

BEFORE THE LB 645 BROADBAND TASK FORCE  
LINCOLN, NEBRASKA

## The Need to Permit Broadband from Public Entities



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Submitted on Behalf of  
Brennan Center for Justice at NYU School of Law, Center for Rural Affairs,  
Common Cause, Free Press, Media Access Project, Nebraska Appleseed  
Center for Law in the Public Interest, and Rural Policy Research Institute

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## **Executive Summary**

Nebraska Statute 86-593-599, passed as Legislative Bill 645 (“LB 645”), prohibits subdivisions of the state as well as public power companies from retailing broadband and other telecommunications services. The law imposes a two year moratorium on public power companies’ wholesaling broadband and other telecommunications services. LB 645 also created a task force (“Task Force”) to investigate broadband access in Nebraska and to consider the implications of allowing public entities to provide broadband service.

This white paper is submitted to the LB 645 Task Force by a coalition of organizations concerned about equality of access to communications media for all Americans: the Brennan Center for Justice at NYU School of Law (the “Brennan Center”), the Center for Rural Affairs, Common Cause, Free Press, Media Access Project, the Nebraska Appleseed Center for Law in the Public Interest and the Rural Policy Research Institute. This white paper is designed to provide the Task Force with information and policy options.

While the provision of broadband service by public entities is a contentious topic, there have been no comprehensive studies of municipal broadband service providers that would provide easy answers to policy makers. Instead researchers have considered single cities or one type of provider. There are several reasons for the dearth of comprehensive studies. One is that the technologies involved are so new. Another is that indispensable data sets are often proprietary, confidential or nonexistent. To aid the Task Force in its duties, we have gathered information from the publicly available sources. To supplement these data sets, the Brennan Center distributed a questionnaire (the “Brennan Center

Questionnaire”) to the Nebraskan members of the Center for Rural Affairs and Common Cause to gather information about the challenges experienced by Nebraskan Internet users.

For the purposes of this white paper, we define broadband in terms of (1) quality and (2) speed. Broadband Internet service should allow the end-user to originate and receive high-quality voice, data, graphics, and video telecommunications. At a minimum, broadband should provide a data speed of 200 kilobits per second (kbps).<sup>1</sup> In terms of modality, we consider the following services as providing broadband service: Digital Subscriber Lines (DSL), T-1<sup>2</sup>, wireless broadband (Wi-Fi or WiMax), broadband over power lines (BPL), cable modems and satellite Internet service. If we are defining broadband negatively, we would say that broadband is not dial-up Internet service.<sup>3</sup>

In Part I of this white paper, we will explore the status of broadband deployment both nationally and in Nebraska. We have found that some Nebraskans lack access to broadband providers and others live in areas where there is unaffordable broadband service. A significant minority (43% living outside of towns in 2005<sup>4</sup> and 7.4% of

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<sup>1</sup> Kbps or kilobits per second means thousands of bits per second.

<sup>2</sup> A T1 (or T-1) line is a dedicated connection supporting data rates of 1.544 mbps. A T1 line actually consists of 24 individual channels, each of which supports 64kbps per second.

<sup>3</sup> Some, including the Canadian government, define true broadband as providing uploading and downloading speeds greater than 1.5 mbps. See S. DEREK TURNER, FREE PRESS, CONSUMERS UNION & CONSUMERS FEDERATION OF AMERICA, BROADBAND REALITY CHECK, THE FCC IGNORES AMERICA’S DIGITAL DIVIDE 5 (August 2005), available at [http://www.freepress.net/docs/broadband\\_report.pdf](http://www.freepress.net/docs/broadband_report.pdf) (last visited Mar. 13, 2006). Others, such as FCC Commissioner Michael Copps, think a 200 kbps definition is outdated. See FCC, FOURTH REP. TO CONG., FCC 04-208, GN DOCKET NO. 04-54, AVAILABILITY OF ADVANCED TELECOMMUNICATIONS CAPABILITY IN THE UNITED STATES 39 (September 9, 2004), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-04-208A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-208A1.pdf) (last visited Mar. 13, 2006).

<sup>4</sup> Eric Carstenson, *Broadband Coverage in Nebraska Becoming more Broad*, TANGENTS (Technologies Across Nebraska, Lincoln, N.E.), Special Policy Issue 2005, at 13, available at [http://extension.unl.edu/tangents/tangents\\_policy4-05.pdf](http://extension.unl.edu/tangents/tangents_policy4-05.pdf) (last visited Mar. 13, 2006) (“‘Rural’ is defined as anyone living outside the city limits of any community.”).

Nebraskan towns in 2006 according to the Nebraska Telecommunications Association<sup>5</sup>) lacked access to broadband service. These numbers most likely understate the magnitude of the problem because of the reporting methodologies used.<sup>6</sup> Around half of Nebraska's towns are only served by a monopoly wired broadband provider who can charge high prices for broadband service.<sup>7</sup>

The data also demonstrate that rural Nebraskans in particular are more frequently priced out of the broadband market than their urban counterparts. Those living in small Nebraskan towns and in the countryside, and even many living just outside larger Nebraskan cities are faced with unaffordable broadband service. The advent of satellite Internet service has not solved the problems of access or affordability in rural Nebraska. Even though theoretically any Nebraskan with a view of the southern sky could subscribe to satellite Internet service, in reality, satellite dealers in Nebraska who sell and install dishes are not ubiquitous. And in the limited spots where satellite dishes are available, the equipment and the monthly service costs are high.

In Part II, we will explore the arguments for and against municipal broadband. Opponents of municipal broadband argue, among other points, that it is unfair for private providers to compete in a market against a sovereign government. Supporters of municipal broadband argue that the private market has failed to provide universal, affordable broadband access and that local public entities can play a vital role in providing this service to local communities. Much of the research on the pros and cons

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<sup>5</sup> Neb. Telecomm. Assoc. (NTA), Broadband Search, <http://www.ntaonline.net/broadband/2005/all.asp> (last visited April 27, 2006) [hereinafter NTA, Broadband Providers in Nebraska].

<sup>6</sup> For example, the FCC counts a single broadband customer in a single zip code as broadband deployment. It is unclear how many customers must be served in a given location for the Nebraska Telecommunications Association to count the area as having broadband service.

<sup>7</sup> NTA, Broadband Providers in Nebraska, *supra* note 5.

of municipal broadband has focused on the role that public power providers can play in this market because they have been at the vanguard of installing wired broadband networks. Part II will discuss this research as well as the more recent developments such as wireless broadband (Wi-Fi) and broadband over power lines (BPL) that make public broadband networks less costly.

In Part III, we will lay out policy options and guidance for rolling out a public broadband system. We will argue that adopting LB 645 was a poor policy choice for Nebraska. This law limits the ability of localities in Nebraska to respond to the needs of their citizens and their businesses. We encourage the Task Force to recommend a repeal of this law. We will aver that municipalities and public power companies can play useful roles in deploying broadband where there currently is no service and adding competition (thereby improving service and lowering prices) where monopolies and duopolies currently exist. Public power providers also have great potential to provide broadband service to Nebraskan communities either through broadband over power lines (BPL), by using dark fiber<sup>8</sup>, or by launching wireless networks using existing infrastructures.

All of the signatories to this white paper are non-profit organizations that do not have any economic interest in either side of this debate.

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<sup>8</sup> Dark fiber is optical fiber infrastructure (cabling and repeaters) that is currently in place but is not being used.

## Part I: The Landscape of Broadband Deployment Nationally and in Nebraska

### A. Introduction

Thomas Jefferson wrote in 1786:

I think by far the most important bill in our whole code, is that for the diffusion of knowledge among the people. No other sure foundation can be devised for the preservation of freedom and happiness. . . . The tax which will be paid for this purpose is not more than the thousandth part of what will be paid to kings, priests and nobles who will rise up among us if we leave the people in ignorance.<sup>9</sup>

Jefferson was writing in support of public education, a controversial topic of his day because education had been the province of private schools and private tutors. But his sentiment just as forcefully applies to the diffusion of knowledge today through the Internet. In order for the nation to have an educated and productive populace, the general public needs low-cost, high-speed Internet connections. We believe that to achieve ubiquitous service, public providers must be allowed into this market.

Broadband or high-speed Internet service has become crucial to businesses, students, and the general public as the Internet becomes a global marketplace for ideas, culture and goods. In 2005, approximately \$86.3 billion in retail sales were made over the Internet, making online commerce an integral component to our national economy.<sup>10</sup>

Yet for many Nebraskans, broadband is neither available nor affordable.

According to respondents to the Brennan Center Questionnaire, broadband service was not available in Nebraska in Albion, Sidney, Valparaiso, North Loup, Table Rock, and

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<sup>9</sup> Letter from Thomas Jefferson to George Wythe (1786), in 5 THE WRITINGS OF THOMAS JEFFERSON 396 (Albert A. Lipscomb & Albert Ellery Bergh eds., 1903-04), available at <http://etext.virginia.edu/jefferson/quotations/jeff1370.htm> (last visited Mar. 13, 2006).

<sup>10</sup> Econ. and Statistics Admin., U.S. Census Bureau, *Quarterly Retail E-Commerce Sales 4th Quarter 2005*, February 17, 2006, available at <http://www.census.gov/mrts/www/data/html/05Q4.html> (last visited Mar. 13, 2006).

Martell. In other cases broadband service is offered, but at prices that are unaffordable to users. The first year of satellite broadband service would cost a typical Nebraskan family over \$1,000; subsequent years would cost \$600/year.<sup>11</sup> This is more than quadruple the average cost of \$240/year for dial-up service in Nebraska.<sup>12</sup> These problems of availability and cost are felt most acutely by rural Nebraskans.

Municipalities in other states have entered the broadband market to address their citizens' need for available, affordable broadband access. In several instances, public power companies have been in the vanguard of providing broadband service. The entry of public providers into this market, however, has drawn fire largely from private broadband providers. This white paper describes the policy implications of both keeping public providers out of the broadband market or allowing them into the market.

## **B. Role of Government in Internet Deployment**

The Task Force is faced with several basic policy questions. What is the proper role of public entities in providing telecommunications services to the citizens of Nebraska? Should a locality view broadband access as a luxury that should be offered at the highest price the market can bear or should it be viewed as a necessity that needs to be subsidized or supported? Should broadband access be provided by a public utility in the same way that power is or should private telecommunications companies be the sole

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<sup>11</sup> Satellite Internet service providers WildBlue and DirecWay offer service in Nebraska for \$50 per month. WildBlue charges \$299 for equipment and \$179 for installation. *See* WildBlue, For Your Home: Packages and Pricing, <http://www.wildblue.com/forYourHome/index.jsp> (last visited Mar. 13, 2006). DirecWay charges \$599 for equipment and installation. *See* DirecWay, So What's New About the DW700 and DirecWay Service Plans?, <http://www.DirecWaysatellite.net/> (last visited Mar. 13, 2006).

<sup>12</sup> Forty-six Nebraskans reported having dial-up service on the Brennan Center Questionnaire. One did not list a price. One listed a price per ten hours of service. Three reported getting the dial-up service for free. The average price for dial-up service reported by forty Nebraskans was \$20.31 per month. Rounded to the nearest dollar, the price is \$20 per month or \$240 per year.

purveyors of this product? The proper role for government is at the root of many of these questions.

While Americans usually think of the Internet as a series of proprietary networks, this perception ignores the foundational role the federal government had in the Internet's infancy. Professor Rob Frieden reminds us that:

[T]he Internet originated as a collaboration of government agencies and universities under the auspices of the Defense Advanced Research Projects Agency, a branch of the United States Defense Department. The Internet later evolved under loose management and financial support from the National Science Foundation with the Department of Commerce administering domain name registration. While the United States government later eliminated direct financial underwriting when it privatized the Internet backbone, few would argue that early underwriting and anchor tenancy exemplified an unnecessary or intrusive government involvement.<sup>13</sup>

Since the federal government has scaled back its role in developing Internet infrastructure, many states and localities have begun to play an active role in building Internet infrastructure, including broadband networks.

Local governments' entry into the broadband market has been controversial. Those who have protested this development the loudest are telecommunications companies who would prefer that the entire market be served by themselves and other members of the private sector.<sup>14</sup> We argue in this white paper that municipalities and

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<sup>13</sup> Rob Frieden, *Best Practices in Broadband: Lessons from Canada, Japan, Korea and the United States* 5-6 (July 24, 2004), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=567802](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=567802) (last visited Mar. 13, 2006).

<sup>14</sup> See David Case, *GigaFight, Who Wouldn't Want Cheap, Public Internet Access? Comcast for One*, MOTHER JONES, May/June 2005, at 30, 30-33, available at <http://lafayetteprofiber.com/imagesNRef/Docs/GigaFight.html> (last visited Mar. 13, 2006) (providing examples of anti-municipal broadband actions by Comcast and SBC); Leon Lazaroff, *Debate Sizzles on the Wiring of U.S. Towns*, CHI. TRIB., May 27, 2005, at C8, available at <http://www.freepress.net/news/8264> (listing anti-municipal broadband lobbying by SBC, Verizon, Comcast, Mediacom and Qwest) (last visited Mar. 13, 2006); Tom Spring, *ISPs Attempt to Stop Public Broadband*, PC WORLD, Aug. 2005, at 26, 26,

other public entities should be allowed in this market for two primary reasons: (1) to provide consumers, especially rural consumers, a more competitive broadband market, and ultimately therefore, less expensive, higher quality Internet access and (2) to construct high-speed Internet infrastructures in places deemed by private companies to be economically untenable areas to build.

### **C. Deploying Broadband is a National Priority**

In the Telecommunications Act of 1996,<sup>15</sup> Congress directed the FCC to promote the timely deployment of advanced telecommunications services nationally.<sup>16</sup> As defined in the 1996 Act, advanced telecommunications capability refers to “high-speed, switched, broadband telecommunications capability that enables users to originate and receive high quality voice, data, graphics, and video telecommunications using any technology.”<sup>17</sup>

In 2004, President George W. Bush set a national goal that “[a]ll Americans should have affordable access to broadband technology by the year 2007.”<sup>18</sup> Federal Trade Commissioner Jon Leibowitz explained the reasons for this urgent pace of deployment: “[B]roadband is increasingly vital to our everyday functions and to our economy. . . . [I]t’s about the ability for everyone – business and consumers alike – to be able to access information that is fundamental to survive, grow, and thrive into the 21<sup>st</sup> Century.”<sup>19</sup>

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*available at* <http://www.pcworld.com/news/article/0,aid,121416,00.asp> (last visited Mar. 13, 2006) (detailing anti-municipal broadband actions by Time Warner, Bell South and Cox Communications).

