REV. CODE ANN. § 54.16.330 (West 2016); WIS. STAT. ANN. § 66.0422 (West 2015) (all statutes would either be repealed or amended if states enact a Dig Once policy).

173. *See* NPR Staff, *Austin Is Latest Test Bed For Google's High-Speed Experiment*, ALL TECH CONSIDERED (Apr. 9, 2013, 2:29 PM), <http://www.npr.org/sections/alltechconsidered/2013/04/09/176687467/austin-is-latest-testbed-for-googles-high-speed-experiment> (on file with *The University of the Pacific Law Review*) (the cost to deploy a fiber project in Kansas City is about \$94 million to connect 149,000 homes. In a low population density area, this cost will be split among fewer end-users).

proposes several solutions to reduce the costs of deployment.¹⁷⁴ Notable initiatives from the plan include detailing a timeline and process for initial access and subsequent disputes, improvement of data on location and availability of rights-of-way, coordination of processes at the state and federal level, and establishing industry best practices.¹⁷⁵

Another possible solution can be found in the proposal for the Broadband Conduit Deployment Act of 2009.¹⁷⁶ This Act would have ensured that “an appropriate number of broadband conduits, as determined by the Secretary, are installed along such highway to accommodate multiple broadband providers, with consideration given to the availability of existing conduits.”¹⁷⁷ The Broadband Conduit Deployment Act was rejected, however, and it gave the FCC little guidance on whether or how it must determine the basis for requiring deployment based on consumer demand or broadband providers’ demand in calculating the number of conduits required in an area.¹⁷⁸

1. Minimizing Excavation Through State or Municipal Coordination

The best solution to reduce deployment costs is to encourage states to implement a Dig Once policy.¹⁷⁹ Despite many past legislative proposals failing of to gain traction, some states have enacted their own Dig Once policies.¹⁸⁰ These policies seek to save money by allowing for installation of infrastructure with as little excavation as possible as well as facilitating access to rights-of-way.¹⁸¹ This is because the most burdensome cost associated with deploying broadband is typically burying conduit underground.¹⁸² Additionally, about 90 percent of the cost of deploying broadband occurs when the work requires significant excavation of the highway.¹⁸³

However, the FCC must be careful not to overstep its bounds as it may not be able to ascertain which details of the policy would be most beneficial for each

174. H.R. 3805.

175. *Id.*

176. H.R. 2428, 111th Cong. (2009).

177. *Id.*

178. *Id.* at § 330(b).

179. FHWA, *supra* note 127; UNITED STATES DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, OFFICE OF POLICY AND GOVERNMENT AFFAIRS, EXECUTIVE ORDER: ACCELERATING BROADBAND INFRASTRUCTURE DEPLOYMENT, SUCCESSFUL PRACTICES OF BROADBAND DEPLOYMENT IN HIGHWAY RIGHTS OF WAY: SUMMARY PAPER (May 2013), *available at* <https://www.fhwa.dot.gov/policy/otps/successprac.pdf> [hereinafter ACCELERATING BROADBAND INFRASTRUCTURE DEPLOYMENT] (on file with *The University of the Pacific Law Review*) (suggesting that lowered deployment costs would push states to implement Dig One policies).

180. ACCELERATING BROADBAND INFRASTRUCTURE DEPLOYMENT, *supra* note 179.

181. *Id.*

182. FHWA, *supra* note 127.

183. *Id.*

state.¹⁸⁴ For example, Utah took an informal approach, while Arizona went about it in a more formal way.¹⁸⁵