<sup>15</sup> Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.).

<sup>16</sup> 47 U.S.C. § 157 (2002).

<sup>17</sup> *Id.*

<sup>18</sup> Press Release, President George W. Bush, *Broadband Rights-of-Way Memorandum* (April 26, 2004), *available at* <http://www.whitehouse.gov/news/releases/2004/04/20040426-2.html> (last visited Mar. 13, 2006).

<sup>19</sup> Jon Leibowitz, Commissioner, FTC, Remarks at the Nat’l Assoc. of Telecomm. Officers and Advisors 25th Annual Conference: Municipal Broadband: Should Cities Have a Voice? (Sept. 22, 2005), *available at* <http://www.ftc.gov/speeches/leibowitz/050922municipalbroadband.pdf> (last visited Mar. 13, 2006).

Yet despite our shared national goals, broadband deployment in the United States has stagnated. The U.S. now ranks 16<sup>th</sup> in the world in broadband penetration behind Iceland, Portugal and Japan.<sup>20</sup> The lack of affordable broadband access may affect America's competitive advantage in the global marketplace.

#### **D. Economic Benefits of Broadband**

In 2001, economists predicted that widespread broadband deployment in the United States could bring \$500 billion of benefits to the economy.<sup>21</sup> Five years later, the actual economic benefits of broadband are just beginning to be examined. Initial studies from both governmental agencies and the private sector show a strong correlation between broadband access and economic development.<sup>22</sup> Researchers from MIT and Carnegie Mellon University found “a substantial positive impact for broadband availability on the growth in total employment.”<sup>23</sup> These researchers also found their data supported the view “that broadband had an especially large impact in smaller, rural communities.”<sup>24</sup>

While broadband access brings efficiency in the workplace, access to broadband in the home also increases productivity. The MIT/Carnegie Mellon study concluded that “a residential broadband connection is a pre-requisite for working at home (enabling

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<sup>20</sup> See TURNER, *supra* note 3, at 4.

<sup>21</sup> ROBERT W. CRANDALL & CHARLES L. JACKSON, CRITERION ECONOMICS, L.L.C., THE \$500 BILLION OPPORTUNITY: THE POTENTIAL ECONOMIC BENEFITS OF WIDESPREAD DIFFUSION OF BROADBAND INTERNET ACCESS (July 2001), *available at* [http://www.sbc.com/public\\_affairs/broadband\\_policy/BrookingsStudy.pdf](http://www.sbc.com/public_affairs/broadband_policy/BrookingsStudy.pdf) (last visited Mar. 13, 2006).

<sup>22</sup> STEPHEN B. POCIASK, TELENOVIC RESEARCH, L.L.C. FOR THE SMALL BUSINESS ASSOCIATION OFFICE OF ADVOCACY, BROADBAND USE BY RURAL SMALL BUSINESSES 3-4, 8 (December 2005), *available at* <http://www.sba.gov/advo/research/rs269tot.pdf> (last visited Mar. 13, 2006); William H. Lehr et al., *Measuring Broadband's Economic Impact*, BROADBAND PROPERTIES, December 2005, at 12, 22, *available at* <http://www.broadbandproperties.com/2005issues/dec05issues/Measuring%20Broadband%20Eco%20Impact,%20Lehr,%20Gilett,%20Sirbu.pdf>.

<sup>23</sup> Lehr et al., *supra* note 22, at 22.

<sup>24</sup> *Id.*

productive use of non-traditional working hours, flexible work arrangements, or remote employment), or for establishment of a home-based business.”<sup>25</sup>

### **E. Cost of Broadband to End-Users**

While the cost of broadband to the consumer has come down from its record highs when the service was first introduced a decade ago, the price is still out of reach for many Americans. For example,

[p]rices for broadband access via wired media (DSL or cable) have steadily risen to hover around the \$50.00 per month mark, making broadband connectivity too expensive for many lower income households.... In addition, the two trends of consolidating service providers and the bundling of services into high cost packages will ultimately mean fewer provider choices and higher prices for consumers.<sup>26</sup>

These high prices most likely retard demand for broadband service for lower income Americans. Researchers have found that “[t]he slower adoption of broadband service in the U.S. is likely due in part to high prices.”<sup>27</sup>

### **F. The Rural Digital Divide**

The term “digital divide” describes a number of phenomena that prevent certain segments of the population from taking advantage of technological advancements. For example, poor families often cannot afford a computer. This is a type of digital divide. In the case of broadband supply, a rural/urban digital divide exists because “[b]roadband penetration is not distributed uniformly either geographically or demographically.”<sup>28</sup>

Rural communities more frequently lack Internet infrastructures to provide broadband

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<sup>25</sup> *Id.* at 19.

<sup>26</sup> Stone et al., *Making IT Work for Municipalities: Building Municipal Wireless Networks*, 23 GOV'T INFO. Q. (forthcoming 2006) (on file at the Brennan Center).

<sup>27</sup> *Id.*

<sup>28</sup> SHARON E. GILLETT ET AL., LOCAL GOVERNMENT BROADBAND INITIATIVES 3 (Dec. 3, 2003), available at <http://itc.mit.edu/itel/docs/2003/localgovbrbd.pdf> (last visited Mar. 13, 2006).

service or are faced with rural providers that may price broadband at levels that are unaffordable for rural residents.

This white paper focuses on the rural digital divide because Nebraska has only six communities with populations over 25,000.<sup>29</sup> While those living in Nebraska's larger communities have access to broadband, the vast majority of Nebraskan communities are facing the logistical challenge of trying to provide broadband to small populations that are spread over large geographical areas. In 2005, according to the Nebraska Telecommunications Association, 43% of rural Nebraskans did not have broadband access.<sup>30</sup>

Many studies have found there is rural/urban digital divide across America.<sup>31</sup> While some studies have found as many as 53% of American Internet users in 2005 had a broadband connection at home,<sup>32</sup> broadband deployment has lagged behind in rural

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<sup>29</sup> Anne Byers, *Debate Over Public Provision of Telecommunication Services Heats Up*, TANGENTS (Technologies Across Nebraska, Lincoln, N.E.), Special Policy Issue 2005, at 2, 5, available at [http://extension.unl.edu/tangents/tangents\\_policy4-05.pdf](http://extension.unl.edu/tangents/tangents_policy4-05.pdf) (last visited Mar. 13, 2006).

<sup>30</sup> Carstenson, *supra* note 4, at 13 (“‘Rural’ is defined as anyone living outside the city limits of any community.”).

<sup>31</sup> See, e.g., PETER BELL ET AL., PEW INTERNET & AM. LIFE PROJECT, RURAL AREAS AND THE INTERNET iii (February 17, 2004), available at [http://www.pewInternet.org/pdfs/PIP\\_Rural\\_Report.pdf](http://www.pewInternet.org/pdfs/PIP_Rural_Report.pdf) (last visited Mar. 13, 2006); CHARLES B. GOLDFARB, CONG. RESEARCH SERV., TELECOMMUNICATIONS ACT: COMPETITION, INNOVATION, AND REFORM 8-9 (Dec. 2005), available at [http://www.benton.org/benton\\_files/CRSTelecom%20Act.pdf](http://www.benton.org/benton_files/CRSTelecom%20Act.pdf) (last visited Mar. 13, 2006); LENNARD G. KRUGER, CONG. RESEARCH SERV., BROADBAND INTERNET ACCESS AND THE DIGITAL DIVIDE: FEDERAL ASSISTANCE PROGRAMS 2-3 (Sept. 22, 2005), available at <http://usinfo.state.gov/usa/infousa/tech/tech/rl30719.pdf> (last visited Mar. 13, 2006); JAMES E. PRIEGER, AEI-BROOKINGS JOINT CTR. FOR REGULATORY STUDIES, THE SUPPLY SIDE OF THE DIGITAL DIVIDE: IS THERE REDLINING IN THE BROADBAND INTERNET ACCESS MARKET? 1 (December 2001), available at <http://www.aei-brookings.org/admin/authorpdfs/page.php?id=183> (last visited Mar. 13, 2006); David G. Tuerck, *Competitive Effects of Municipal Provision of Wireless Broadband*, in NEW MILLENNIUM RESEARCH COUNCIL (NMRC), ‘NOT IN THE PUBLIC INTEREST—THE MYTH OF MUNICIPAL W1-FI NETWORKS’ 20, 22 (February 2005) [hereinafter NMRC, NOT IN THE PUBLIC INTEREST], available at <http://www.newmillenniumresearch.org/archive/wifireport2305.pdf> (last visited Mar. 13, 2006).

<sup>32</sup> SUSANNAH FOX, PEW INTERNET & AM. LIFE PROJECT, DIGITAL DIVISIONS ii (Oct. 5, 2005), available at [http://www.pewInternet.org/pdfs/PIP\\_Digital\\_Divisions\\_Oct\\_5\\_2005.pdf](http://www.pewInternet.org/pdfs/PIP_Digital_Divisions_Oct_5_2005.pdf) (last visited Mar. 13, 2006).

areas.<sup>33</sup> Compared to their urban counterparts, rural Internet users are less likely to perform daily tasks online such as bank online, buy products online or make travel reservations online.<sup>34</sup> Perceptions of availability of broadband were markedly different in rural and urban areas. While 80% of urban populations indicated there was broadband available, only 54% of rural populations reported broadband was available.<sup>35</sup>

The Pew Internet & American Life Project has done a number of studies on broadband penetration in rural America. A 2003 study done by Pew found that nationally 29% of rural Internet users chose their current ISP because it was the only one available to them.<sup>36</sup> In 2003, Pew revealed that 80% of rural Internet users used dial-up service.<sup>37</sup> Pew found that by the end of 2005, 24% of rural Americans had broadband service in their homes.<sup>38</sup> The Pew studies also established a correlation between high incomes and broadband access. In 2005, Pew reported that nationwide, 71% households with an Internet connection and incomes of \$75,000 or more have a broadband connection while only 42% of households with an Internet connection and incomes of \$30,000 or less have a broadband connection.<sup>39</sup> As we will discuss later in this white paper, Nebraska follows these national trends.

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<sup>33</sup> POCIASK, *supra* note 22, at 11-12; JOHN HARRIGAN & KATHERINE MURRAY, PEW INTERNET & AM. LIFE PROJECT, RURAL BROADBAND INTERNET USE 1 (Feb. 2006) *available at* [http://www.pewInternet.org/pdfs/PIP\\_Rural\\_Broadband.pdf](http://www.pewInternet.org/pdfs/PIP_Rural_Broadband.pdf) (last visited April 17, 2006). Rural Nebraska, according to the 2005 Rural Poll conducted by the University of Nebraska, lags behind the national average of 54%. The Rural Poll found 29% of rural Nebraskans have broadband service at home. The Rural Poll is discussed later in this white paper.

<sup>34</sup> BELL ET AL., *supra* note 31, at iv; HARRIGAN & MURRAY, *supra* note 31, at 7.

<sup>35</sup> BELL ET AL., *supra* note 31, at 12.

<sup>36</sup> *Id.* at 10.

<sup>37</sup> *Id.* at 13.

<sup>38</sup> HARRIGAN & MURRAY, *supra* note 31, at 1.

<sup>39</sup> FOX, *supra* note 32, at 5.

There are multiple factors producing the lack of broadband service in rural areas, both supply-side and demand-side.<sup>40</sup> Building *wired* broadband networks can be dauntingly expensive because wires may have to go long distances to reach few customers.<sup>41</sup> For example, the National Exchange Carrier Association (NECA) estimated in the year 2000 that to upgrade its rural lines across the nation from copper wire to DSL would cost \$10.9 billion.<sup>42</sup>

Private telecommunications companies merely respond to these economic realities by not facilitating widespread broadband service in rural areas. “For commercial network services, metropolitan areas are more attractive places to build infrastructure because the large number of paying users on the network can overcome the initial costs of building it. Given these high costs and small returns, there is an economic disincentive for constructing networks in less populated areas.”<sup>43</sup> This lack of investment in less populated areas results in rural customers having fewer, if any, choice of broadband providers.<sup>44</sup>

For those areas where broadband access is available, the cost of the service can be prohibitively high. A recent study by the Small Business Administration (SBA) found that nationally rural customers are paying more for broadband services than urban customers.<sup>45</sup> This study found that rural customers were paying 32.6% more for cable

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<sup>40</sup> POCIASK, *supra* note 22, at 19-25.

<sup>41</sup> BELL ET AL., *supra* note 31, at 9.

<sup>42</sup> VICTOR GLASS ET AL., NECA RURAL BROADBAND COST STUDY: SUMMARY OF RESULTS 2 (June 21, 2000), available at <http://www.neca.org/MEDIA/BROADBAN.PDF> (last visited Mar. 13, 2006).

<sup>43</sup> BELL et al., *supra* note 31, at 9; *see also* Tuerck, *supra* note 31, at 22.

<sup>44</sup> POCIASK, *supra* note 22, at 24-25.

<sup>45</sup> *Id.* at 25.

modem service and 11% more for DSL.<sup>46</sup> These higher prices are likely a factor that is suppressing demand for broadband service.

Broadband deployment in rural areas provides huge potential for economic growth. An early study from the U.S. Economic Development Administration predicted “with broadband service, businesses such as telemedicine, electronic commerce and back-office function may find it advantageous to locate in rural communities.”<sup>47</sup>

Getting broadband to isolated rural areas is possible. For example, Canada has a national policy that encourages deployment of broadband to even the most remote locations.

[G]overnment at the local, provincial and federal level volunteered to provide financial support under conditions of market failure, i.e., the unwillingness of private firms to make the investment based on the view that a sustainable and adequate profit could not accrue. Such self-help programs brought broadband digital services to hinterland locations north of the arctic circle in Canada . . . .<sup>48</sup>

The Canadian model of lending public support to broadband deployment provides a model framework for the U.S.

We believe that dedication to equality of opportunity militates for a robust policy response to address the rural digital divide. The private sector has a role to play in bridging this divide by lowering the costs of vital services. However, because the private sector is responsive only to market forces and shareholder duties, the responsible policy choice is to allow public entities the ability to provide broadband services where market failures leave vital service needs unmet.

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<sup>46</sup> *Id.* at 24.

<sup>47</sup> JO MIN ET AL., U.S. ECONOMIC DEVELOPMENT ADMINISTRATION, INTERNET-BASED ECONOMIC DEVELOPMENT FOR RURAL COMMUNITIES 3 (2001), *available at* [http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs/1g3lr\\_5f12\\_5fiowastate\\_2epdf/v1/1g3lr\\_5f12\\_5fiowastate.pdf](http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs/1g3lr_5f12_5fiowastate_2epdf/v1/1g3lr_5f12_5fiowastate.pdf) (last visited Mar. 13, 2006).

<sup>48</sup> Frieden, *supra* note 13, at 17.

## **G. Available Data on Broadband Deployment in Nebraska**

We have gathered available data from various public sources because a single comprehensive data set of national broadband deployment is nonexistent. As researchers in this area are apt to bemoan, missing data sets hamper economic analysis of the public/private broadband provider issue. As one recent study complained, “[t]he economic argument, in short, begs for more analysis to determine whether the costs involved in providing ubiquity or duplicating the private [broadband] network are offset by specific and quantifiable benefits. It appears that no such disciplined study exists at the present.”<sup>49</sup>

Similarly, data that are publicly available on broadband deployment in Nebraska are incomplete and do not contain the specificity of information that Nebraskan policy makers need to craft informed decisions about this vital service. At the least, the Task Force needs to know where broadband is offered, what percentage of each community is using the broadband that is available, and the prices that are charged for each tier of service. Currently, commercial providers hold the only available data sets concerning the locations where broadband is commercially available and where it is actually being purchased—and they have elected not to make that data available to the public or researchers.<sup>50</sup>

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<sup>49</sup> MICHAEL J. BALHOFF & ROBERT C. ROWE, BALHOFF & ROWE, L.L.C., MUNICIPAL BROADBAND: DIGGING BENEATH THE SURFACE 72 (Sept. 2005), *available at* <http://www.balhoffrowe.com/pdf/Municipal%20Broadband--Digging%20Beneath%20the%20Surface.pdf> (last visited Mar. 13, 2006).

<sup>50</sup> On January 18, 2006, the Nebraska Public Services Commission (“NPSC”) ordered most Nebraska broadband providers to complete a survey on their broadband offerings. The completed NPSC surveys will not be publicly available to protect the reporting companies’ trade secrets. We understand the NPSC will be producing a summary report of their findings. *See* Neb. Pub. Serv. Comm’n, Revised Order Seeking Broadband Information, App. No. C-2831/NUSF-51/PI-67 (Jan. 18, 2006), *available at* <http://www.psc.state.ne.us/home/NPSC/communication/orders/Misc/C2831060118.pdf> (last visited Mar. 13, 2006). We urge the Task Force to request detailed data from telecommunications companies, cable

Because the customer lists and other proprietary information about broadband service are in the hands of the telecommunications, cable and satellite providers in Nebraska, we have had to rely on more indirect measures such as the data that are publicly available through the Federal Communications Commission, the U.S. Department of Commerce, the Nebraska Telecommunications Association and from surveys and polls conducted in Nebraska. We have also gathered our own data by developing and providing the Brennan Center Questionnaire to Nebraskans.

### **1. Data from the FCC**

Telecommunications companies are required to report their broadband deployments to the FCC twice a year on FCC Form 477.<sup>51</sup> The completed forms are not available to the public.<sup>52</sup> The FCC compiles the data from these forms and releases aggregated numbers on national broadband deployment.

The latest FCC broadband report was released on April 3, 2006 for the period ending June 30, 2005.<sup>53</sup> The FCC reported in 2005 that 65 providers in Nebraska offered lines that had the capacity to provide Internet connections over 200 kbps in at least one direction.<sup>54</sup> According to the FCC, 96% of Nebraskan zip codes have broadband service

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companies and satellite companies that are providing broadband services in the Nebraska and to request the raw data from the Nebraska Public Services Commission gathered in their survey so that you have a clear understanding of where broadband service is available and where it is unavailable.

<sup>51</sup> FCC, FORM 477—LOCAL TELEPHONE COMPETITION AND BROADBAND REPORTING, *available at* <http://www.fcc.gov/Forms/Form477/477.xls> (last visited Mar. 13, 2006).

<sup>52</sup> In the Matter of Local Telephone Competition and Broadband Reporting, Report & Order, FCC 04-266, WC Docket No. 04-141, at ¶24 (November 12, 2004), *available at* [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-04-266A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-266A1.pdf) (last visited Mar. 13, 2006).

<sup>53</sup> FCC, HIGH-SPEED SERVICE FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2005 (April 2006) *available at* [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-264744A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-264744A1.pdf) (last visited April 17, 2006).

<sup>54</sup> *Id.* at Tbl. 8.

from at least one provider and the remaining 4% of zip codes have no broadband provider.<sup>55</sup>

However, these aggregated numbers from the FCC provide a grossly distorted picture of the availability of broadband in Nebraska because the FCC counts a *single broadband customer* in a single zip code as broadband deployment.<sup>56</sup> Thus, the 96% broadband coverage reported by the FCC in Nebraska does not reveal how many people in those zip codes actually have access to broadband services or how many have been able to afford to purchase that service. A zip code where 99.99% of the residents do not have broadband service would still appear in the FCC report as a zip code where broadband service is technically available.

## **2. Data from the U.S. Department of Commerce**

The U.S. Department of Commerce also tracks broadband use. In a report released in September 2004, the Department found that, nationally, 24.7% of rural homes have broadband connections,<sup>57</sup> and 22.1% rural households surveyed believed that they did not have broadband available.<sup>58</sup> The Department explained this low level of broadband access in rural areas in the following way.

[C]able modem and DSL technologies are less likely to serve rural areas for varied reasons. Cable modem service may not extend to remote customers, who often do not have cable systems built out to their homes. Additionally, the cost of building out cable modem service is higher in rural and remote areas, where the subscriber base is low. DSL is similarly hampered by distance as loops

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<sup>55</sup> *Id.* at Tbl. 17.

<sup>56</sup> See FCC, List of Geographical Codes, *available at* [http://www.fcc.gov/Bureaus/Common\\_Carrier/Reports/FCC-State\\_Link/IAD/hzip1204.pdf](http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hzip1204.pdf) (last visited Mar. 13, 2006) (“This is a list of geographical zip codes where service providers have reported providing high-speed service to at least one customer as of December 31, 2004.”).

<sup>57</sup> ECON. & STATISTICS ADMIN., U.S. DEP’T OF COMMERCE, A NATION ONLINE: ENTERING THE BROADBAND AGE tbl. 3 (Sept. 2004), *available at* <http://www.ntia.doc.gov/reports/anol/NationOnlineBroadband04.htm> (last visited Mar. 13, 2006) [hereinafter U.S. DEP’T OF COMMERCE, A NATION ONLINE].

<sup>58</sup> *Id.* at fig. 11.

extending more than 15,000 to 18,000 feet from the central switching office are less likely to be able to support DSL-based advanced services without significant cost increases.<sup>59</sup>

These conclusions by the U.S. government echo the academic studies cited earlier in this white paper that found that wired broadband in rural areas is both costly to deploy and costly to end-users.

### **3. Data from the Nebraska Telecommunications Association**

On April 26, 2006, the Nebraska Telecommunications Association (NTA) posted data on the availability of broadband in 596 Nebraskan towns on its webpage. The NTA data include Digital Subscriber Lines (“DSL”), integrated services digital networks (“ISDN”), wireless (“Wi-Fi”) and cable broadband providers. Their data do not cover the availability of satellite Internet service<sup>60</sup> or the availability of broadband of any kind in areas outside the city limits of the towns listed. According to the NTA data, 7.4% of Nebraskan towns (44 towns) have *no* broadband provider. Of those towns that have broadband, 44.8% of Nebraskan towns (267 towns) have a monopoly broadband provider; 16.4% of Nebraskan towns (98 towns) have duopoly broadband providers; and 31.4% of Nebraskan towns (187 towns including the 16 largest population centers in Nebraska) have three or more broadband providers.<sup>61</sup>

### **4. Data from the University of Nebraska**

In 2005, the Center for Applied Rural Innovation at the University of Nebraska-Lincoln studied the use of computers and Internet services in rural Nebraska in its annual Nebraska Rural Poll. The Rural Poll surveys all counties in Nebraska except for

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<sup>59</sup> *Id.* at 13.

<sup>60</sup> NTA, Broadband Providers in Nebraska, *supra* note 5. In the city of Atkinson, Nebraska, NTA lists “satellite service” for Atkinson’s cable modem provider. This is the only mention a satellite provider in the entire list of 596 Nebraskan communities.

<sup>61</sup> NTA, Broadband Providers in Nebraska, *supra* note 5.

metropolitan counties.<sup>62</sup> The Rural Poll found that 69% of rural Nebraskans have some type of Internet access at either home or work.<sup>63</sup> This encouraging statistic is undermined by the fact that 58% of rural Nebraskans with an Internet connection use a dial-up connection at home and 19% use a dial-up connection at work.<sup>64</sup> The prevalence of dial-up usage at home is particularly strong among the subset of farmers and ranchers. According to the Rural Poll, 74% of farmers and ranchers with Internet service connect from home through a dial-up connection.<sup>65</sup>

The Rural Poll also revealed that Internet access in Nebraska correlates with income. Only 5% of households with annual incomes of \$60,000 or above lacked access to the Internet at either home or work; while 63% of Nebraskan households with annual incomes of \$20,000 or less lacked access to the Internet at either home or work.<sup>66</sup> Those Nebraskan households with annual incomes of \$60,000 or above were also more likely to have broadband Internet access than households with annual incomes of \$20,000 or less.<sup>67</sup>

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<sup>62</sup> REBECCA J. VOGT ET AL., CTR. FOR APPLIED RURAL INNOVATION, WELL-BEING IN RURAL NEBRASKA, 2005 NEBRASKA RURAL POLL RESULTS 1 (June 1, 2005), *available at* <http://cari.unl.edu/ruralpoll/10year.pdf> (last visited Mar. 13, 2006). Metropolitan counties not surveyed were Dixon, Dakota, Washington, Douglass, Sarpy, Cass, Saunders, Seward and Lancaster. *Id.*

<sup>63</sup> *Id.* at 10.

<sup>64</sup> *Id.* at 12. This is 58% of 69% used dial-up at home. Or in other words, 40% of rural Nebraskans used dial-up at home, 31% of rural Nebraskans have no Internet service, and 29% have broadband at home.

<sup>65</sup> *Id.* at 13, 32. Rebecca Vogt, the original researcher, reported in an email to Ciara Torres-Spelliscy on February 9, 2006 that 9% of the Rural Poll's sample self-identified as farmers or ranchers. Of those farmers and ranchers with an Internet connection at home, 74% use a dial-up connection at home, 13% of farmers use DSL at home, 5% of farmers use a cable modem at home, 2% of farmers use satellite Internet at home, and 6% of farmers use wireless at home.

<sup>66</sup> *Id.* at 11.

<sup>67</sup> *Id.* at 11. 62% of households with annual incomes of \$20,000 or below connected to the Internet at home through a dial-up service while 49% of households with annual incomes of \$60,000 or more connected to the Internet at home through a dial-up service.

The University of Nebraska's Rural Initiative has also been tracking the availability of broadband in rural communities in Nebraska. According to its October 2005 data, 54 rural communities in Nebraska lacked broadband service.<sup>68</sup>

## **5. Information from the Brennan Center Questionnaire**

To augment the publicly available data on broadband deployment with other information, the Brennan Center enrolled the help of two Nebraskan groups. The Center for Rural Affairs and Common Cause Nebraska sent the Brennan Center Questionnaires to their respective memberships by email. The questionnaire was also available on the Brennan Center's webpage at <http://www.brennancenter.org/programs/fepp/nebraskaquestionnaire.html>. Completed questionnaires were returned between January 26, 2006 and March 20, 2006. We had 110 respondents from 82 Nebraskan zip codes.<sup>69</sup>

The Brennan Center Questionnaire asked a range of questions about the cost and availability of Internet services in Nebraska. It also asked about any difficulties that respondents experienced while using the Internet for web browsing or email. Finally, it inquired about the respondents' willingness to purchase broadband services from public providers. Quantitative statistical conclusions cannot be drawn from the responses to the Brennan Center Questionnaire because we did not have a random sampling and because there is an inherent selection bias created by sending our questionnaire to mailing lists from two organizations. But the Brennan Center data provide evidence that there are Nebraskans who are experiencing difficulties and frustrations with Internet access, and

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<sup>68</sup> RURAL INITIATIVE, UNIVERSITY OF NEBRASKA, BROADBAND SERVICE AVAILABILITY IN NEBRASKA COMMUNITIES 1 (June 2006), *available at* <http://ruralinitative.nebraska.edu/broadband> (last visited Mar. 13, 2006).

<sup>69</sup> There are 618 zip codes in Nebraska.

that there are underserved areas of Nebraska where dial-up service is either the only option or the only affordable option for Internet subscribers.

**a. Availability of Broadband Service in Nebraska**

The pool of those who responded to the Brennan Center Questionnaire had the following characteristics. In all, 46 of 110 respondents had dial-up service at home or work. Ten had dial-up at home and had broadband service at work. A total of 71 respondents had broadband service at either home or work. Eighteen respondents reported having broadband at both home and work. Two respondents said they could not afford any Internet service provider at this time.

Those Nebraskans who live close to large population centers reported a plethora of available Internet services (including dial-up, cable, DSL, T-1, T-3<sup>70</sup>, wireless and satellite). A small cohort of seven rural respondents reported that only dial-up service was available in their locations. Twelve of our rural respondents had a stark choice between dial-up service that costs on average \$240/year and satellite Internet service that costs on average over \$1,000/year. As a man from Hildreth, Nebraska stated, “[t]he problem is not being able to get the [satellite Internet] service but the extraordinary cost associated with it.”