Utah began utilizing Dig Once in preparation for the 2002 Olympics by installing a communications conduit system with extra capacity for future use.¹⁸⁶ This policy has continued and now specifies the installation of oversized conduit during road construction, facilitating later broadband expansion.¹⁸⁷ When the state installs small sections of conduit, telecoms cooperate by helping extend the infrastructure and provide services to rural communities.¹⁸⁸ By using this approach, Utah has been able to provide most of its regions with a connection.¹⁸⁹ According to Tara Thue, former manager of the Utah Broadband Project, “This saves the State a ton of money as compared to going back in when somebody wants to put in a line or upgrade lines, because they don’t have to dig up the road again.”¹⁹⁰ Thue boasted about the speeds Utah provides, saying, “We’re fastest in the West, which is really impressive when you consider the amount of rural areas that we have.”¹⁹¹ Utah ranked fourth in the nation for broadband speed in Akamai Technologies’ most recent “State of the Internet” report and is also the top ranked state in the nation for home broadband adoption.¹⁹²

Arizona enacted a statute that targeting rural broadband deployments that were only applicable to road construction or expansions outside of cities or towns with a population of more than 10,000 people.¹⁹³ The statute requires the company installing the conduit to provide a minimum level of service.¹⁹⁴ Specifically, companies must provide “access and transport to the Internet, computer processing, information storage or protocol conversion at a rate of at least one megabit per second . . . as established by the Federal Communications Commission.”¹⁹⁵ Arizona makes this possible by giving additional authority to its

184. See, e.g., UTAH’S GOVERNOR’S OFFICE OF ECONOMIC DEVELOPMENT, UTAH BROADBAND ADVISORY COUNCIL REPORT (2012), available at <http://utahbroadband.files.wordpress.com/2012/06/utah-broadband-advisory-council-report3.pdf> [hereinafter UTAH BROADBAND ADVISORY COUNCIL REPORT] (on file with *The University of the Pacific Law Review*) (an example of a state taking the initiative to address their own concerns without the Federal Communications Commission’s intervention).

185. *Id.*; ARIZ. REV. STAT. ANN. § 28-7381 (2012).

186. UTAH GOVERNOR’S OFFICE OF ECONOMIC DEVELOPMENT, ON THE FAST TRACK, <http://business.utah.gov/publications/on-fast-track/> (last visited Feb. 10, 2017) (on file with *The University of the Pacific Law Review*).

187. *Id.*

188. *Id.*

189. *Id.*

190. *Id.*

191. *Id.*

192. *Id.*

193. ARIZ. REV. STAT. ANN. § 28-7381(6) (2012).

194. *Id.* at 2(a).

195. *Id.*

DOT to regulate the transportation of information.¹⁹⁶ This allows the DOT to coordinate the installation of conduit for multiple users in state highway rights-of-way.¹⁹⁷ The legislation brings in additional cost-sharing mechanisms, such as requiring Internet companies to pay a “cost-based rate” to lease conduit alongside qualified roads.¹⁹⁸

Dig Once is not only effective in rural areas.¹⁹⁹ It is more than capable of working in high traffic areas as well.²⁰⁰ One of the earlier instances of a Dig Once policy occurred in Boston in 1994.²⁰¹ Boston adopted a policy mandating that all telecoms install their underground conduits in the same trench, at the same time, on a shared cost basis.²⁰² This gave the local telecoms a main role in coordinating and installing telecommunications services for the city.²⁰³

Boston’s policy operates through a lead company, which is the first company that approaches the city for a build-out request and is in charge of coordinating construction.²⁰⁴ The lead company works with participating telecoms to estimate the costs of construction, develop the engineering plan, and apply to the city’s Public Improvement Commission for a build-out permit.²⁰⁵ Boston is able to exercise power through its ordinances to manage its streets, which is different from most major cities.²⁰⁶ Additionally, Boston is not bound by state procurement laws because it works with the telecoms through license agreements.²⁰⁷ This led to Boston having fewer regulatory hurdles to work through than other cities when laying conduit.²⁰⁸

San Francisco also adopted a Dig Once ordinance in 2014.²⁰⁹ The ordinance demands the installation of -owned communications infrastructure in excavation projects where the city has determined that it is both financially feasible and consistent with the city’s communications infrastructure.²¹⁰ This is accomplished

196. THE COUNCIL OF STATE GOVERNMENTS, DIG ONCE: USING PUBLIC RIGHTS-OF-WAY TO BRIDGE THE DIGITAL DIVIDE, http://www.csg.org/pubs/capitolideas/enews/cs41_1.aspx (last visited Feb. 10, 2017).