For a few respondents, faster service was tantalizingly close and yet unavailable. For example, a few respondents reported that they were a few miles away from where broadband service was offered, but that high-speed service was unavailable at their home, business or farm. A man located outside O’Neill, Nebraska reported on his questionnaire, “[w]e just need to have DSL or high-speed wireless hookup. I’m about 20

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<sup>70</sup> A T1 (or T-1) line is a dedicated connection supporting data rates of 1.544 mbps. A T-3 line is a super high-speed connection capable of transmitting data at a rate of 45 mbps.

miles from the nearest town where these feeds are possible—O’Neill, NE. We do not even have acceptable cellular service here in this area. No one will put up a tower to service us.”

**b. Reported World Wide Web Problems in Nebraska**

Sixty respondents reported that they had no problems with web browsing.<sup>71</sup> This cohort was dominated by those who already had broadband service either at work or at home. By contrast, the majority of respondents with dial-up service reported a host of problems. Many Nebraskan respondents with dial-up service appear to be suffering what one author has dubbed the “World Wide Wait.”<sup>72</sup> The most frequent complaints were that loading webpages were slow and that webpages “timed out” before they could finish loading. For example, a mother and father in Cambridge, Nebraska, reported in their questionnaire:

We get kicked off of sites due to the long length of download[ing]. Kids sites don't work properly because they are set up for high-speed users and not dial-up. Forget getting any audio or video files to download; it isn't going to happen. Forget sharing big files with friends via e-mail because they take too long to send and I don't have that kind of time to sit and wait for it to be sent. In general our Internet service really sucks, but we are unable to afford satellite and don't have any other options.

Similarly, some reported that webpages were so slow that they no longer used their home computers to view the web. A woman in Ashland, Nebraska complained:

I generally do not use the Internet at home. Our dial-up service often takes 25 or more attempts before it will actually connect so I give-up. I am more likely to stop at a library in Lincoln or a computer lab on campus on my way home if I want to do some online shopping, etc. I know that we do not take advantage of many online services including online banking because of the

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<sup>71</sup> Some respondents had dial-up service at home and broadband service at work. Therefore they gave feedback on both their experiences with dial-up and with broadband.

<sup>72</sup> PRIEGER, *supra* note 31, at 1.

unreliability of our Internet service...Because of our service, our Internet usage has changed dramatically from what it was when we lived in town with high-speed Internet. We no longer rely on it as a resource. Before, it was not uncommon for us to check movie or tv listings, shop online, download recipes or woodworking plans, access news, do homework, etc. The Internet is not as important to us as it once was.

As this quote demonstrates, slow Internet speeds can render an Internet connection nearly useless.

Others had specific complaints about their inability to access information from the web that was key to their employment or education. Farmers reported difficulties with reaching the commodities markets' webpages, breeding webpages, and webpages from the United States Department of Agriculture (USDA), including difficulty signing up for programs run by the Farm Service Agency (FSA). A farmer in Neligh, Nebraska stated, "we usually don't do a lot of farm related web stuff as it is just too slow."

Nebraskans' with poor Internet connections are having difficulty using the Web as an economic tool. One respondent complained of not being able to upload grant applications on the web. Two complained that online auction transactions were hard to complete. Another reported it was impossible to use job training software that required streaming video.

Slow connections also impede Nebraskans' participation in intellectual life on the Web. Students reported difficulty loading webpages that were necessary for school and complained about their inability to participate in distance learning over the Internet because of the lack of streaming video.

**c. Reported E-mail Problems in Nebraska**

A majority of Nebraskan respondents with dial-up service reported several difficulties with their e-mail. Many dial-up users complained that attachments took too long to download (up to 30 minutes) or were at times impossible to download. Respondents have experienced email difficulties with a range of attachments including Microsoft Word documents, Adobe pdfs, pictures, graphs, music and video. Not only did some respondents report difficulty in receiving emails with large attachments, five respondents also reported difficulty in sending emails with large attachments. Dial-up users complained that email “crashed” or “timed out” frequently. One respondent sent her response to the Brennan Center Questionnaire by fax with a note that she was unable to email it even though it was a plain text email.

**d. Reported Internet Service Prices in Nebraska**

Nebraskans reported paying \$9.50-\$50/month for dial-up service,<sup>73</sup> \$20-\$60/month for DSL, \$35-\$100/month for cable broadband,<sup>74</sup> \$40-\$70/month for wireless, and \$50-\$70/month for satellite Internet. Users of wireless and satellite Internet reported they had paid installation fees ranging from \$50 to \$600.

Respondents were asked how much it would cost them to upgrade to a faster service. Some respondents with high-speed service skipped this question. Other respondents said that they did not know the cost of upgrading service. Seven dial-up users reported that there were no faster services available in their locations. Of those who answered the question, a majority reported their monthly costs would double, triple or

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<sup>73</sup> One respondent reported a cost of \$5.95 for ten hours of use of dial-up. Three reported having dial-up service for free.

<sup>74</sup> Based on the responses of some respondents with cable Internet service, the Brennan Center presumes that prices over \$90 per month listed by respondents for cable Internet is the cost for bundled package services that include cable television service.

quadruple if they purchased faster service. For those contemplating a move from dial-up to broadband, a majority faced at least a 100% increase in price. Others reported that satellite service could only be obtained after absorbing installation costs of \$300 to \$600.<sup>75</sup>

We also asked respondents how much would be “too much” to pay for broadband service. The responses ranged from \$10/month to \$70/month.<sup>76</sup> Many of our Nebraskan respondents are already paying more than the price they listed as “too much,” regardless of whether they had broadband or dial-up service. As one respondent from Lincoln put it, “I need the broadband for work so I have to pay whatever it costs, unfortunately.”

For others, the cost of upgrading from dial-up to broadband would place the cost of Internet access above their price ceiling. Twelve Nebraskan Internet users who responded to our questionnaire face an agonizing choice between slow Internet connections they can afford and high-speed satellite access at over four times the price they are currently paying.

Price plays a decisive factor in preventing Nebraskans from purchasing broadband service. For example a man from Sargent, Nebraska, reported that “I have not upgraded to DSL with the phone company due to cost and concern about the service. I would like other alternatives available at a reasonable cost. Satellite is too expensive to justify at this time.” With such limited choices at lower price points, it is not surprising that even those who have a variety of choices of providers, are still forced by economic necessity to subscribe to dial-up service.

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<sup>75</sup> These prices are confirmed by viewing the prices listed on webpages of satellite Internet companies who provide service in Nebraska. WildBlue charges \$299 for equipment and \$179 for installation; DirecWay charges \$599 for equipment and installation. *See supra* note 11.

<sup>76</sup> The average cost ceiling for broadband among ninety-nine respondents would be \$41.77 per month. Ten respondents skipped this question.

**e. Nebraskans' Reported Satisfaction with Current Service**

Those respondents with broadband access were much more satisfied with their Internet speed than those with dial-up service—all but eight of the broadband respondents were satisfied with the speed of their Internet connection. By contrast, only five respondents with dial-up service were satisfied with the speed of their Internet connection. Some respondents with dial-up service added elaborate notes on their questionnaires about their dissatisfaction with their slow Internet service. Complaints included emails taking days to be delivered, service being so slow that it was unusable, and a user waiting until after 11 pm to use the Internet when web traffic was less heavy. Descriptive terms used included “painfully slow,” “deplorable,” and “frustrating.”

**f. Nebraskans' Reported Appetite for Public Providers**

In our questionnaire we asked whether the respondents would purchase broadband Internet service from a municipality or public power provider if this service were offered in the future. A majority (84 of 110) responded in the affirmative. Four respondents said they did not know and three skipped the question. Four said their answers would depend on the cost of the service offered. Only 15 respondents said they would not buy from a public provider.

Interest in competition from public providers is not just a rural phenomenon. A man in Lincoln wrote in response to our inquiry regarding public providers that “I believe in increased competition for the local cable company.” A woman in Lincoln was also supportive of public providers. She wrote, “I am very frustrated our local power utility is prevented from offering broadband Internet connection. LES does an outstanding job

providing us electricity; they should be allowed to provide broadband Internet and digital telephone service.”

**g. Trends Reported on the Brennan Center Questionnaire**

A few trends were apparent in the responses to our questionnaires. First those living in or near large population centers have several choices for Internet service including several choices of broadband providers. But those located in more remote rural areas face a much more limited set of choices or no choice at all. Some rural respondents reported expensive satellite Internet service as the only broadband service offered in their areas. The expense of broadband service is preventing some Nebraskans from upgrading to faster service.

Unsurprisingly, those who already have broadband service had few criticisms about their service while those with dial-up service had long lists of complaints about the quality of their service. These complaints included the slowness of email, the inability to download attachments from emails, the slowness of web browsing, the lack of streaming video functionality, and the negative impact these problems had on their ability to employ the Internet for effective professional use.

Interestingly, the openness to purchasing broadband Internet service from public providers cuts across demographic lines. Both dial-up users and broadband users, both urban and rural, both satisfied customers and dissatisfied customers expressed a willingness to purchase from public providers.

## **Part II: The Policy Debates For and Against Publicly Supplied Broadband**

As the foregoing discussion makes clear, private providers have failed to deploy universal, affordable broadband in Nebraska and elsewhere in the country. This predicament has led municipalities and other local public entities across the country, responding to the needs of their citizens, to consider, plan, and in many cases, deploy public broadband networks. This in turn has ignited a policy debate about whether local governments should be in the Internet broadband market. Several states have banned municipal provision of broadband service. These bans have been criticized by municipal broadband supporters such as the Consumers Union, Free Press, Media Access Project, and the American Public Power Association, among others, as short-sighted responses to heavy lobbying from telecommunications companies. As one author put it, the stumbling blocks preventing universal broadband are not technological. Rather, “the main impediments for the deployment of new, cost-effective technologies are now legal restrictions, the telecommunications industry lobby, and a battle over local control of telecommunications choices.”<sup>77</sup>

The policy choices faced by the LB 645 Task Force are not unique. Hundreds of cities and all fifty states have policy choices to make about how they can best encourage the deployment of broadband so that their citizens will have affordable access.<sup>78</sup> Many communities began publicly funding broadband networks in the past decade. “Anecdotal evidence suggests municipalities participate in markets in which some residents believe services provided by the incumbent are either inadequate (typically too slow a pace of

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<sup>77</sup> K. Joon Oh, *Completing the Connection: Achieving Universal Service Through Municipal Wi-Fi*, 2006 DUKE L. & TECH. REV. 1, 10.

<sup>78</sup> See, e.g., Memorandum from Roger Burtner, Chair, to Technology Working Group, Fullerton, CA, Re: Gigabit or Bust Roundtable Meeting (Nov. 20, 2003), *available at* [http://www.ci.fullerton.ca.us/admin\\_serv/twg/twattach20031120-2.pdf](http://www.ci.fullerton.ca.us/admin_serv/twg/twattach20031120-2.pdf) (last visited Mar. 13, 2006).

innovation to attract businesses) or too expensive.”<sup>79</sup> Communities with municipal fiber networks today, among others, include: Sylacauga, AL, Loma Linda, CA, Anaheim, CA, Alameda CA, Palo Alto, CA, Quincy, FL, Dalton, GA, Auburn, IN, Cedar Falls, IA, Spenser, IA, Windom, MN, Sallisaw, OK, Kutztown, PA, Jackson, TN, Provo, UT, Bristol, VA, Chelan, WA, Clallam, WA, Douglas, WA, Grant, WA, Mason Counties, WA and Reedsburg, WI.<sup>80</sup> These cities and towns provide examples of how municipal broadband systems work.

#### **A. Arguments Against Municipal Broadband**

On the national level, those who have argued against municipal broadband the most vociferously are telecommunications companies including telephone and cable companies.<sup>81</sup> They have levied a range of arguments against municipal broadband that are used in litigation, the press and legislative lobbying. We will leave it to proponents of these arguments to more fully articulate them to the Task Force. However, we did want to highlight and address a few of the arguments that were raised in Nebraska during the legislative debates over LB 645.

Telecommunications companies, including Alltel, Consolidated Companies, Cox Nebraska Telcom, LLC, Diller Telephone Company, Great Plains Communications, NE Cable Communications Association, and Qwest Communications, lobbied intensely in Nebraska for the public provider ban in LB 645.<sup>82</sup> State Senators Chambers and Engel

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<sup>79</sup> JANICE A. HAUGE ET AL., BUREAUCRATS AS ENTREPRENEURS: DO MUNICIPAL TELECOM PROVIDERS HINDER PRIVATE ENTREPRENEURS? 18, *available at* <http://bear.cba.ufl.edu/centers/purc/primary/documents/BureaucratsasEntrepreneurs.pdf> (last visited Mar. 13, 2006).

<sup>80</sup> BALHOFF & ROWE, *supra* note 49, at 28.

<sup>81</sup> *See supra* note 14 and accompanying text.

<sup>82</sup> Neb. Accountability and Disclosure Comm’n, Lobbyist Info. Search, [http://www.nadc.state.ne.us/lobbyist\\_search/index.cgi](http://www.nadc.state.ne.us/lobbyist_search/index.cgi) (last visited Mar. 13, 2006). Our review of the lobbyists’ reports indicates that lobbyists for telecommunications companies spent over \$200,000 lobbying

remarked about the lobbying efforts surrounding LB 645 in floor statements.<sup>83</sup> Indeed, Senator Engel stated on the floor of the Legislature in reference to LB 645, “I’ve never been so lobbied so hard in my life.”<sup>84</sup>

In hearings on LB 645, telecommunications executives argued that it would be unfair for private companies to compete with public entities.<sup>85</sup> Vice President of Wireline Services in Nebraska for Alltel, Brad Hedrick, complained that allowing public entities to provide broadband would introduce “a competitor who can raise funds through the exercise of sovereign power outside of the normal constraints of the capital and debt markets.”<sup>86</sup> Another telecommunications executive, the President of Qwest Nebraska, Rex Fisher, argued that allowing public utilities into the market would have an adverse impact on Nebraska’s tax base. He testified that “[u]tilities do not have the same [tax] burden and that means a loss of corporate income taxes, surcharges, USF, property taxes.”<sup>87</sup>

Private providers have argued that it would be “unfair” for them to compete against public entities because private companies’ sole source of funding is from the private capital markets. This reasoning is inherently fallacious: private capital markets are not telecommunications companies’ only source of funding. Besides the revenues generated by their customers, telecommunications companies receive a range of

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on telecommunications bills during the first two quarters of 2005. Because lobbyists are not required to show on which bill they spent their time and money, we cannot state definitively what proportion of this money was spent on LB 645.