197. *Id.*

198. *Id.*

199. *See, e.g.*, ACCELERATING BROADBAND INFRASTRUCTURE DEPLOYMENT, *supra* note 179; CITY AND COUNTY OF SAN FRANCISCO, DEPARTMENT OF TECHNOLOGY, DIG ONCE SPECIFICATION 1 (2015), <http://sfgov3.org/modules/showdocument.aspx?documentid=6885> [hereinafter DIG ONE SPECIFICATION] (on file with *The University of the Pacific Law Review*); S.F., CAL., PUB. WORKS CODE § 2.4 (2014) (showing that both Boston and San Francisco are examples of non-rural areas where Dig Once has been considered).

200. *Id.*

201. ACCELERATING BROADBAND INFRASTRUCTURE DEPLOYMENT, *supra* note 179.

202. *Id.*

203. *Id.*

204. FHWA, *supra* note 127.

205. *Id.*

206. ACCELERATING BROADBAND INFRASTRUCTURE DEPLOYMENT, *supra* note 179.

207. *Id.*

208. *Id.*

209. DIG ONCE SPECIFICATION, *supra* note 199, at 1; S.F., CAL., PUB. WORKS CODE § 2.4 (2014).

210. S.F., CAL., PUB. WORKS CODE § 2.4 (2014).

by: (i) requiring all municipal utilities to take communications infrastructure into account in their planning process, and (ii) requiring the establishment of a process for the Department of Technology to participate in utility excavation.²¹¹ The first requirement is fairly standard, but the implementation of the second sets this ordinance apart from prior Dig Once policies.²¹² Columbia Telecommunications Corporation (CTC) has worked with various stakeholders in order to develop technical specifications for Dig Once, criteria for prioritizing projects, and a methodology for estimating incremental costs.²¹³

CTC considered the following factors in developing conduit specification: capacity,²¹⁴ segmentation,²¹⁵ access,²¹⁶ costs,²¹⁷ robustness,²¹⁸ and architecture.²¹⁹ The decision to establish a standard specification comes at the cost of compromising the interests among users.²²⁰ However, it has the benefit of ensuring consistency and predictability in term of cost and deployment.²²¹

Prioritizing construction allows for a significant reduction in incremental costs by ensuring that resources are not wasted building conduit that will likely go unused.²²² San Francisco's Dig Once ordinance considers that conduit should not be laid down with every excavation.²²³ Proposing prioritization for: (i) construction opportunities that extend over long distances with a diverse range of

211. DIG ONCE SPECIFICATION, *supra* note 199, at 1.

212. *Compare* DIG ONCE SPECIFICATION, *supra* note 199, at 1, with UTAH BROADBAND ADVISORY COUNCIL REPORT, *supra* note 184 (while it is common for the Department of Technology to participate in Dig Once Policies, most do not require a process to be put in place for the Department of Technology to participate in utility excavation).

213. DIG ONCE SPECIFICATION, *supra* note 199, at 1.

214. *See id.* at 3 (“[S]ufficient conduit needs to be installed, and that conduit needs to have sufficient internal diameter, to accommodate future users’ cables and to be segmented to enable conduit to be shared or cables added at a future date”).

215. *See id.* (“[U]sers need to have the appropriate level of separation from each other for commercial, security, or operational reasons”).

216. *See id.* (“[V]aults and handholes need to be placed to provide access to conduit and the ability to pull fiber. Vaults need to be spaced to minimize the cost of extending conduit to buildings and other facilities that may be served by fiber”).

217. *See id.* (“[M]aterials beyond those which are likely to be needed will add cost, as will the incremental labor to construct them. Beyond a certain point, trenches need to be widened or deepened to accommodate conduit”).

218. *See id.* (“[T]he materials, construction standards, and placement need to reasonably protect the users’ fiber, and not unduly complicate maintenance and repairs”).

219. *See id.* (“[S]weeps, bend radius, and vault sizes need to be appropriate for all potential sizes of fiber”).

220. *Id.* at 4.

221. *Id.*

222. *Id.* at 10.

223. S.F., CAL., PUB. WORKS CODE § 2.4 (2014); *see* DIG ONCE SPECIFICATION, *supra* note 199, at 10 (noting factors that may waste resources such as: excavation projects that extend only a short distance; excavation projects that are, and are likely to remain, isolated; excavation projects in low population density areas; and certain conduit installations can be more costly using dig once when the excavator is not digging a trench).

possibilities for immediate and future use; (ii) opportunities that are close to city and community anchor locations requiring service; (iii) opportunities in areas where non-city users have expressed interest in conduit; (iv) areas where new commercial developments are likely to require city and non-city broadband connectivity; (v) areas that are targeted for economic deployment; (vi) areas where there are no utility poles on or near the project, or where utilities are scheduled to be buried; and (vii) targets of opportunity such as bridges or freeway underpasses—thus ensuring that the projects qualifying for priority offer the highest cost to potential benefit ratio.²²⁴

Former San Francisco Board of Supervisors President and now Assemblyman, David Chiu, plans to bring a citywide free Wi-Fi network through the Dig Once ordinance.²²⁵ The installation of city-owned fiber has the opportunity to make sure that no one is left without high-speed access.²²⁶ Chiu believes, “Quality broadband service is no longer a luxury. It is a necessity for our economy and our education system. You need access to high-speed broadband to compete, just as you needed access to water, roads and electricity in the 20th century.”²²⁷ This is especially true in a city such as San Francisco, which has become a hub for innovation and increasingly relies on high speed broadband.²²⁸

Dig Once has even seen application outside of state and municipal use.²²⁹ Railroad tracks are almost perfect for laying the necessary conduit because they offer linear routes.²³⁰ This is how Sprint originally got into the telecommunications industry.²³¹ The Southern Pacific Railroad laid thousands of miles of telegraph wire along its tracks, eventually announcing that its subsidiary, Southern Pacific Railroad Internal Network Telecommunications (SPRINT),

224. DIG ONCE SPECIFICATION, *supra* note 199, at 10–11 (explaining that prioritization is determined by considering proximity of the project to City facilities requiring increased connectivity, potential interest in conduit from City departments, service providers, or developers, ability to place conduit to cover long, continuous corridors across the City, lack of utility poles in the area, and incremental cost of the proposed excavation).

225. Marisa Lagos, *Chiu Wants S.F. to Seize Openings to Lay Wi-Fi Cable*, SFGATE (Oct. 19, 2014), available at <http://www.sfgate.com/politics/article/Chiu-wants-S-F-to-seize-openings-to-lay-Wi-Fi-5833645.php> (on file with *The University of the Pacific Law Review*).

226. *Id.*

227. Press Release, *Board of Supervisors President David Chiu Calls for “Dig Once” to Help Improve Internet Connectivity and Close Digital Divide in San Francisco* (Oct. 20, 2014) (on file with *The University of the Pacific Law Review*).

228. *Id.*

229. Jane Tanner, *New Life for Old Railroads: What Better Place to Lay Miles of Fiber Optic Cable*, N.Y. TIMES (May 6, 2000), <http://www.nytimes.com/2000/05/06/business/new-life-for-old-railroads-what-better-place-to-lay-miles-of-fiber-optic-cable.html>.