<sup>83</sup> Floor Debate, LB 645, Transcript Prepared by the Clerk of the Legislature, 99<sup>th</sup> Leg., 1<sup>st</sup> Sess. (Neb. June 1, 2005) (statement of Sen. Chambers); Floor Debate, LB 645, Transcript Prepared by the Clerk of the Legislature, 99<sup>th</sup> Leg., 1<sup>st</sup> Sess., (Neb. Apr. 28, 2005) (statement of Sen. Engel).

<sup>84</sup> Floor Debate, LB 645, Transcript Prepared by the Clerk of the Legislature, 99<sup>th</sup> Leg., 1<sup>st</sup> Sess. (Neb. April 28, 2005) (statement of Sen. Engel).

<sup>85</sup> Hearing on LB 645 Before the Comm. on Transp. & Telecomm., 99<sup>th</sup> Leg., 1<sup>st</sup> Sess. (Neb. Feb. 8, 2005).

<sup>86</sup> Hearing on LB 645 Before the Comm. on Transp. & Telecomm. 99<sup>th</sup> Leg., 1<sup>st</sup> Sess. 134 (Neb. Feb. 8, 2005) (testimony of Brad Hedrick).

<sup>87</sup> Hearing on LB 645 Before the Comm. on Transp. & Telecomm. 99<sup>th</sup> Leg., 1<sup>st</sup> Sess. 116 (Neb. Feb. 8, 2005) (testimony of Rex Fisher).

governmental subsidies. A white paper from the Media Access Project critiqued this “unfairness” argument:

For years incumbent telephone companies have received billions of dollars in federal and state subsidies, ILECs [incumbent local exchange carriers] and cable companies have received exclusive geographic franchises from state and local governments and have accrued huge competitive advantage over other providers by virtue of longstanding government-protected monopolies. Exclusive licenses frequently continue to protect their spectrum.<sup>88</sup>

Admittedly, public providers do have some advantages such as the ability to raise money through municipal bonds and access to public rights of way. However, incumbent private providers have the advantages of existing customer bases. Even more importantly, large private telecommunications companies have budgets that can dwarf those of a small Nebraskan town.

Opponents of municipal broadband have also threatened to cut off investment as a potent lobbying tool. For example, during the hearings on LB 645, representatives from telecommunications companies stated that “until we know if, [sic] with certainty that we won’t be competing against municipalities and/or public entities, we’ve kind of put investment on hold.”<sup>89</sup> Another said, “[i]f municipalities or public power are allowed to do whatever they want in this arena...[c]ompanies like mine will stop investment.”<sup>90</sup>

Private telecommunications companies have also argued and even threatened that public investment in telecommunications would stop private investment. This argument relies on the assumption that government investment in telecommunications will “crowd

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<sup>88</sup> HAROLD FELD ET AL., CONSUMER FED’N OF AM., MEDIA ACCESS PROJECT & FREE PRESS, CONNECTING THE PUBLIC: THE TRUTH ABOUT MUNICIPAL BROADBAND 14 (April 2005), *available at* [http://www.mediaaccess.org/MunicipalBroadband\\_WhitePaper.pdf](http://www.mediaaccess.org/MunicipalBroadband_WhitePaper.pdf) (last visited Mar. 13 2006).

<sup>89</sup> Hearing on LB 645 Before the Comm. on Transp. & Telecomm. 99<sup>th</sup> Leg., 1<sup>st</sup> Sess. 126 (Neb. Feb. 8, 2005) (testimony of Randy Sandman, President, Diller Telephone Company).

<sup>90</sup> Hearing on LB 645 Before the Comm. on Transp. & Telecomm. 131 (Neb. Feb. 8, 2005) (testimony of Brian D. Thompson, Managing Director, Consolidated Companies, Inc.).

out” private investment. Yet, economic researchers at the University of Florida and University of North Texas found that municipalities were not “crowding out” competitive local exchange carriers (CLECs). The researchers concluded:

[M]unicipalities may not pose a significant competitive threat to CLECs, due primarily to demographic characteristics that encourage municipal as opposed to CLEC participation. CLECs locate in more urban areas where incomes are higher and the possibility for higher revenues through selling more services to those interested in expanded capabilities is greater. Municipalities provide telecom services in areas heretofore underserved by CLECs, in which revenues are limited by both population and income of customers.<sup>91</sup>

In fact, another study by economist George S. Ford in Florida found “statistically significant evidence of more private firm entry in markets where municipalities operate communications network[s] (a 63% increase).”<sup>92</sup> So, instead of crowding out private industry, municipal broadband networks stimulate local economies.

## **B. Arguments for Municipal Broadband**

There are two overlapping rationales to support municipal broadband: economic pragmatism and social reform. The economic pragmatists view municipal broadband as providing stimulation to local economies, giving localities a competitive advantage over areas without broadband and keeping pace with the global trend of high-speed Internet access. These supporters view planning a broadband network in the same light as other local improvement projects that are meant to encourage economic growth. This camp argues that municipal broadband can provide needed redundancy in areas that are served

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<sup>91</sup> HAUGE ET AL., *supra* note 79, at 18.

<sup>92</sup> George S. Ford, Applied Economic Studies, *Does Municipal Supply of Communications Crowd-Out Private Communications Investment? An Empirical Study*, 28 ENERGY ECON. (forthcoming 2006) (manuscript at 3), available at <http://www.aestudies.com/library/crowdout.pdf> (last visited Mar. 13, 2006).

by a monopolist broadband provider because the municipality can supply continuity of service should the private provider go out of business.

Social reformers' arguments for municipal broadband are couched in an expansive view of the role local government should play in the lives of the public, especially the poor. Fundamentally, these supporters of municipal broadband conceptualize it as any other public service that would be in too short supply if only the private sector provided it. They are concerned about those left on the losing end of the digital divide. They posit that public provision of broadband is filling a void that may never be filled by private providers who lack an economic incentive to build in low population areas. Thus the argument is that providing broadband is analogous to providing public libraries, public schools or public power.

As alluded to earlier, private providers have not offered universal broadband service. On the positive side, private providers have built millions of high-speed lines across America.<sup>93</sup> “The downside is that they only deploy these products in markets where they believe they can turn a profit quickly.”<sup>94</sup> The motivation for this behavior is the well-known fiduciary obligation to maximize profits for their shareholders. However, because private companies do not have to act in the best interests of the public, deploying broadband to large swaths of low-density, rural communities has not occurred.

Private providers' market choices have been further affected by larger economic trends in the telecommunications industry generally. In particular, private providers in

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<sup>93</sup> Kevin J. Martin, Commissioner, FCC, Power Point Presentation for the “Bucks for Broadband Summit,” Frankfort, Ky. (Jan. 12, 2005), *available at* [www.fcc.gov/commissioners/martin/documents/summit011205.ppt](http://www.fcc.gov/commissioners/martin/documents/summit011205.ppt) (last visited Mar. 13, 2006).

<sup>94</sup> Christopher Swope, *The Big Band Era*, TANGENTS (Technologies Across Nebraska, Lincoln, N.E.), Special Policy Issue 2005, at *available at* [http://extension.unl.edu/tangents/tangents\\_policy4-05.pdf](http://extension.unl.edu/tangents/tangents_policy4-05.pdf) (last visited Mar. 13, 2006).

the telecommunications industry have been roiled by bankruptcies over the past five years. Coupled with the bursting of the dot-com bubble, telecommunications companies are often economically constricted in the range of investment choices they can make. The conservative investment strategies of telecommunications companies come at a particularly bad time for rural communities that want to expand deployment of broadband services.

To address the market failure of private providers, public providers have stepped in to fill the gap. One of the strongest arguments for public provision of broadband is the positive impact it can have on a local economy. President George W. Bush has spoken in support of municipal broadband networks as bringing competitive advantages to localities. The President stated,

Spokane, Washington, yesterday established a wi-fi hot zone that allows users within a hundred block area of the city to obtain wireless broadband access. Imagine if you're the head of a chamber of commerce of a city, and you say, gosh, our city is a great place to do business or to find work. We're setting up a wi-fi hot zone, which means our citizens are more likely to be more productive than the citizens from a neighboring community.<sup>95</sup>

In fact, local industries may want or need a town to provide broadband access if private broadband providers have refused to provide adequate service. Two examples from Indiana illustrate this dynamic. In Auburn, Indiana, (pop. 12,000) Cooper-Standard Automotive was going to move its worldwide data system team of 75 employees. But after the company requested assistance from the Mayor, the city began offering

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<sup>95</sup> Remarks by President George W. Bush at the Dep't of Commerce, 40 Weekly Comp. Pres. Doc. 1144 (June 24, 2004), available at [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2004\\_presidential\\_documents&docid=pd28jn04\\_txt-15](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2004_presidential_documents&docid=pd28jn04_txt-15) (last visited Mar. 13, 2006).

broadband and the company kept the jobs in town.<sup>96</sup> If the city had not filled the void left by the private providers, the local economy may have been changed for the worse. In Scottsburg, Indiana, (pop. 6,000) a similar story happened when Chrysler threatened to close a repair shop. After Scottsburg decided to deploy a broadband network, Chrysler decided to stay.<sup>97</sup> Wireless service in Scottsburg is affordable to end-users as well. Residents pay \$35 a month, and the Mayor estimates that the school system alone saves \$6,000 a month on telecommunications costs.<sup>98</sup>

FTC Commissioner Leibowitz expressed his positive sentiments about municipal broadband's ability to address the digital divide in a recent speech. He said,

[W]hy should local governments consider offering [broadband]? The answer is simple: the private sector won't always do so. Municipal development of broadband may be the best option in some cities where many residents cannot afford the high prices of private Internet providers, or where Internet providers simply did not see enough economic incentive to provide universal coverage. It may be the only option in rural areas where phone and cable companies have not extended any service—often contending that it would be prohibitively expensive.<sup>99</sup>

Among the reasons municipalities have entered the broadband market even when there are private providers are that the municipalities have “determine[d] limited competition provides insufficient incentives for affordable service, innovation, or redundancy for emergency preparedness.”<sup>100</sup>

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<sup>96</sup> MuniWireless, No Broadband, No Jobs, <http://www.muniwireless.com/archives/projects/482> (last visited Mar. 13, 2006) [hereinafter MuniWireless, No Broadband, No Jobs].

<sup>97</sup> *Id.*

<sup>98</sup> MuniWireless, Scottsburg, Indiana Wireless Network Saves the Community, <http://www.muniwireless.com/archives/projects/295> (last visited Mar. 13, 2006).

<sup>99</sup> Leibowitz, *supra* note 19.

<sup>100</sup> David D. Clark et al., *Local Government Stimulation of Broadband: Effectiveness, E-Government, and Economic Development* 5 (Harvard Kennedy School of Government Faculty Research Working Papers Series, RWP03-002, Jan. 2003), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=372260](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=372260).

While private telecommunications companies have argued that municipalities should not be in this market, the Task Force should remember municipalities have often provided services to the public that are complementary to private services. For example, “local governments run public transportation networks and sewage networks, maintain local roads, build schools and hospitals despite the fact that private businesses could, and in many places do, provide competing services.”<sup>101</sup> Putting it another way, “private firms can (and do) build private schools, hospitals, health clubs, marinas, and conference centers that coexist with municipal infrastructure.”<sup>102</sup> Supporters of municipal broadband often argue that this service has become a vital part of being a fully engaged citizen, and therefore it is appropriate for the public sector to provide it.

### **C. Role of Public Power Providers**

Nebraska is unique in that it is the only state with 100% public power.<sup>103</sup> Therefore, the entrance of public power providers into the broadband market raises the same issues that local government entrance into the market does.

Communities with municipal electric utilities (MEUs) have led local efforts nationally to supply public communication infrastructure.<sup>104</sup> Public power providers have successfully provided broadband networks across America. The American Public Power Association reported in 2004 that

[A]lmost 570 public power utilities have deployed broadband networks for either internal use or retail services. Internal uses include: Operating city-wide networks for municipal government—which facilitates internal data transfer between non-

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<sup>101</sup> FELD et al., *supra* note 87, at 1.

<sup>102</sup> FLORIDA MUNICIPAL ELECTRIC ASSOCIATION (FMEA), THE CASE FOR MUNICIPAL BROADBAND IN FLORIDA 6 (2005), available at [http://www.baller.com/pdfs/fmea\\_white\\_paper.pdf](http://www.baller.com/pdfs/fmea_white_paper.pdf) (last visited Mar. 13, 2006) [hereinafter FMEA, THE CASE FOR MUNICIPAL BROADBAND IN FLORIDA].

<sup>103</sup> RIDLEY & ASSOCS., INC., SUMMARY OF FINAL RPT. NEB. LEG.: L.R. 455 PHASE II STUDY ch. 3.1 (Dec. 1999), available at <http://www.neo.state.ne.us/LR455Final/> (last visited Mar. 13, 2006).

<sup>104</sup> GILLET ET AL., *supra* note 28, at 5.

contiguous facilities.../Retail service include: Cable TV; Internet Service Provider (dial-up or cable modem); Local telephone; Dark Fiber leasing; and Broadband network—which provides voice/data connectivity within the community or beyond.<sup>105</sup>

Researchers have found that municipalities are a significant driver in the growth of the U.S. Fiber to Home (FTTH) market and that all of the municipalities that have deployed FTTH have municipal electric utilities.<sup>106</sup>

Public power companies often have dark fiber that has been deployed for the companies' internal uses that could be used for external purposes such as connecting the public to the Internet or providing other telecommunications capabilities. Lincoln Electric Systems (LES), the public power company in Lincoln, Nebraska, has dark fiber that could be used in this way.<sup>107</sup>

Allowing a public utility to provide telecommunications services can bring lower prices to consumers. For example, Click! Network is a fiber-optic network operated by Tacoma, Washington's public utilities provider, Tacoma Power. Residents pay approximately \$64 for cable television and Internet services offered on the network.<sup>108</sup> Click! serves 32-42% of the Tacoma market.<sup>109</sup> Its low rates for service have created substantial competition for the region's incumbent providers, and as a result, the incumbents have lowered their rates as well. In fact, in areas where Click! Network

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<sup>105</sup> AM. PUB. POWER ASSOC., COMMUNITY BROADBAND: SEPARATING FACT FROM FICTION 24-25 (Jan. 2004), available at <http://www.appanet.org/files/PDFs/BroadbandFactFiction.pdf> (last visited Mar. 13, 2006).