230. *Id.*

231. SP AND SPRINT, UTAH RAILS, (Nov. 12, 2015), <http://utahrails.net/sp/sprint.php> (on file with *The University of the Pacific Law Review*).

would offer shared time on its private line network.²³² This decision finally brought a competitor to AT&T's longstanding long-distance monopoly.²³³

A more recent example can be seen in the Florida East Coast Railroad in the 1980s when AT&T installed fiber optic cables along Florida East Coast Railroad's lines to reach growing cities.²³⁴ The railroad had been leasing the infrastructure to telecommunications companies, but recently took a different direction.²³⁵ Florida East Coast formed a subsidiary called FEC Telcom Inc. to enter into the telecommunications industry.²³⁶ By developing a fiber network along its rail lines, Florida East Coast's telecommunications loop reaches 73 percent of Florida's population.²³⁷ Today, there are also specially designed railroad cars that are able to plow cable underground as they move.²³⁸ Laying conduit this way offers significant cost savings as opposed to assembling conduit paths from scratch.²³⁹

The FCC should take note of these successful policies as well as the partnership between Google and Kansas City discussed below in formulating a streamlined approach that provides states with discretion in order to satisfy their specific situations and broadband needs.²⁴⁰

Such cooperation among broadband providers and local agencies allows broadband to be deployed at reduced costs.²⁴¹ By performing broadband projects while simultaneously doing roadwork, state DOTs are able to kill two birds with one stone in that they encourage investment and deployment of broadband in the area while completing any necessary road or utility repair.²⁴² This is the most efficient and cost effective way of bringing high speed broadband to rural areas.²⁴³

232. *Id.*

233. *Id.*

234. Tanner, *supra* note 229.

235. *Id.*

236. Mark Basch, *Making the Connection*, THE FLORIDA TIMES-UNION (Nov. 25, 1999), http://jacksonville.com/tu-online/stories/112599/bus_1c1fec_f.html (on file with *The University of the Pacific Law Review*).

237. *Id.*

238. Tanner, *supra* note 229.

239. *Id.*

240. *See, e.g., id.* (inferring that the FCC could be just as effective as the Florida East Coast's telecommunications loop in terms of significant cost savings); *see also infra* Part III.B.2.

241. BROADBAND CONDUIT REPORT, *supra* note 144, at 5–6.

242. *Id.*

243. UTAH BROADBAND ADVISORY COUNCIL REPORT, *supra* note 184.

2. *Google Fiber: A Successful Experiment*

In 2011, Google selected Kansas City as the first test site for its Google Fiber Project.²⁴⁴ While it is still in its infancy with limited deployment, the Google Fiber Project looks very promising, yet still has left some skeptical of its longevity.²⁴⁵ Essentially, Google has agreed to build, operate, and maintain a fiber-optic network with speeds of up to one gigabit per second.²⁴⁶ Not only does this far exceed even the goals of the National Broadband Plan, it is also available to residents at a cost of \$70 per month. The Google Fiber project also offers a basic Internet plan where residents can pay a \$300 construction fee to receive 5 megabits per second speeds at no cost beyond the initial construction fee.²⁴⁷

The project drew the attention of then FCC Commissioner Ajit Pai, who noted the need for “states and local communities to adopt broadband-friendly policies when it comes to rights-of-way management.”²⁴⁸ After visiting the project site, Pai urged others to follow in Google’s footsteps with the demonstrated success of its Kansas City partnership and learn how to streamline their own rights-of-way management processes.²⁴⁹ Pai also noted that the city’s supportive policies were a large part of why Google chose Kansas City for its test site.²⁵⁰

Google continues to expand the project and is currently either functioning or developing in Atlanta, Austin, Charlotte, Nashville, Raleigh-Durham, Salt Lake City, and San Antonio, with additional expansion planned for the future.²⁵¹ The FCC should heed its own advice and make use of its ancillary authority to support and encourage projects like this in other areas.²⁵² In order to spur such development, the FCC should develop best practices for management of rights-

244. Milo Medin, *Ultra High-Speed Broadband is Coming to Kansas City, Kansas*, GOOGLE BLOG (Mar. 30, 2011), <http://googleblog.blogspot.com/2011/03/ultra-high-speed-broadband-is-coming-to.html> (on file with *The University of the Pacific Law Review*).

245. Haydn Shaughnessy, *Google Fiber and Google Glass Could Also Come to Nothing*, FORBES (Dec. 18, 2015), available at <http://www.forbes.com/sites/haydnshaughnessy/2013/04/26/google-fiber-and-google-glass-could-also-come-to-nothing/2/> (on file with *The University of the Pacific Law Review*).

246. DEVELOPMENT AGREEMENT, FINAL EXECUTION VERSION 5, 7 (2011), available at <http://www.netcompetition.org/wp-content/uploads/Google-Kansas-Agreement1.pdf> (on file with *The University of the Pacific Law Review*) (describing that, in addition to residential service, Google promised connections to 300 city and governmental locations).

247. *Plans and Pricing*, GOOGLE FIBER, <https://fiber.google.com/cities/kansascity/plans/> (last visited Jan. 27, 2017) (on file with *The University of the Pacific Law Review*).

248. Ajit Pai, *Statement of Commissioner Ajit Pai on His Visit to Kansas City’s Google Fiber Project*, FED. COMM. COMM’N (Sept. 5, 2012), available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0905/DOC-316114A1.pdf (on file with *The University of the Pacific Law Review*).

249. *Id.*

250. *Id.*

251. *Cities and Plans*, GOOGLE FIBER, <https://fiber.google.com/about/> (last visited Jan. 27, 2017) (on file with *The University of the Pacific Law Review*).

252. See THE NATIONAL BROADBAND PLAN, *supra* note 17 (detailing a comprehensive strategy to increase broadband deployment across the country).

of-way that facilitate broadband deployment while protecting government interests. Streamlining the rights-of-way management is what made it possible for Google to move into Kansas City with such efficiency.²⁵³

The municipal policies in place in Kansas City were also a tremendous aid to the project.²⁵⁴ Most notably, Kansas City waived all fees to its rights-of-way.²⁵⁵ Google thereby essentially received a taxpayer subsidy in order to incentivize development.²⁵⁶ However, others following the project claim that the lack of fees played a small role—Google focused more on Kansas City eliminating unnecessary costs and delays in the deployment process.²⁵⁷ Either way, the project must be viewed as a success, and action needs to be taken by the FCC in order to push other stakeholders to make similar investments into the infrastructure necessary to deploy high speed broadband.

High cost is one of the biggest barriers to getting quality Internet service to families living in affordable housing programs.²⁵⁸ By bringing affordable Internet to low-income families, Google Fiber accomplished what the FCC began striving for in the 1934 Act and is still reaching for in the National Broadband Plan.²⁵⁹ Google Fiber addressed the fact that the United States has some of the most expensive broadband in the world, yet is unable to keep up with other nations in Internet speeds.²⁶⁰ In doing so, Google Fiber laid down a framework that future providers can follow to bring broadband to the rest of the nation.²⁶¹

253. *Field Hearing on Innovation and Regulation Before the H. Comm. on Oversight and Gov't Reform*, 112th Cong. 3 (2011) (statement of Milo Medin, Google's Vice President of Access Services), available at http://oversight.house.gov/wp-content/uploads/2012/01/TestimonyofMiloMedin_1.pdf (on file with *The University of the Pacific Law Review*).

254. DEVELOPMENT AGREEMENT, *supra* note 246, at 4–7.

255. *See id.* (stating that in addition to residential service Google promised connections to 300 city and governmental locations).

256. Timothy B. Lee, *How Kansas City Taxpayers Support Google Fiber: Google Fiber isn't Exactly a Free-Market Success Story*, ARS TECHNICA (last visited Jan. 27, 2017), available at <http://arstechnica.com/tech-policy/2012/09/how-kansas-city-taxpayers-support-google-fiber/> (on file with *The University of the Pacific Law Review*).

257. Fred Campbell, *Market Demand Knocks Down Regulatory Barriers in Kansas City Fiber Deployment*, ARS TECHNICA, <http://arstechnica.com/business/2012/09/market-demand-knocks-down-regulatory-barriers-in-kansas-city-fiber-deployment/> (last visited Jan. 27, 2017) (on file with *The University of the Pacific Law Review*).