<sup>106</sup> GILLETT ET AL., *supra* note 28, at 4.

<sup>107</sup> *In re Lincoln Elec. Sys. v. Neb. Pub. Serv. Comm'n*, 265 Neb. 70, 655 N.W.2d 363 (2003), *cert. denied* 539 U.S. 943 (2003).

<sup>108</sup> Heath Hixson, *Towns prove success with broadband*, KANE COUNTY CHRON., March 29, 2004, available at <http://www.tricitybroadband.com/news20.htm> (last visited Mar. 13, 2006).

<sup>109</sup> Myles Roberts, Note, *Opening the Last Mile to Competition*, 4 Va. Sports & Ent. L.J. 309, 328 (2005).

services are available, subscribers pay 20-25% less for cable TV and Internet service than they would if they were in areas where competition did not exist.<sup>110</sup>

#### **D. Broadband over Power Lines (BPL)**

Public power utilities may be particularly well suited to provide public broadband using a new technology called broadband over power lines or “BPL.”<sup>111</sup> This technology sends broadband Internet signals over existing power lines once they have been enhanced with repeaters and other equipment.<sup>112</sup> To get broadband service, the end-user plugs a BPL modem into a normal electric outlet and then attaches the BPL modem to his or her computer. While amateur radio enthusiasts have raised some concerns about the interference BPL may cause to ham radio frequencies, the FCC has concluded that the importance of promoting broadband deployment outweighed these concerns.<sup>113</sup> BPL has the same potential for ubiquity that dial-up service had during the early days of the Internet since nearly 100% of American homes have power lines.

Manassas, Virginia, (pop. 36,000) has become the first city in the United States to deploy BPL over its power lines.<sup>114</sup> In Manassas, BPL costs \$29 per month and the

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<sup>110</sup> BEN SCOTT & FRANNIE WELLINGS, FREE PRESS, TELCO LIES AND THE TRUTH ABOUT MUNICIPAL BROADBAND NETWORKS 9 (2005), available at [http://www.freepress.net/docs/mb\\_telco\\_lies.pdf](http://www.freepress.net/docs/mb_telco_lies.pdf) (last visited Mar. 13, 2006).

<sup>111</sup> BPL is also known as powerline communications or “PLC.”

<sup>112</sup> NEW MILLENNIUM RESEARCH COUNCIL (NMRC), POWERING THE BROADBAND MARKET IN 2005 AND BEYOND: VIEWS OF THE EMERGENCE OF BROADBAND OVER POWER LINE TECHNOLOGY (BPL) 3 (Feb. 2005) [hereinafter NMRC, POWERING THE BROADBAND MARKET], available at [http://www.thenmrc.org/archive/bpl\\_report022405.pdf](http://www.thenmrc.org/archive/bpl_report022405.pdf) (last visited Mar. 13, 2006).

<sup>113</sup> In the Matter of Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems Carrier Current Systems, including Broadband over Power Line Systems, Report & Order, FCC 04-245, ET Docket No. 04-37 (Oct. 28, 2004), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-04-245A1.doc](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.doc) (last visited Mar. 13, 2006).

<sup>114</sup> City of Manassas, Innovation in Broadband Over Power Line, <http://www.manassascity.org/index.asp?NID=118> (last visited Mar. 13, 2006) [hereinafter City of Manassas, Innovation].

service is provided without an installation fee or a long term contract.<sup>115</sup> Cincinnati, Ohio, (pop. 330,000) has also deployed BPL at a cost of \$30 per month for customers.<sup>116</sup>

BPL has been used in Asia and Europe since 1999.<sup>117</sup> Austria, France, Germany, Iceland, Italy, Poland, Portugal, Spain, Sweden, Switzerland and the UK have deployed BPL.<sup>118</sup> The European Union is supporting the work of 36 companies in Europe to deploy BPL through its Open PLC European Research Alliance or “Opera Project,”<sup>119</sup> but European BPL deployments are still in their early stages.

BPL technology could solve the problem of how to get broadband access to even very remotely located rural Nebraskans at a low cost through the public power grid.<sup>120</sup> Because Nebraska has 100% public power, its public provider ban stops power companies from offering broadband. This means that not only are Nebraskans cut off from the services that public power providers might otherwise provide through the use of dark fiber, they are also cut off from any innovations that BPL technology has to offer.

#### **E. Wireless Technologies Enable Viable Municipal Networks**

While many researchers in this field agree that building and operating a fiber optic network would be expensive and risky for a municipality,<sup>121</sup> one technological

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<sup>115</sup> COMTek, Powerline Broadband Residential Services, <http://www.comtekbbroadband.com/> (last visited Mar. 13, 2006); Jennifer Mears, Broadband Over Power Lines Gains Steam, <http://www.peworld.com/news/article/0,aid,117486,00.asp> (last visited Mar. 13, 2006).

<sup>116</sup> Ken Belson, *Power Companies Enter the High-Speed Internet Market.*, NEW YORK TIMES, Oct. 17, 2005, at C2, available at <http://www.nytimes.com/2005/10/17/technology/17powerlines.html> (last visited Mar. 13, 2006).

<sup>117</sup> NMRC, POWERING THE BROADBAND MARKET, *supra* note 112, at 4.

<sup>118</sup> Engineeringtalk, Global Progress on Powerline Communications (June 2003), <http://www.engineeringtalk.com/news/plc/plc100.html> (last visited Mar. 13, 2006).

<sup>119</sup> Open PLC European Research Alliance (OPERA), Frequently Asked Questions, <http://www.ist-opera.org/faq.html.htm> (last visited Mar. 13, 2006).

<sup>120</sup> See generally JOHN CHOWDHURY, IBM BUSINESS CONSULTING SERVS., EXPLOITING BROADBAND OVER POWER LINES (2005), available at [http://www-03.ibm.com/industries/utilities/doc/content/bin/GE510-6151-00f\\_Exploit\\_Broadband\\_1.pdf](http://www-03.ibm.com/industries/utilities/doc/content/bin/GE510-6151-00f_Exploit_Broadband_1.pdf) (last visited Mar. 13, 2006).

<sup>121</sup> See JOSEPH L. BAST, THE HEARTLAND INSTITUTE, MUNICIPALLY OWNED BROADBAND NETWORKS: A CRITICAL EVALUATION (REV. ED.) 20 (Oct. 2004), available at <http://heartland.org/article.cfm?artId=15842>

advancement that has opened up the possibility for less expensive municipal networks is wireless broadband (“Wi-Fi”). These networks use unlicensed spectrum in the 2.4 GHz and 5 GHz bands to provide broadband access.<sup>122</sup> Wi-Fi signals travel approximately 300 feet.<sup>123</sup> One advantage Wi-Fi has over cable or telephone networks is that Wi-Fi does not take the same large capital investment to build. “[L]ow construction costs allow municipalities to offer Wi-Fi Internet access at a lower cost per resident”<sup>124</sup> than traditional wired services. Another advantage is that Wi-Fi systems do not require laying new cables which makes them less disruptive to install. “In addition to their increased ease of installation, wireless networks can be easily scaled from small peer-to-peer networks to very large enterprise networks that enable roaming over a broad area.”<sup>125</sup>

One shortcoming of Wi-Fi is the technology is susceptible to interference from machines using the same spectrum.<sup>126</sup> For example microwave ovens may disrupt a Wi-Fi connection.<sup>127</sup> Another disadvantage is transmissions are not always secure.<sup>128</sup> they can be subject to eavesdropping and other types of attacks if not properly secured.<sup>129</sup> As the Government Accountability Office reported: “Protecting against wireless network

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(last visited Mar. 13, 2006); BALHOFF & ROWE, *supra* note 49, at 9; Steven Titch, *Whose Internet Does Municipal Wireless Subsidize?*, in NMRC, NOT IN THE PUBLIC INTEREST, *supra* note 31, at 6, 7-8 (last visited Mar. 13, 2006); Tuerck, *supra* note 31, at 21.

<sup>122</sup> *Background*, in NMRC, NOT IN THE PUBLIC INTEREST, *supra* note 31, at x.

<sup>123</sup> BALHOFF & ROWE, *supra* note 49, at 56.

<sup>124</sup> Tuerck, *supra* note 31, at 20.

<sup>125</sup> U. S. GOV'T ACCOUNTABILITY OFFICE (GAO), REPORT TO THE HON. WM. LACY CLAY, GAO-05-383, INFORMATION SECURITY FEDERAL AGENCIES NEED TO IMPROVE CONTROLS OVER WIRELESS NETWORKS 8 (May 2005) [hereinafter GAO, INFORMATION SECURITY], available at <http://www.gao.gov/new.items/d05383.pdf> (last visited Mar. 13, 2006).

<sup>126</sup> BALHOFF & ROWE, *supra* note 49, at 54.

<sup>127</sup> *Id.*

<sup>128</sup> *Id.* at 55-56.

<sup>129</sup> *Id.*

security attacks is challenging because information is broadcast over radio waves and can be accessed more easily by attackers than can data in a conventional wired network.”<sup>130</sup>

The primary factor that makes Wi-Fi attractive to municipalities that are considering offering a public network is its low cost. A researcher from the University of Denver has found that “the breakeven point for Wi-Fi systems is significantly lower than that of wireline networks because of the substantially lower capital and operating costs [and] the municipality has two revenue streams, incremental revenue and cost recovery [from Wi-Fi].”<sup>131</sup> Therefore, municipalities that could never afford to build a wired broadband system are now planning to build wireless broadband networks.

As of February 2006, 126 communities had set up wireless networks and an additional 56 communities were in the planning stages for wireless networks.<sup>132</sup>

Communities with municipal wireless networks, among others, include: Allegany County, MD, Western, KS, Benton County, WA, San Diego County Tribal Villages, CA, Houston County, GA, Chaska, MN, Cerritos, CA, Grand Haven, MI, Buffalo, MN, Rio Rancho, NM, Nevada, MO, Vivian, LA, Linden, TX, Scottsburg, IN, Owensboro, KY, Pasco, WA, Waupaca, WI, Jackson, WI, Adel, GA, Island Pond, VT, Dublin, OH, Lompoc, CA, Lafayette, LA and Montpelier, VT.<sup>133</sup>

While Wi-Fi signals travel 300 feet from each transmitter, a newer technology called World Interoperability for Microwave Access Fidelity (Wi-Max) allows wireless

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<sup>130</sup> GAO, INFORMATION SECURITY, *supra* note 125, at 9.

<sup>131</sup> Ron Rizzuto, *Municipal Wi-Fi Networks: Economic Viability and Economic Impact*, in NMRC, NOT IN THE PUBLIC INTEREST, *supra* note 31, at 25.

<sup>132</sup> Municipal Wireless, Topic Archive, <http://muniwireless.com/municipal/1035> (last visited February 28, 2006); for a national map of community broadband projects see <http://www.freepress.net/communityInternet/networks.php> (last visited April 17, 2006).

<sup>133</sup> BALHOFF & ROWE, *supra* note 49, at 29.

broadband signals to be sent up to 30 miles.<sup>134</sup> Wi-Max requires more costly equipment than Wi-Fi.<sup>135</sup> In the future, Wi-Max will likely be used in public networks that must service large geographical areas such as rural areas.

#### **F. Public Provider Models**

Researchers from the Pennsylvania State University have identified a number of models that a local government might use to provide broadband to a community.<sup>136</sup> These models are the Community Network Model, the Public Utility Model, and the Cooperative Wholesale Model.

(1) **The Community Network Model** aims to provide free or low-cost wireless broadband access. Two hybrids have emerged that use this model to deliver free Wi-Fi access in areas known for tourism or targeted for revitalization.<sup>137</sup> The first hybrid requires the city raising funds from taxpayers, private grants, donations from citizens and businesses, and advertising revenue from a splash page.<sup>138</sup> The city then builds the network and provides marketing and customer service.<sup>139</sup> Hermosa Beach, California, (pop. 18,500) has used this model to provide free Wi-Fi access throughout the city.<sup>140</sup> The second hybrid involves a community group or government entity that acquires funding to educate business owners about the advantages of deploying Wi-Fi hotspots. The city or community group then acts as a catalyst to encourage the organic build-out of

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<sup>134</sup> Tuerck, *supra* note 31, at 20.

<sup>135</sup> BALHOFF & ROWE, *supra* note 49, at 56.

<sup>136</sup> Stone, *supra* note 26.

<sup>137</sup> *Id.* at 22-23.

<sup>138</sup> A splash page (or splash screen) is an initial Web site page used to capture the user's attention for a short time as a promotion or lead-in to the site home page or to tell the user what kind of browser and other software they need to view the site.

<sup>139</sup> Stone, *supra* note 26 at 22.

<sup>140</sup> *Id.* at 22.

a Wi-Fi network in downtown areas. Austin, Texas (pop. 20.8 million), has successfully used this Community Network Model to deploy 80 hotspots.<sup>141</sup>

(2) **The Public Utility Model** requires a local government to establish a city department or combine with existing water, gas, and/or electric departments to deploy, operate, and manage broadband service for citizens; the model is often used when private providers choose not to offer service in a city for financial reasons.<sup>142</sup>

Lake County, Florida, (pop. 250,000) followed this model and deployed a municipal fiber-optic broadband network in 2001 that has increased its economic growth. Researchers Ford and Koutsky, found in a case study of Lake County and peer counties that:

Lake County has experienced a 100% increase – a doubling – in economic growth relative to its Florida peer counties since offering its municipally owned broadband network broadly to public and private entities. This growth rate is not a function of population growth – indeed, on a per capita basis, Lake County has experienced 128% growth over its peers since the municipal broadband network was built.<sup>143</sup>

In 2003, Dalton Utilities in Dalton, Georgia, (pop. 27,900) introduced OptiLink, an all fiber-optic network delivering television, telephone and high-speed Internet services to residential and commercial customers.<sup>144</sup> The utility decided to offer telecommunications due to concerns that the incumbent cable and telecommunications companies in the area were not providing adequate service.

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<sup>141</sup> *Id.* at 22-23.