258. Andrew Perrin & Maeve Duggan, *Americans' Internet Access: 2000-2015*, PEW RESEARCH CENTER 6 (June 28, 2015), available at http://www.pewinternet.org/files/2015/06/2015-06-26_internet-usage-across-demographics-discover_FINAL.pdf (on file with *The University of the Pacific Law Review*).

259. THE NATIONAL BROADBAND PLAN, *supra* note 17.

260. Dennis Kish, *Connecting Public Housing, at Gigabit Speeds*, GOOGLE FIBER OFFICIAL BLOG (Feb. 03, 2016), <http://googlefiberblog.blogspot.com/2016/02/connecthome-gigabit.html> (on file with *The University of the Pacific Law Review*); COMMON CAUSE EDU. FUND, THE FALLOUT FROM THE TELECOMMUNICATIONS ACT OF 1996: UNINTENDED CONSEQUENCES AND LESSONS LEARNED 3 (2005).

261. Pai, *supra* note 248.

Internet access can be the difference between success and failure for many people.²⁶² Giving children the opportunity to use computers in after school programs, learn basic computer skills, go online to finish their homework, take advantage of online educational tools, and participate in STEM²⁶³ classes can help them escape the cycle of poverty the Telecommunications Act sought to end.²⁶⁴ However, over the first ten years, the legislation that was expected to save consumers \$550 billion resulted in cable rates rising by about 50 percent and local phone rates increasing by over 20 percent.²⁶⁵ This result is antithetical to the very purpose behind the Telecommunications Act.²⁶⁶ Google Fiber has shown that it is possible to make broadband both available and affordable to those who need it most.²⁶⁷

With the success of Google Fiber still growing, the FCC should seize this opportunity to implement the lessons learned from the project to determine how to push current broadband service providers to upgrade their existing networks as well as convince new competitors to enter the market in untapped areas. Another former FCC Chairman demanded in 2013 that at least one city in every state should have a gigabit community.²⁶⁸ This demand is similar to the National Broadband Plan, which aims to achieve affordable access to at least one gigabit broadband service to anchor institutions such as schools, hospitals, and government buildings.²⁶⁹

If and when the FCC acts, there are three main parties that it must consider: (i) consumers who want faster broadband speeds at more affordable prices;²⁷⁰ (ii) broadband providers that seek to expand their service and continue to call for greater deregulation of rights-of-way access in order to ensure that they can

262. Tom Risen, *Google Fiber Gives Free Internet to the Poor*, US NEWS, (Feb. 3, 2016), available at <http://www.usnews.com/news/articles/2016-02-03/google-fiber-gives-free-internet-to-the-poor> (on file with *The University of the Pacific Law Review*).

263. STEM stands for science, technology, engineering, and math. U.S. DEP'T OF EDUC. SCIENCE, *Technology, Engineering and Math: Education for Global Leadership* (last visited Feb. 21, 2017), available at <https://www.ed.gov/stem> (on file with *The University of the Pacific Law Review*).

264. COMMON CAUSE EDUC. FUND, *supra* note 260, at 6.

265. *Id.*

266. H.R. 104-458.

267. Kish, *supra* note 260.

268. *FCC Chairman Julius Genachowski Issues Gigabit City Challenge to Providers, Local, and State Governments to Bring at Least One Ultra-Fast Gigabit Internet Community to Every State in U.S. by 2015: FCC's Broadband Acceleration Initiative to Foster Gigabit Goal*, FED. COMM. COMM'N (Jan. 18, 2013), available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0118/DOC-318489A1.pdf (on file with *The University of the Pacific Law Review*).

269. THE NATIONAL BROADBAND PLAN, *supra* note 17.

270. Joel Gurin, *More on Speed: Just How Satisfied Are Customers*, FED. COMM. COMM'N (June 2, 2010), available at <http://www.fcc.gov/blog/more-speed-just-how-satisfied-are-customers> (on file with *The University of the Pacific Law Review*).

quickly and easily gain access to existing infrastructure;²⁷¹ and (iii) states which continue to assert that the right-of-way represents a property interest that the federal government should refrain from restricting if a state seeks to impose fees beyond the cost of access.²⁷²

The FCC must introduce a precise regulatory framework that will allow states and broadband providers to reach a compromise and work efficiently together. As the Google Fiber Project has shown, cooperation is a key element to successfully deploying a new broadband network.²⁷³ While deployment would typically be met with a variety of delays leading to higher costs and more days without revenue, the quick and efficient process made Google's experiment extremely successful.²⁷⁴

IV. CONCLUSION

The FCC already has the tools it needs to meet the goals of the National Broadband Plan. By following the path carved out by Google and Kansas City, as well as states like Utah and Arizona and cities such as Boston and San Francisco with successful Dig Once policies, high speed, affordable broadband can soon become a reality for consumers in areas willing to accept a loss of right-of-way fees.²⁷⁵ While initial pushback against losing such a valuable property right is expected, once the benefits that Kansas City residents are experiencing are realized, many other cities are likely to follow suit.²⁷⁶

The FCC has a tried and true method of deployment that has been proven successful in Dig Once.²⁷⁷ States merely need a push in the right direction for this trend to gain momentum.²⁷⁸ The resulting benefits are clear; Dig Once can bring broadband to rural areas at a significantly reduced cost, while municipal cooperation with a private enterprise will succeed in urban environments, such as Kansas City.²⁷⁹

271. *A National Broadband Plan for our Future*, FCC GN Docket No. 09-51, Reply Comments of Google Inc., at 40-41 (July 21, 2009), available at <http://apps.fcc.gov/ecfs/document/view?id=7019917558> (on file with *The University of the Pacific Law Review*).

272. Frederick E. Ellrod III & Nicholas P. Miller, *Property Rights, Federalism and the Public Rights-of-Way*, 26 SEATTLE U. L. REV. 475, 483-85 (2003).

273. *Acceleration of Broadband Deployment*, FCC GN Docket No. 11-59, Reply Comments of Am. Cable, at 9 (Sept. 30, 2011), available at <http://apps.fcc.gov/ecfs/document/view?id=7019917558> (on file with *The University of the Pacific Law Review*).

274. Holly Trogdon, *Lessons From Google Fiber: Why Coordinated Cost Reductions to Infrastructure are Necessary to Achieve Universal Broadband Deployment*, 66 FED. COMM. L. J. 103, 106 (2013).

275. *Supra* Part III.

276. *Supra* Part III.B.2.

277. *Supra* Part III.

278. *Supra* Part III.

279. *Supra* Part III.

Both for those cities that are willing to give up right-of-way fees and rural areas with low population density, the Dig Once method will ease the burden on those who wish to enter into the broadband service industry.²⁸⁰ Such cost reductions are a benefit to everyone: service providers, consumers, and the states.²⁸¹ Increased access to broadband strengthens productivity, raises the quality of living in the area, and creates jobs that would not otherwise be possible.²⁸²

The tools exist to make America a worldwide leader in broadband, an essential factor to the nation's competitiveness. Broadband drives job creation, promotes innovation, expands markets for American businesses, and supports improved education, health care, and public safety.²⁸³ The precedent set by Google Fiber and the potential of the Broadband Conduit Deployment Act of 2015 are the solutions needed to achieve the goals set by the National Broadband Plan, bringing affordable access to robust broadband service to every American.

280. *Supra* Part III.

281. *Supra* Part III.

282. Cyrus Farivar, *Google Fiber is Live in Kansas City, Real World Speeds at 700Mbps*, ARS TECHNICA (Nov. 13, 2012), <http://arstechnica.com/business/2012/11/google-fiber-is-live-in-kansas-city-real-world-speeds-at-700-mbps>; Ben Palosaari, *With Google Putting Fiber in Austin, Kansas City Startup Village Confronts an Uncertain Future*, THE PITCH (May 2, 2013), <http://www.pitch.com/kansascity/kansas-city-startup-village-google-fiber/Content?oid=3214898&showFullText=true> (on file with *The University of the Pacific Law Review*).

283. *Supra* Part III.