<sup>142</sup> *Id.* at 24-25.

<sup>143</sup> GEORGE S. FORD & THOMAS M. KOUTSKY, APPLIED ECONOMICS STUDIES, BROADBAND AND ECONOMIC DEVELOPMENT: A MUNICIPAL CASE STUDY FROM FLORIDA 15 (Apr. 2005), *available at* [http://www.freepress.net/docs/broadband\\_and\\_economic\\_development\\_aes.pdf](http://www.freepress.net/docs/broadband_and_economic_development_aes.pdf) (last visited Mar. 13, 2006).

<sup>144</sup> Dalton Utilities, Embracing Innovation for More Than a Century, <http://www.dutil.com/history.html> (last visited Mar. 13, 2006).

Dalton Utilities spent \$20 million to upgrade its fiber-optic telecommunications network and provide service to town residents.<sup>145</sup> Its telecommunications sector borrowed the necessary funding from the Dalton Utilities cash reserves at 7% interest and has been paying back that loan through its revenues. Residential customers in Dalton can get a package of high-speed Internet, telephone, and extended cable services for \$76.95 a month.<sup>146</sup>

OptiLink is an independent for-profit municipally owned telecommunications and cable company. Like the privately owned incumbents, OptiLink applied for a franchise agreement with the municipality and pays the city regular franchise fees. By offering high-quality telecommunications and cable service at affordable rates, it has forced incumbent providers to lower their rates for service as well.<sup>147</sup>

(3) **The Cooperative Wholesale Model** provides two options for a municipality. The first option is that the city builds a network to provide its broadband and telecommunications needs; after securing funds, the city then issues a request for proposal (RFP) for the design deployment and management of the network.<sup>148</sup> The alternative option is to have a non-profit organization, created by the community, spearhead the fund-raising and construction of the network, cooperating with private companies that could help build and manage the network.<sup>149</sup>

Manassas, Virginia, used this model to deploy broadband over its power lines using an outside vendor called ComTek.<sup>150</sup>

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<sup>145</sup> Hixson, *supra* note 108.

<sup>146</sup> Telephone Interview with Ray Buzzard, Vice President of Info. Tech., Dalton Util. (February 10, 2006) (on file with the Brennan Center).

<sup>147</sup> *Id.*

<sup>148</sup> Stone, *supra* note 26, at 27.

<sup>149</sup> *Id.* at 27-28.

<sup>150</sup> City of Manassas, Innovation, *supra* note 114.

Utah has also implemented a version of this model in its multi-city network called UTOPIA. UTOPIA formed in 2002 when several Utah municipalities felt that the private telecommunications industry was not meeting the needs of their residents. In the absence of competition, private companies were able to charge exceedingly high rates and offer poor quality service. The incumbent providers were also unmotivated to deploy services in less profitable areas. To address these concerns, UTOPIA built its own regional fiber-optic network to provide Utah citizens in fourteen cities with access to higher quality telecommunications service.<sup>151</sup>

However, in Utah, the Municipal Cable Television and Public Telecommunications Services Act<sup>152</sup> bars municipalities from offering services directly to residences and businesses. Instead, municipalities must lease or sell wholesale bandwidth capacity to private firms which can then use this capacity to provide retail services to Utah citizens.<sup>153</sup> The agency is thus reliant on private entities to deliver services. Currently, UTOPIA offers wholesale bandwidth capacity on its fiber-optic network to four private service providers: MStar for voice, video, and Internet; Xmission for Internet; Veracity for Internet; and AT&T for Internet.<sup>154</sup> These providers, in turn, offer retail services to residences and businesses in the region.

The construction of the municipal broadband network in Utah was funded by the sale of bonds. To pay off these bonds, the municipalities charge wholesale fees to any

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<sup>151</sup> Utah Telecomm. Open Info. Agency (UTOPIA), Why Was UTOPIA Formed?, <http://www.utopianet.org/overview/background.htm> (last visited Mar. 13, 2006). UTOPIA's member cities are Brigham City, Cedar City, Cedar Hills, Centerville, Layton, Lindon, Midvale, Murray, Orem, Payson, Perry, Riverton, Tremonton, West Valley City.

<sup>152</sup> Utah Municipal Cable Television and Public Telecommunications Services Act, UTAH CODE ANN. §10-18-105 (West 2001).

<sup>153</sup> Utah Telecomm. Open Info. Agency (UTOPIA), UTOPIA's Business Model, [http://www.utopianet.org/business\\_case/business\\_model.htm](http://www.utopianet.org/business_case/business_model.htm) (last visited Mar. 13, 2006).

<sup>154</sup> Utah Telecomm. Open Info. Agency (UTOPIA), Corporate Homepage, <http://www.utopianet.org/corporate.htm> (last visited Mar. 13, 2006)

service provider that uses the network.<sup>155</sup> Because fourteen cities share the fixed costs for the operation, the overall cost per subscriber is reduced. These savings are then passed onto private providers by charging them less expensive wholesale fees in exchange. The providers, in turn, can pass along these savings by charging their customers less for telecommunications service.<sup>156</sup>

One can compare the rates for Internet service offered by MSTAR Metro, a UTOPIA-affiliated Internet Service Provider (ISP) with those offered by Comcast and Qwest MSN, both of which are non-affiliated ISPs. MStar offers higher-speed service for rates that are equal to or less than what one would pay using non-affiliated ISPs. For \$39.95 a month, MStar customers get high-speed Internet (10 megabytes per second, or mbps), while Comcast customers pay \$68.00 for 8 mbps and Qwest customers pay \$37.99 for 7mbps.<sup>157</sup>

UTOPIA's business model is predicated on the assumption that customers will take advantage of the opportunity to get superior services at rates that are comparable to what they are paying now.<sup>158</sup> If that assumption is true, private service providers will attract customers, increase their revenue, and thus be able to pay access fees to UTOPIA. The agency can then use those proceeds to pay off the bonds and run the network. UTOPIA estimates that the investment per household served will be \$1,171.<sup>159</sup> A study

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<sup>155</sup> UTAH TELECOMM. OPEN INFRASTRUCTURE AGENCY (UTOPIA), WHITE PAPER: UTAH'S PUBLIC-PRIVATE FIBER-TO-THE-PREMISES INITIATIVE (2003) 16, *available at* [http://www.utopianet.org/downloads/Utopia\\_White\\_Paper.pdf](http://www.utopianet.org/downloads/Utopia_White_Paper.pdf) (last visited Mar. 13, 2006).

<sup>156</sup> *Id.* at 11.

<sup>157</sup> MStar Metro, More for Less: Price/Feature Comparison, <http://www.mstarmetro.com/services/compare.html> (last visited Mar. 13, 2006).

<sup>158</sup> Rates for service vary by provider and location, but MStar Metro, for instance, provides Internet, service for \$39.95 a month. *Id.*

<sup>159</sup> BALHOFF & ROWE, *supra* note 49, at 45.

from Balhoff & Rowe LLC estimates that reaching the break-even point for UTOPIA may take 10 years or more.<sup>160</sup>

The most ambitious municipal broadband effort from a single city is the plan in Philadelphia, Pennsylvania, (pop. 1.5 million). In 2004, Philadelphia announced plans for a Wireless Philadelphia Project in 2004 that would create, deploy, and manage a 135-square-mile wireless broadband network. City planners maintain that this project will not compete with Verizon and other incumbent telecommunications providers because the business model relies on the participation of private entities.<sup>161</sup>

According to the Wireless Philadelphia plan, the city will create a non-profit corporation to act as a wholesaler. The non-profit will then charge wholesale fees to private service providers and telecommunications companies in exchange for access to the network. These private entities will, in turn, provide low-cost wireless service to city residents, much as in Utah. Wireless access will be freely available in public spaces and will be offered at discounted rates to low-income residents and to women, minorities, and small businesses.<sup>162</sup> Wi-Fi service will cost approximately \$20 a month, but service for lower-income households will be partially subsidized and offered at \$10 a month.<sup>163</sup>

In October of 2005, Philadelphia announced that it had chosen EarthLink to deploy the city's wireless network. Building and operating the network will cost \$10 to \$20 million and will be primarily funded by EarthLink. Earlier project proposals also

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<sup>160</sup> *Id.* at 46.

<sup>161</sup> Jim Hu & Marguerite Reardon, *Philadelphia Reveals Wi-Fi Plan*, CNET NEWS.COM, April 7, 2005, [http://news.com.com/Philadelphia+reveals+Wi-Fi+plan/2100-7351\\_3-5659252.html?tag=st.rn](http://news.com.com/Philadelphia+reveals+Wi-Fi+plan/2100-7351_3-5659252.html?tag=st.rn) (last visited Mar. 13, 2006).

<sup>162</sup> EXECUTIVE COMM., WIRELESS PHILADELPHIA, WIRELESS PHILADELPHIA BUSINESS PLAN 12-13 (Feb. 9, 2005), *available at* <http://www.wirelessphiladelphia.org/pdfs/Wireless-Phila-Business-Plan-040305-1245pm.pdf> (last visited Mar. 13, 2006) [hereinafter WIRELESS PHILADELPHIA BUSINESS PLAN].

<sup>163</sup> Robert McChesney & John Podesta, *Let There Be Wi-Fi*, WASH. MONTHLY, Jan.-Feb. 2006, at 14, 16, *available at* <http://www.govtech.net/digitalcommunities/story.php?id=97829> (last visited Mar. 13, 2006).

suggest that if needed, the city will finance the system through taxable bonds and private funding.<sup>164</sup> Once in operation, EarthLink will sell bandwidth capacity to other ISPs, including Verizon, and residents will be able to choose between EarthLink and the other ISPs for their Wi-Fi services.<sup>165</sup> To compete with the new network, Verizon has introduced fiber-optic DSL connections at rates that are comparable to those to be offered by Wireless Philadelphia.<sup>166</sup>

### **G. Cost of Building Public Broadband**

The price tag for building public broadband networks depends on many factors including the size of the area to be served, population size, topography and technology. Investments can range from as little as \$28,000 for a population of 4,200 in Vivian, Louisiana, to \$20 million for a population of 1.5 million in Philadelphia.<sup>167</sup>

As discussed earlier in this white paper, wired systems are more costly than wireless systems. By far the most expensive public broadband network is the multi-city UTOPIA fiber deployment with a capital investment of \$340 million.<sup>168</sup> Close behind is the Click! Network in Tacoma, Washington whose capital investment is estimated to be around \$100 million.<sup>169</sup>

Several communities have yet to hit the break-even point for their wired broadband networks. For example, Cedar Falls Communications, a subsidiary of Cedar Falls Utilities in Iowa, has been offering broadband services over a fiber optic network

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<sup>164</sup> WIRELESS PHILADELPHIA, WIRELESS PHILADELPHIA WI-FI PROJECT UPDATE (Dec. 2005), *available at* [http://www.phila.gov/wireless/pdfs/WP\\_Update\\_Dec\\_2005.pdf](http://www.phila.gov/wireless/pdfs/WP_Update_Dec_2005.pdf) (last visited Mar. 13, 2006).

<sup>165</sup> Grant Gross, *Update: EarthLink selected for Philadelphia Wi-Fi Network*, INFO WORLD, Oct. 5, 2005, [http://www.infoworld.com/article/05/10/05/HNearthlinkwifi\\_1.html](http://www.infoworld.com/article/05/10/05/HNearthlinkwifi_1.html) (last visited Mar. 13, 2006).

<sup>166</sup> Hu & Reardon, *supra* note 161.

<sup>167</sup> See BALHOFF & ROWE, *supra* note 49, at 29; WIRELESS PHILADELPHIA BUSINESS PLAN, *supra* note 162, at 12-13.

<sup>168</sup> BALHOFF & ROWE, *supra* note 49, at 34.

<sup>169</sup> *Id.*

since 1996. At the end of 2004, Cedar Falls Communications remained \$10.5 million in debt.<sup>170</sup> Lebanon, Ohio, (pop. 16,900) has a hybrid-fiber-coaxial cable telecommunications network serving 16,692 people. For the years 2002, 2003 and 2004, the communications network in Lebanon has lost over one million dollars a year.<sup>171</sup> Ashland Fiber Network in Ashland, Oregon, (pop. 20,700) has also recorded similarly sized losses over the same three year period.<sup>172</sup> The fiber-optic network called OptiNet in Bristol, Virginia, (17,300) has posted negative net income of \$4.4 million in 2003 and \$3.3 million in 2004.<sup>173</sup>

The cost of wireless networks is lower. But because these systems are newer, less financial data is available. Scottsburg, Indiana, (pop. 6,000) has invested \$384,000 in its wireless network. Chaska, Minnesota, (pop. 18,000) has invested \$800,000 in its wireless network.<sup>174</sup> Houston County, Georgia, (pop. 120,000) has invested \$702,000 for the first year of its wireless network and expects to invest \$340,500 for each additional year of the network's service.<sup>175</sup>

These municipal systems may take years to recoup the cost of building these networks. However, what is harder to capture and what needs to be studied further by economists are the economic benefits and positive externalities that inure to local economies with ubiquitous affordable broadband access. Studies cited above indicate that, while expensive, the deployment of municipal fiber broadband networks stimulate economic growth.<sup>176</sup>

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<sup>170</sup> See *id.* at 36.

<sup>171</sup> See *id.* at 37.

<sup>172</sup> See *id.* at 39-40.

<sup>173</sup> See *id.* at 42.

<sup>174</sup> See *id.* at 29.

<sup>175</sup> See *id.*

<sup>176</sup> Ford & Koutsky, *supra* note 143, at 15; Lehr et al., *supra* note 22, at 22.

## **H. Cost of the Status Quo**

Waiting for private industry to act may be more costly than the price associated with building a public network. Communities that are not served by private providers forego economic development opportunities. These opportunities may be relocated to states with more thoughtful broadband policies or they may end up overseas in countries with more robust broadband policies.<sup>177</sup> The loss of opportunity is not limited to commercial businesses. Communities without broadband will have less effective Internet access to offer students and the medical community.<sup>178</sup>

In particular, because Nebraska has 100% public power, keeping public power providers out of the market will mean that no Nebraskan will have the ability to benefit from development in one of the most exciting technologies in the field, BPL.

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<sup>177</sup> FMEA, THE CASE FOR MUNICIPAL BROADBAND IN FLORIDA, *supra* note 102, at 3.

<sup>178</sup> *Id.*

### **Part III: Policy Suggestions**

Nebraskans who are currently without realistic broadband options need the help of their local governments, and those who have only limited and costly options need more competition in their broadband Internet Service Provider (ISP) market so that service will improve and prices will come down. As data from the Nebraska Telecommunications Association show, 44.8% of Nebraskan towns (267 towns) have a monopoly broadband provider and an additional 44 towns have no broadband service.<sup>179</sup> This problem has not been solved by the advent of satellite service. First, satellite Internet dealers are not ubiquitous and second, the average cost during the first year for satellite Internet service is over \$1,000 per household.<sup>180</sup> Thus, over 50% of communities in Nebraska are faced with often prohibitive monopolist prices for broadband service. For this underserved half, broadband access from a public provider would have inestimable personal and economic benefits and would likely bring down prices charged by private companies that offer broadband. The private sector has had a decade to provide broadband access to Nebraskans but has failed to do so. The Task Force should grapple with the possibility that commercial providers are unable or unwilling to provide universal, affordable broadband service in Nebraska.

#### **A. Repeal or Modify LB 645**

One of the few empirical studies that has been done on the impact of municipal broadband warned that “legislation restricting or precluding municipal provision of communications services reduces the overall level of competition in the market.”<sup>181</sup>

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<sup>179</sup> NTA, *Broadband Providers in Nebraska*, *supra* note 5.

<sup>180</sup> Installation and equipment for a satellite Internet system costs \$500-\$600. The average monthly fee for satellite Internet is \$50/month.

<sup>181</sup> Ford, *supra* note 92, at 9.

Therefore, we recommend that Nebraska repeal or significantly modify LB 645 to allow municipalities and public power companies the ability to provide broadband Internet services. We recommend that both municipalities and public power companies be granted the ability to offer wholesale or retail service to (1) provide service where service is unavailable and (2) provide competition where Nebraskans are facing monopolies and duopolies.

Public power providers are governed by locally elected boards and local governments are run by locally elected officials. These elected officials have the information necessary to make the policy choices of whether it is necessary or feasible for the local public entities to enter the broadband market.

Private companies from many industries large and small need broadband access to run efficiently. As the examples from Indiana above show, municipalities need the flexibility to respond to requests for broadband from local industries when private broadband providers have failed to provide this service.<sup>182</sup> LB 645 hamstrings municipalities in their ability to respond to such requests. The result may be a loss of jobs in Nebraska to those states that allow their local governments to offer broadband.

#### **B. Right-of-First-Refusal**

The Task Force may be tempted to adopt a system in Nebraska that allows public providers into the broadband market only where there are no private providers to avoid the conflict between public and private providers. This can be viewed as the “right-of-first-refusal” model.<sup>183</sup>

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<sup>182</sup> MuniWireless, No Broadband, No Jobs, *supra* note 96.

<sup>183</sup> FMEA, THE CASE FOR MUNICIPAL BROADBAND IN FLORIDA, *supra* note 102, at 7.

We do not support the use of right-of-first-refusal models. Under a right-of-first-refusal model, a public entity can only enter the broadband market if private companies are first given the opportunity to provide the service and decide not to. Only then can the municipality proceed with its own plans to deploy broadband. The right-of-first refusal model places what should be a public policy decision in the hands of private companies.

Moreover, private providers may use the right-of-first-refusal privilege to stall municipal broadband for years without developing private broadband services. For example, if a private actor is planning to deploy a system in three years, the private actor may promise deployment in one year to exercise the right-of-first-refusal. This promise keeps the public actor out of the market. By the time the public actor realizes it is an empty promise, a budgeting cycle has passed. Private actors may do this because of unexpected contingencies in their finances or strategies, or even in bad faith. Whatever the reason, the outcome is the same: the community is served by no one in the interim—neither the public nor the private provider. In the meantime, Nebraskan citizens and businesses spend more time at a competitive disadvantage with their peers in other states.

If the Task Force decides that public power providers should not be allowed into this market, the Task Force should seriously consider allowing municipalities the ability to plan their own municipal networks. Just as municipalities have made choices to invest in their infrastructures by providing sewage systems, water, electricity, libraries and schools, municipalities should also have the ability to invest in technological infrastructure such as wireless or wired broadband.

### C. Roll-Out Logistics

The U.S. Economic Development Administration offered the following five guidelines for communities that are considering building a technological infrastructure:

The practitioner should

1. Understand the characteristics of each technical option,
2. Understand the economic aspect of each technical option,
3. Appreciate the technological uncertainties of each technical option (e.g., the remaining life of an option to technological obsolescence),
4. Appreciate the economic uncertainties of each technical option (e.g., migration of businesses from one rural community to the next may have no significance under the wireless/satellite option), and
5. Understand and appreciate quantitative decision-making processes so in order to objectively establish decisions and policies on broadband technology deployment.<sup>184</sup>

We agree that this is the correct procedural process that any Nebraskan community should go through before attempting to build a broadband network.

Before rolling out any broadband project, the public entity involved should conduct surveys to test the level of interest from the local community, including the price points that are sustainable.<sup>185</sup> Another way to gauge interest in municipal broadband is to allow voters to vote on specific projects with defined price tags.<sup>186</sup>

If granted the authority to enter the broadband market, power companies and municipalities should start with small pilot projects to test the market with the services they plan to provide and to learn what unanticipated problems may develop. When pilot projects suggest that a system is unworkable, the experiment can be abandoned. If the pilot project is a success, then the public provider should expand the project to provide universal service within the jurisdiction. Vendors who help build and run a public

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<sup>184</sup> MIN ET AL., *supra* note 47, at 30.

<sup>185</sup> *Id.* at 31.

<sup>186</sup> BALHOFF & ROWE, *supra* note 49, at 27.

Internet network should be chosen by a competitive bidding process. Public providers should look for synergies to generate cost savings. For example, if the public entity will be offering a for-fee service, the public provider should run billing through an entity that already has the capacity to provide billing services such as a public utility. The public providers must hire sufficient knowledgeable staff to service and maintain their system and to provide adequate customer service.

Localities or power companies may finance broadband projects through special-issue bonds that are repaid by broadband service-related revenue or through general obligation bonds that can be repaid out of tax collections.<sup>187</sup>

One way to “level the playing field” between public and private providers is to require that the public entities offer services at or above costs.<sup>188</sup> Florida’s approach to the problem of public vs. private competition in the same marketplace was to require local governments to pay substantially the same taxes as incumbents when the local governments provide telecommunications services.<sup>189</sup>

### **Conclusions**

The Task Force has copious amounts of disparate data and arguments to sift through before making its recommendations on public provision of broadband service to the Unicameral Legislature and the Governor. Stakeholders in this debate include not only the telecommunications companies that are currently providing this service, but also public power providers, municipalities, Nebraskan businesses, and most importantly, the Nebraskan public. Although maintaining the status quo might encourage private telecommunications firms to invest in the state because they can take comfort in the

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<sup>187</sup> GILLETT ET AL., *supra* note 28, at 17.

<sup>188</sup> Rizzuto, *supra* note 131, at 27.

<sup>189</sup> FMEA, THE CASE FOR MUNICIPAL BROADBAND IN FLORIDA, *supra* note 102, at 12.

knowledge that they will not have to compete with a public provider, it will leave many Nebraskans with either no broadband service or no affordable broadband service. In a worst case scenario, Nebraskan towns may lose businesses that need high-speed Internet access to larger towns or to other states or countries. Telecommunications companies are not the only ones implicated by your policy choices; Nebraskan companies large and small depend on timely data. Communities with affordable broadband will have a competitive advantage over the communities that lack affordable broadband.

We encourage the Task Force to allow experimentation with municipal broadband in Nebraska, including public power companies providing broadband. Only a repeal or significant amendment of LB 645 would allow this flexibility.

We think broadband should be thought of as an increasingly vital infrastructure for communities and for the nation, even though there are those who argue broadband access is not a public good.<sup>190</sup> Despite the fact that the private sector has done a yeoman's job of deploying high-speed Internet service in urban areas, broadband is not ubiquitous, especially in rural communities. Furthermore, hundreds of Nebraskan communities have a sole wired broadband provider who can charge monopolist prices for that service. These problems are most acute in rural Nebraska.

These facts lead us to conclude that public entry into this market would be a welcome change for many Nebraskans. We urge the Task Force to allow local communities that know the local needs of their citizens the opportunity to decide whether they want to build a public broadband system.

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<sup>190</sup> Braden Cox, *The Viability of Municipal Wi-Fi Networks*, in NMRC, NOT IN THE PUBLIC INTEREST, *supra* note 31, at 12.

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## **Appendix 1: Contributing Organizations**

The Brennan Center for Justice at NYU School of Law, founded in 1995, unites thinkers and advocates in pursuit of a vision of inclusive and effective democracy. The Center's Free Expression Policy Project engages in research, advocacy, and litigation in the fields of media reform, intellectual property, and other issues affecting the diversity and breadth of expression available to Americans.

The mission of the Center for Rural Affairs is to establish strong rural communities, social and economic justice, environmental stewardship, and genuine opportunity for all while engaging people in decisions that affect the quality of their lives and the future of their communities.

Common Cause is a nonpartisan nonprofit advocacy organization founded in 1970 by John Gardner as a vehicle for citizens to make their voices heard in the political process and to hold their elected leaders accountable to the public interest. Now with nearly 300,000 members and supporters and 38 state organizations, Common Cause remains committed to honest, open and accountable government, as well as encouraging citizen participation in democracy.

Free Press is a national, nonpartisan organization working to reform the media and involve the public in media policymaking. Through education, organizing and advocacy, Free Press promotes diverse and independent media ownership, strong public media, and universal, affordable access to communications.

Media Access Project is a non-profit public interest law firm dedicated to protecting the public's First Amendment right to speak and hear information from a diversity of sources in the electronic media. For nearly 35 years, Media Access Project

has represented citizens groups, religious organizations, civil rights organizations, and others before the Federal Communications Commission and the federal courts on matters of media and telecommunications policy.

Nebraska Appleseed Center for Law in the Public Interest (Nebraska Appleseed) is a non-profit, non-partisan law project committed to equal justice for all Nebraskans. As with all Appleseed centers, its focus is systemic: addressing problems at their roots- such as limited access to legal representation, unfair legislation and public policy, and denial of basic rights and opportunities- rather than the symptoms. Nebraska Appleseed has a direct interest in LB 645 and broadband access in Nebraska (and more generally equal access to information by all in Nebraska), due to its work to promote laws and policies that, among other things, help low-income rural residents achieve economic self-sufficiency and to have access to online legal rights information.

The Rural Policy Research Institute (RUPRI), located within the Truman School of Public Affairs at the University of Missouri-Columbia, is a multi-state, interdisciplinary research consortium jointly sponsored by Iowa State University, the University of Missouri, and the University of Nebraska. RUPRI conducts research and facilitates dialogue designed to assist policy makers in understanding the rural impacts of public policies. To date, over 250 scholars representing 16 different disciplines in 100 universities, all U.S. states and twenty-five other nations have participated in RUPRI projects.

**Appendix 2:**  
**Nebraska Internet Access Questionnaire**

The Brennan Center for Justice at NYU School of Law, a public interest law firm, is working with Nebraskans who are concerned about the lack of high-speed Internet access in many areas of the state. Last year, the Nebraska legislature passed a law, LB 645, that bans cities, towns, and public power companies from offering Internet service. Private companies that supply Internet access lobbied for this law.

LB 645 created a Task Force to study the availability of Internet services in Nebraska, especially high-speed access (whether through cable broadband, DSL phone lines, power companies, or wireless). The Task Force could recommend that LB 645 be repealed so that Nebraskans can have broader access to Internet services. We need your input so that we can communicate the needs of Nebraskans to the Task Force. Thank you for your participation.

1. Name: \_\_\_\_\_
2. Mailing Address: \_\_\_\_\_
3. Email Address: \_\_\_\_\_
4. Phone Number: \_\_\_\_\_
5. What type of Internet service do you currently use at your home and/or work (dial-up, DSL, cable, wireless, satellite, none)?  
\_\_\_\_\_
6. What types of Internet access are available where you live and/or work?  
\_\_\_\_\_
7. How much do you pay for Internet service per month at home and/or work?  
\_\_\_\_\_
8. How much would it cost for you to upgrade to a faster Internet service at home and/or work? (For example, “for \$30 more a month I could get satellite Internet service.”)  
\_\_\_\_\_
9. Have you experienced any problems using email to receive attachments such as Word documents or pdf documents? (Describe the problems.)  
\_\_\_\_\_
10. Have you ever been unable to access newspaper webpages or other news related webpages? (Describe the webpages that could not be reached.)  
\_\_\_\_\_

11. Have you ever been unable to access government webpages? (Describe the webpages that could not be reached. For example, “www.nebraska.gov.”)

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12. Have you ever been unable to access webpages that were crucial to your job? (Describe the webpages that could not be reached. For example, “I am a farmer and I could not access usfarmnews.com”)

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13. Are you satisfied with the speed of your Internet connection at home and/or work?

<u>Home</u>	<u>Work</u>
<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> No	<input type="checkbox"/> No

14. Would you purchase broadband Internet service from your local city or town or your local power company, if it were offered in the future?

Yes  
 No

15. How much would be too much to pay for broadband Internet service?

\$20/mo  \$30/mo  \$40/mo  \$50/mo  \$60/mo  \$70/mo

16. Do you have neighbors who have broadband Internet service? (If yes, how close do they live from you in miles?)

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17. Are there any problems you attribute to having Internet service that is too slow (such as webpages crashing, webpages timing out, emails crashing, emails being delivered after long delays, inability to send or receive pictures, videos, or audio)? (If yes, please describe.)

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18. May we use your name in our submission to the LB 645 Task Force?

Yes  
 No

19. May we call you with follow-up questions about your responses?

Yes  
 No

When you have completed your questionnaire, please email it to [ciara.torres-spelliscy@nyu.edu](mailto:ciara.torres-spelliscy@nyu.edu), fax it to 212-995-4550, or mail it to Ciara Torres-Spelliscy, Brennan Center for Justice at NYU School of Law, 12th Floor, 161 Avenue of the Americas, New York, NY 10013.

Many thanks for helping in this important project.



